NVEnergy

July 30, 2013

Nevada Division of Environmental Protection
NDEP – Bureau of Corrective Actions
901 S Stewart St
Carson City, NV 89701
Attn: Alison Oakley

Dear Alison:

Subject: NV Energy
Reid Gardner Station
July 2013 Final Preliminary Source Area Identification and Characterization Report

NV Energy is pleased to provide the Final July 2013 Preliminary Source Area Identification and Characterization Report. A Document and Response to Comments Tracking Form containing responses to NDEP comments dated May 14, 2013 is also included.

Additional revisions were made to the report based on NDEP's input during the quarterly AOC meeting held on June 26, 2013. Based on a letter from NDEP to NVE dated July 15, 2013, "*The NDEP concurs with the revisions to the PSAICR as discussed during the Reid Gardner Station meeting held in Las Vegas on June 26, 2013. The Report may be finalized.*" Based on NDEP's July 15, 2013 letter, the enclosed report is considered final.

If you have any questions regarding the enclosed report, please contact me at 702-402-1319.

Sincerely,

Michael Rojo
Environmental Team Lead
Reid Gardner Station

CC: William Campbell, NDEP (electronic copy via FilesAnywhere)
Michael Rojo, NV Energy
Tony Garcia, NV Energy (two copies)
John Kivett, Arcadis
Bob Forsberg, Arcadis

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

July 15, 2013

Michael Rojo
Environmental Services, Supervisor
NV Energy
PO Box 279, MS 77
501 Wally Kay Drive
Moapa, NV 89025

Re: **NV Energy (NVE)**
Reid Gardner Station (RGS)
NDEP Facility ID #H-000530
Nevada Division of Environmental Protection Response (NDEP) to:
Draft Preliminary Source Area Identification and Characterization Report (PSAICR),
Dated: November 2012

Dear Mr. Rojo:

The NDEP has received and reviewed NVE's above-identified document dated November 2012 and the associated responses to NDEP comments, discussed in detail at the quarterly Agreement on Consent meeting held on June 26, 2013. The subject document contains NVE's summary of the potential source areas at RGS, a brief discussion of any previous work done to characterize the sources and NVE's proposed additional characterization. The comments, listed in Attachment A of NDEP's May 14 letter to NVE, were discussed in detail at the June 26, 2013 RGS Station AOC meeting held in Las Vegas, Nevada. NDEP questions and concerns were resolved.

The NDEP **concurs** with the revisions to the PSAICR as discussed at the Reid Gardner Station meeting held in Las Vegas on June 26, 2013. The Report may be finalized.

Please contact the undersigned with any questions or comments about this letter at (775) 687-9396 or aoakley@ndep.nv.gov

Sincerely,

Alison Oakley, CEM
Environmental Scientist III
Bureau of Corrective Actions
NDEP-Carson City Office
Fax: 775-687-8335

cc: Greg Lovato, Bureau of Corrective Actions, NDEP
Scott Smale, Bureau of Corrective Actions, NDEP
Todd Croft, Bureau of Corrective Actions, NDEP Las Vegas
Bill Campbell, Tribal Liaison, NDEP
Alan Tiney, Bureau of Water Pollution Control, NDEP
Carolyn Tanner, Attorney General's Office
Ebrahim Juma, Clean Water Team
Joe Leedy, Clean Water Team
Dennis Campbell, Southern Nevada Health District (campbell@snhdmail.org)
Lynn M. Cintron, Sr. Administrative Assistant, Solid Waste & Compliance, SNHD, (cintron@snhdmail.org)
Eddie Ridenour, Envi. Health Supervisor, Solid Waste & Compliance, SNHD (ridenour@snhdmail.org)
Starla Lacy, NV Energy (SLacy@nvenergy.com)
Darren Patten, NV Energy (DPatten@nvenergy.com)
Tony Garcia, NV Energy (TGarcia@nvenergy.com)
Michael Rojo, NV Energy (MRojo@nvenergy.com)
Jason Reed, NV Energy (JReed@nvenergy.com)
Becky Svatos, Stanley Consultants, Inc., (SvatosBecky@stanleygroup.com)
William Carrig, Stanley Consultants, Inc., (CarrigBill@stanleygroup.com)
John Kivett, Arcadis, (John.Kivett@arcadis-us.com)
Brad Cross, Arcadis, (Brad.Cross@arcadis-us.com)

cc: William Anderson, Moapa Band of Paiutes, Chairperson, P.O. Box 340, Moapa, NV 89025
Ian Zabarte, Moapa Band of Paiutes, Environmental Director, P.O. Box 340, Moapa, NV 89025
Noelle Gentilli, Department of Water Resources, 1416 9th Street, Room 1118, Sacramento CA 95814

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Brian Sandoval, Governor
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May 14, 2013

Michael Rojo
Environmental Services, Supervisor
NV Energy
PO Box 279, MS 77
501 Wally Kay Drive
Moapa, NV 89025

Re: **NV Energy (NVE)**
Reid Gardner Station (RGS)
NDEP Facility ID #H-000530
Nevada Division of Environmental Protection Response (NDEP) to:
Draft Preliminary Source Area Identification and Characterization Report (PSAICR),
Dated: November 2012

Dear Mr. Rojo:

The NDEP has received and reviewed NVE's above-identified document dated November 2012. The subject document contains NVE's summary of the potential source areas at RGS, a brief discussion of any previous work done to characterize the sources and NVE's proposed additional characterization. Please review and address the comments from NDEP included in Attachment A.

NDEP requests the specific comments in Attachment A be addressed and that site prioritization be added to the final version of the PSAICR prior to next quarterly meeting. NDEP has determined that Section XIII, Paragraph 6 of the Administrative Order on Consent will not apply to this November 2012 resubmittal of this Deliverable and as such no Stipulated Penalties will be pursued on this issue. Additionally, meeting minutes from September 10, 2009 states "Section XIII.6 of the AOC indicates that if NVE submits a deliverable to NDEP a second time and it still is not approved, this indicates NVE is being unresponsive and stipulated penalties apply. NDEP has provided a second round of comments on the PSAICR; some of which are new; therefore, penalties will not be pursued."

Please contact the undersigned with any questions or comments about this letter at (775) 687-9396 or aoakley@ndep.nv.gov

Sincerely,

Alison Oakley, CEM
Environmental Scientist III
Bureau of Corrective Actions
NDEP-Carson City Office
Fax: 775-687-8335

ec: Greg Lovato, Bureau of Corrective Actions, NDEP
Scott Smale, Bureau of Corrective Actions, NDEP
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Brad Cross, Arcadis, (Brad.Cross@arcadis-us.com)

cc: William Anderson, Moapa Band of Paiutes, Chairperson, P.O. Box 340, Moapa, NV 89025
Ian Zabarte, Moapa Band of Paiutes, Environmental Director, P.O. Box 340, Moapa, NV 89025
Noelle Gentilli, Department of Water Resources, 1416 9th Street, Room 1118, Sacramento CA 95814

ATTACHMENT A

In general, the PSAICR was well organized and provided a useful summary of the current state of knowledge of reported sources at the site. The review is presented in two parts: general comments on the approach and remedial strategy used to prepare the report and specific comments related to specific sections for individual source areas.

General Comments

Source Area Ranking- As mentioned by NDEP in discussions related to the document, a relative ranking of the individual sources, based on the potential impacts to receptors, primarily through ground water transport is needed. This will provide a basis for future discussion and eventual agreement among the parties on which sources require additional characterization and/or remediation and the appropriate priority for addressing the sources. NDEP suggests the following ranking criteria:

- potential pathways of contamination to receptors,
- observed impacts to groundwater,
- continuing source of contamination,
- likelihood of future impacts to groundwater,
- unknown impacts to groundwater and unknown groundwater conditions, and
- Chemicals of Concern (CoCs).

Based on the above criteria, NDEP proposes an A-C priority ranking system:

A- High priority source areas
- Probable pathways to receptors (e.g. Muddy River) are present
- Current known significant impacts to groundwater
- Continuing source of groundwater contamination can be demonstrated or is probable.
- Address these areas first

B- Medium priority source areas:
- Possible or potential pathway to receptors is present.
- Impacts to groundwater are present or unknown/ground water conditions unknown.
- Continuing source may be present.
- Address these areas as resources become available.

C- Low priority source areas:
- High likelihood that contamination from source will not reach groundwater, pathways to receptors unlikely.
- Source demonstrated to not currently impact groundwater.
- Source release demonstrated or very likely is not continuing.
- De minimums or remediated source.
- Address these areas after A and B priorities are addressed.

Contaminated Material left in place - Contaminated materials have been removed from many of the former ponds to the depth of the current water table, but materials below the water table that may have been impacted by the downward percolation of high TDS brines have been left in place. These materials may act as a continuing source of contamination to groundwater within the foot print of the old pond areas. Additional effort to locate and remediate high TDS sources in saturated sediments beneath the water table may help to shorten the lifespan of the overall remedial efforts, reducing the long term exposure to sensitive receptors via ground water and reducing long term remediation costs for NV Energy.

Groundwater Characterization - Most of the additional groundwater characterization is put into "site-wide groundwater characterization". Grouping all the groundwater into one site-wide category is too broad. The NDEP agrees that groundwater does not need to be evaluated on a source-specific basis; however, groundwater needs to be evaluated in source-grouped areas, such as the pond area, mesa area, fuel-impacted area, etc.

Plant Coal Source - Please provide a brief discussion of the source and composition of the coal for the power plant. The discussion should include the source of the coal and whether the source of the coal and/or coal producing basin has changed significantly during the life of the plant.

Other Potential Source Areas -The area to the south of former pond D and pond E-1 is significantly discolored on aerial photographs, suggesting spills or leakage of liquids from the ponds to the surface to the south. Please provide investigative data relating the area and vertical extent of soil impacts in the area or a work plan for future investigation.

Waste Stream Analysis - Please include a summary table of analysis for typical disposal products generated by the facility during normal operation or reference the appropriate information from the site-related chemicals document. Please include fly ash, bottom ash, slag, scrubber effluent and reactivator solids accordingly.

<u>Specific Section Comments:</u>

Section 2 -Identify the EPA region PRG's referenced in the table.

4.1.1.3 – Agree with conclusions, with the possible exception of volatile organic compounds (VOCs). Please specify which types of VOCs are present. Depending on the source loading and volume of VOCs present, 100 ft of vadose zone may not be protective of groundwater. Continue to monitor downgradient wells, especially KMW-16 and LMW- 6R for VOCs discovered in soil gas and breakdown daughter products.

4.1.2.3- Based on the information provided, NDEP concurs with the conclusions and recommendations.

4.1.3.3- NDEP generally concurs with the conclusions. Please continue to monitor LMW-5R for all CoCs including VOCs.

4.1.4.3- Based on the information provided, NDEP concurs with the conclusions and recommendations.

4.1.5.3- NDEP concurs with the conclusions.

4.1.6.3- Please continue to monitor downgradient wells LMW-4R and KMW-12 for PAHs and VOCs.

4.1.7.3- High concentrations of TCE and relatively significant concentrations of PCE in soil suggest impacts to groundwater may be possible. Please continue to monitor downgradient wells P-7R, P-6R, P-5R and KMW-8R for VOCs and PAHs on a quarterly basis.

4.1.8.3- NDEP concurs with the conclusions and recommendations.

4.1.9.3- NDEP concurs with the conclusions and recommendations.

4.1.10.3- NDEP concurs with the conclusions and recommendations.

4.2.1.3- The likely source of disposal based on historical aerial photography is approximately 250 ft WNW of KMW-19. NDEP generally concurs with conclusions and recommendations.

4.2.2.3- When ponds 4C-1 and 4C-2 are decommissioned solids from beneath the liners should be excavated and removed to historic ground water levels for proper disposal. Additional ground water monitoring wells in the area are recommended to better characterize ground water within the pond footprint area.

4.2.3.3- The MSDS and/or the CoCs present in Betz COR-TROL should be provided.

4.2.4.3- Current groundwater information from the site suggests that a continuing source of contamination may be present in the former pond area. The subsurface clay walls left in place after the demolition of the ponds may have trapped brine below the water table that may have been left in place following removal of the material above the water table. A shallow well approximately 800 ft north of P8-R is recommended to help determine if additional remedial action is needed in the area (also see general discussion on contaminated material left in place).

4.2.5- Indicate in this section that the "E" Ponds have a leak detection system in place.

4.2.5.3- The lateral leakage through the dike walls has been evaluated but the vertical leakage and subsequent impacts noted in groundwater have not been thoroughly evaluated. The NDEP understand that lateral leakage will be assessed as a geologic data gap.

4.2.6.3- NDEP generally concurs that solids should be removed to the water table. Sources beneath the water table should be further investigated and possibly remediated to address potential and continuing sources of groundwater contamination (See general discussion on source removal).

4.2.7.3- NDEP concurs with the conclusions and recommendations.

4.3.1.3- NDEP concurs with the conclusions and recommendations.

4.3.2.2- Check the maximum detected value for TCE listed on Table 4-36 and revise. Values stated in the text are higher than the 4.5 ug/L maximum value reported on the table.

4.3.2.3 The extremely high concentration of p-Isopropyltoluene that appears to have been left in soil at the source is a significant concern. Provide additional data to support that the 4-Isopropyltolune detected in groundwater is a reliable indicator of contamination from p-Isopropyltoluene.

4.3.3.3- According to the text the UST contained gasoline. Please provide an explanation of why GRO, BTEX, or MTBE analyses were not performed on the soil samples.

4.3.4.3- NDEP concurs with the conclusions and recommendations.

4.3.5.3- NDEP concurs with the conclusions and recommendations.

4.3.6- Many separate and related sources are covered under this evaluation, making it difficult to determine which source or source(s) was the cause of the diesel free product release. The PSAICR should attempt to focus the likely release points of the free product diesel plume. This effort will support appropriate development of a work plan.

NDEP concurs that remediation of the diesel fuel plume should continue.

4.3.7.3- NDEP concurs with the conclusions. NDEP recommendations an engineering safety evaluation of the free product recovery system by a qualified environmental engineer to minimize the risk of future releases from the system.

4.3.8.3- Significant levels of MTBE were found in soil for the source area. MTBE was not analyzed in groundwater samples during the investigation. Please analyze future groundwater samples from HM-42 for MTBE.

4.4.1.3- NDEP concurs with the conclusions and recommendations.

4.4.2.3- Bullet 2-Site specific impacts from SA-2 could be determined by installing groundwater monitoring wells directly upgradient of the potential source.

4.4.3.3- Bullet 2-Site specific impacts from SA-3 may be more effectively evaluated by installing groundwater monitoring wells directly upgradient of the potential source.

4.4.4 – There does not appear to be any investigation of the northern coal pile area. NDEP recommends evaluating the North and South coal piles as separate area/sources. Please discuss the source of TPH in soil at the south coal pile.

4.4.5.3- NDEP concurs with the conclusions and recommendations.

4.4.6.3- NDEP concurs with the conclusions and recommendations.

4.4.7.3- NDEP generally concurs with the conclusions and recommendations. Future soil sampling should be compared to background (see general discussion on soil background) as well as regulatory limits to assess the potential impacts to the soil under the pond.

4.4.8.3- The soil investigation was not sufficient because no analyses were performed of any soil samples. An appropriate study would be based on analytical data rather than visual information. Conclusions on potential impacts to groundwater may not be valid without valid soil data. The PSAICR should address this issue.

4.4.9.3- NDEP concurs with the conclusions and recommendations.

4.5- Multiple disparate potential sources were lumped into a single section with a single set of recommendations. Based on the information presented, each of the potential sources should be evaluated and addressed separately. NDEP generally concurs with the conclusions and recommendations but suggests more consideration for each of the individual potential sources.

Appendix D- Potential Source Area Summary:

Table General: Tables are often taken out of reports and used as stand-alone documents. NDEP suggests that the recommendations on the table better reflect the recommendations stated in Section 4 of the report.

Table General: Recommendations for the Source Area site-wide groundwater characterization are too broad. See general comments above.

Table Page 2, PA-2 Recommendation: NDEP would like the recommendation for soil framed in terms of defining the vertical extent of contamination.

Table Page 2, PA-3 Recommendation: Expand the discussion about the interceptor trench and pumping well to include some of the historic information contained on page 4-37 of report.

Table Page 3, PA-7 Recommendation: Update Pond F recommendation to reflect current status of the pond.

Table Page 4, SA-10 Recommendation: VOCs, including TCE, are chemicals of concern for this source area that have not been fully investigated.

November 15, 2012

Nevada Division of Environmental Protection
NDEP – Bureau of Corrective Actions
901 S Stewart St
Carson City, NV 89701
Attn: Alison Oakley

Dear Alison:

Subject: NV Energy
Reid Gardner Station
November 2012 Revised Draft Preliminary Source Area Identification and Characterization Report

NV Energy is pleased to provide the November 2012 Revised Draft Preliminary Source Area Identification and Characterization Report. A Document and Response to Comments Tracking Form containing responses to NDEP comments dated May 17, 2011 is also included.

If you have any questions regarding the enclosed report, please contact me at 702-402-1319.

Sincerely,

Michael Rojo
Environmental Team Lead
Reid Gardner Station

CC: William Campbell, NDEP (electronic copy via FilesAnywhere)
Shannon Harbour, NDEP
NVE Coordinator, NDEP (Las Vegas Office)
Michael Rojo, NV Energy
Tony Garcia, NV Energy (two copies)
John Kivett, Arcadis
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Colleen Cripps, Ph.D., Administrator

May 17, 2011

Michael Rojo
Environmental Services, Supervisor
NV Energy
PO Box 279, MS 77
501 Wally Kay Drive
Moapa, NV 89025

Re: **NV Energy (NVE)**
Reid Gardner Station (RGS)
NDEP Facility ID #H-000530
Nevada Division of Environmental Protection Response (NDEP) to:
Draft Preliminary Source Area Identification and Characterization Report, Administrative Order on Consent Activities, NV Energy, Reid Gardner Station
Dated: February 2011

Dear Mr. Rojo:

The NDEP has received and reviewed NVE's above-identified Deliverable. A revised Deliverable should be submitted based on the comments found in Attachment A. Please advise the NDEP regarding the schedule for this resubmittal. NVE should additionally provide an annotated response-to-comments letter as part of the Revised Deliverable submittal.

Please contact the undersigned with any questions or comments about this letter at 775-687-9332 or sharbour@ndep.nv.gov.

Sincerely,

Shannon Harbour, P.E.
Staff Engineer III
Bureau of Corrective Actions
Special Projects Branch
NDEP-Carson City Office
Fax: 775-687-8335

SH:sh

ec: Jim Najima, Chief, Bureau of Corrective Actions, NDEP
Greg Lovato, Bureau of Corrective Actions, NDEP
William Knight, Bureau of Corrective Actions, NDEP

Lina Tanner, AG Office
Tansey Smith, Tribal-State Environmental Liaison, NDEP
Nadir Sous, Bureau of Water Pollution Control, NDEP
Jeryl Gardner, Bureau of Water Pollution Control, NDEP
Alan Tiney, Bureau of Water Pollution Control, NDEP
Valerie King, Bureau of Water Pollution Control, NDEP
Tracy Taylor, Division of Water Resources
Carolyn Tanner, Attorney General's Office
Ebrahim Juma, Clean Water Team
Joe Leedy, Clean Water Team
Kathryn Hoffmann, Clean Water Team
Dennis Campbell, Southern Nevada Health District
Walter Ross, Southern Nevada Health District
Starla Lacy, NV Energy
David Sharp, NV Energy
Tony Garcia, NV Energy
Jason Reed, NV Energy
Becky Svatos, Stanley Consultants, Inc.
William Carrig, Stanley Consultants, Inc.
John Kivett, Arcadis

cc: William Anderson, Moapa Band of Paiutes, Chairperson, P.O. Box 340, Moapa, NV 89025
Ian Zabarte, Moapa Band of Paiutes, Environmental Director, P.O. Box 340, Moapa, NV 89025
Noelle Gentilli, Department of Water Resources, 1416 9th Street, Room 1118, Sacramento CA 95814

Attachment A

1. Section 4, Potential Source Areas, please add a sub-section to each potential source area section for the identification of contaminants of concern for the respective potential source area and includes discussion of analytical results and an evaluation against applicable comparison values.
2. Section 4.1.7, MA-7 – Landfill Used for Industrial and Non-Industrial Waste (WMU-7), even though WMU-7 is being investigated separately under the Administrative Order on Consent as a sub-area, please document MA-7 similar to the other area sections for consistency and completeness of this document.
3. Appendix D, Potential Source Area Summary Table, please add the following columns
   a. Contaminants of concern identified for each potential source area.
   b. Report section number containing discussion of referenced source area.
   c. Recommendation for additional work.
4. Appendix E, data tables should be complete and be submitted in a searchable and sortable electronic format.

February 28, 2011

Nevada Division of Environmental Protection
NDEP – Bureau of Corrective Actions
901 S Stewart St
Carson City, NV 89701
Attn: Shannon Harbour

Dear Shannon:

Subject: NV Energy
Reid Gardner Station
February 2011 Draft Preliminary Source Area Identification and Characterization Report

NV Energy is pleased to provide one (1) copy of the February 2011 Draft Preliminary Source Area Identification and Characterization Report.

If you have any questions regarding the enclosed report, please contact me at 702-402-1319.

Sincerely,

Michael Rojo
Environmental Team Lead
Reid Gardner Station

CC: Tansey Smith, NDEP (electronic copy via FilesAnywhere)
NVE Coordinator, NDEP (Las Vegas Office)
Michael Rojo, NV Energy
Tony Garcia, NV Energy (two copies)
John Kivett, Arcadis
Bob Forsberg, Arcadis

Document and Response to Comments Tracking Form
NV Energy – Reid Gardner Station
Administrative Order On Consent Implementation

Document Title Draft Preliminary Source Area Identification and Characterization Report, Administrative Order on Consent Activities, NV Energy, Reid Gardner Station

Preparer Stanley Consultants

Draft #1

To NDEP

From NV Energy

Submittal Date February 2011

Comment Date May 17, 2011

Response Date November 16, 2012

Commenter Shannon Harbour, P.E

Responder Mike Rojo

Comment #1

Section 4, Potential Source Areas, please add a sub-section to each potential source area section for the identification of contaminants of concern for the respective potential source area and include discussion of analytical results and evaluation against applicable comparison levels.

Response #1

Section 4 was revised to include a subsection for each potential source area identifying Site Related Chemicals (SRCs). Where applicable, tables summarizing the analytical results and evaluation against applicable comparison levels were provided.

Comment #2

Section 4.1.7 MA-7 – Landfill Used for Industrial and Non-Industrial Waste (WMU-7), even though WMU-7 is being investigated separately under the Administrative Order on Consent as a sub-area, please document MA-7 similar to the other area sections for consistency and completeness of this document.

Response #2

Section 4.1.7 was revised to document MA-7 similar to the other source areas. Additionally, figures and tables related to MA-7 have been added to Appendicies A and E, respectively.

Comment #3

Appendix D, Potential Source Area Summary Table, please add the following columns:

a. Contaminants of concern identified for each potential source area.
b. Report section number containing discussion of referenced source area.
c. Recommendation for additional work.

Response #3

Appendix D, Potential Source Area Summary Table has been revised to include the following columns: Site Related Chemical Category, Report Section Number, and Recommendation.

Comment #4

Appendix E, data tables should be complete and be submitted in a searchable and sortable electronic format.

Response #4

Appendix E data tables were uploaded onto FilesAnywhere in a searchable and sortable electronic format (Microsoft Excel).

Draft #2

To NDEP

From NV Energy

Submittal Date November 16, 2012

Comment Date May 14, 2013

Response Date July 30, 2013

Commenter Alison Oakley

Responder Mike Rojo

General Comment #1

Source Area Ranking- As mentioned by NDEP in discussions related to the document, a relative ranking of the individual sources, based on the potential impacts to receptors, primarily through ground water transport is needed. This will provide a basis for future discussion and eventual agreement among the parties on which sources require additional characterization and/or remediation and the appropriate priority for addressing the sources. NDEP suggests the following ranking criteria:

- *potential pathways of contamination to receptors,*
- *observed impacts to groundwater,*
- *continuing source of contamination,*

• likelihood of future impacts to groundwater,
• unknown impacts to groundwater and unknown groundwater conditions, and
• Chemicals of Concern (CoCs).

Based on the above criteria, NDEP proposes an A-C priority ranking system:

A- High priority source areas
• Probable pathways to receptors (e.g. Muddy River) are present
• Current known significant impacts to groundwater
• Continuing source of groundwater contamination can be demonstrated or is probable.
• Address these areas first

B- Medium priority source areas:
• Possible or potential pathway to receptors is present.
• Impacts to groundwater are present or unknown/ground water conditions unknown.
• Continuing source may be present.
• Address these areas as resources become available.

C- Low priority source areas:
• High likelihood that contamination from source will not reach groundwater, pathways to receptors unlikely.
• Source demonstrated to not currently impact groundwater.
• Source release demonstrated or very likely is not continuing.
• De minimums or remediated source.
• Address these areas after A and B priorities are addressed.

Response to General Comment #1

The Potential Source Areas section of the Executive Summary was revised, as follows:

"For each potential source area, available historical information as well as available soil and groundwater data was reviewed and summarized. Based on the available information, a recommendation is made regarding the need for further soil and/or groundwater characterization for each potential source area. Potential source areas that are characteristically, hydrogeologically and geographically similar have been grouped together for the purpose of prioritizing groundwater characterization phase activities across the Station. For the purpose of this report, four groundwater groupings have been determined; Mesa Area Groundwater, Ponds Area Groundwater, Petroleum Area Groundwater, and North Station Area Groundwater. These groupings are preliminary and are subject to change as further information is gathered during the Conceptual Site-Wide Model (CSM) process. This process is discussed further in Section 2.1 of this Report. Recommendations were also made to further characterize many of the potential source areas on a source-specific basis. These recommendations are summarized below on Table ES-1.

Four potential source areas have been adequately characterized for the purposes of the source area identification and characterization process (e.g., no further soil or groundwater characterization is recommended). In the future, NVE may request No Further Investigation or No Further Action determinations from NDEP for these source areas by submitting reports that summarize source area data and describe the rationale for demonstrating that no further investigation or remediation is required at that source area.

Additionally, NVE prioritized each of the potential source areas for planning of further characterization at the Station. General criteria used for this prioritization are as follows:

- Proximity/potential pathways of contamination to receptors,
- Current impacts to groundwater,
- Likelihood of future impacts to groundwater,
- Continuing source of contamination,
- Chemicals of Concern (CoCs).

Using these criteria, NVE identified five potential source areas as "high priority". These potential source areas were assigned an "A" priority. Seven source areas were identified as "medium priority" and were assigned a "B" priority. The remaining 23 potential source areas were identified as "low priority" and were assigned a "C" priority. These assigned priorities are preliminary and are subject to change as further information is gathered during the CSM process.

Additionally, Table ES-1 and Table 5-1 were revised to include potential source area priorities. The tables were also revised to clarify that groundwater characterization will be evaluated in source-grouped areas. This is discussed further in the response to General Comment #3.

General Comment #2

Contaminated Material left in place - Contaminated materials have been removed from many of the former ponds to the depth of the current water table, but materials below the water table that may have been impacted by the downward percolation of high TDS brines have been left in place. These materials may act as a continuing source of contamination to groundwater within the foot print of the old pond areas. Additional effort to locate and remediate high TDS sources in saturated sediments beneath the water table may help to shorten the lifespan of the overall remedial efforts, reducing the long term exposure to sensitive receptors via ground water and reducing long term remediation costs for NV Energy.

Response to General Comment #2

NVE recognizes that there may be a secondary source of groundwater contamination left in place in many of the former pond areas. Further characterization in these areas will be discussed in future source-area-specific work plans. Additionally, a comparison of soil

data to background soil levels, once established, will be conducted in coordination with this effort The recommendations now include further soil characterization for the pond source areas (PA-2, 3, 5, 6, and 7).

General Comment #3

Groundwater Characterization - Most of the additional groundwater characterization is put into "site-wide groundwater characterization". Grouping all the groundwater into one site-wide category is too broad. The NDEP agrees that groundwater does not need to be evaluated on a source-specific basis; however, groundwater needs to be evaluated in source-grouped areas, such as the pond area, mesa area, fuel-impacted area, etc.

Response to General Comment #3

NVE recognizes that because groundwater has been impacted by multiple source areas and the plumes would be difficult to characterize separately, site-wide groundwater will be investigated as one or more sub-areas under the AOC. The following wording was added to the Potential Source Areas section of the Executive Summary to provide better clarification:

"Potential source areas that are characteristically, hydrogeologically and geographically similar have been grouped together for the purpose of prioritizing groundwater characterization phase activities across the Station. For the purpose of this report, four groundwater groupings have been determined; Mesa Area Groundwater, Ponds Area Groundwater, Petroleum Area Groundwater, and North Station Area Groundwater. These groupings are preliminary and are subject to change as further information is gathered during the Conceptual Site-Wide Model (CSM) process. This process is discussed further in Section 2.1 of this Report. Recommendations were also made to further characterize many of the potential source areas on a source-specific basis. These recommendations are summarized below on Table ES-1."

General Comment #4

Plant Coal Source - Please provide a brief discussion of the source and composition of the coal for the power plant. The discussion should include the source of the coal and whether the source of the coal and/or coal producing basin has changed significantly during the life of the plant.

Response to General Comment #4

The following wording was added to Section 3.1 of the report: "The primary source of coal for all units at the Station has been from coal mines in the Uinta Basin located in Utah and portions of Colorado until 2009. Since that time, some coal obtained from mines in the Powder River Basin, Wyoming has been blended and used in Units 1-3 only."

General Comment #5

Other Potential Source Areas -The area to the south of former pond D and pond E-1 is significantly discolored on aerial photographs, suggesting spills or leakage of liquids from the ponds to the surface to the south. Please provide investigative data relating the area and vertical extent of soil impacts in the area or a work plan for future investigation.

Response to General Comment #5

There are no soil or groundwater data available for this area. The subject area will be addressed as part of further investigation of former Ponds D, E, F, and G (PA-5 to PA-7). Impacts in this area could be due to naturally occurring elevated parameter concentrations, as well as plant impacts. A source-area-specific work plan describing NVE's proposed characterization in this area will be provided to NDEP for review. No additional wording was included in the report to address this comment.

General Comment #6

Waste Stream Analysis - Please include a summary table of analysis for typical disposal products generated by the facility during normal operation or reference the appropriate information from the site-related chemicals document. Please include fly ash, bottom ash, slag, scrubber effluent and reactivator solids accordingly.

Response to General Comment #6

The following wording was added to Section 2.1 to clarify that SRCs were determined for each potential source area based on a review of available documents in the encyclopedia including Material Safety Data Sheets (MSDS) and laboratory data:

"In determining the SRCs for each potential source area, Material Safety Data Sheets (MSDSs) and laboratory data, where available, were reviewed for waste streams and other discharges generated at the facility including fly ash, bottom ash, process wastewater (pre- and post-scrubber installation), pond solids (flyash with salts), water treatment solids (calcium oxide/dioxide), cooling tower blowdown, and general solid wastes. If a parameter suite (e.g., volatile organic compounds [VOCs], metals, etc.) was determined to be present in a waste material or discharge that contributed to a potential source area, that parameter suite was included in the list of SRCs associated with that particular source area."

Parameter suites present in waste streams will be included in future characterization efforts.

Comment #1

Section 2 -Identify the EPA region PRG's referenced in the table.

Response #1

Section 2.4 was revised to clarify that Region 9 screening levels are being used and states "According to EPA Region 9, the Region 9 PRGs have been harmonized with similar

risk-based screening levels used by Regions 3 and 6 into a single table. These screening levels dated November 2011 are also used for comparison purposes." A link to the EPA screening levels was also added to the references in Section 6.

Comment #2

4.1.1.3 — Agree with conclusions, with the possible exception of volatile organic compounds (VOCs). Please specify which types of VOCs are present. Depending on the source loading and volume of VOCs present, 100 ft of vadose zone may not be protective of groundwater. Continue to monitor downgradient wells, especially KMW- 16 and LMW- 6R for VOCs discovered in soil gas and breakdown daughter products.

Response #2

Section 4.1.1.2 was revised to state "Soil vapor sampling was conducted in 1999 by Black & Veatch as part of a Phase II ESA. VOCs were detected in soil vapor collected from three borings in MA-1. Results from this sampling are included in Table E-2 and included primarily Freon 12, chloromethane, Freon 11, 1,1-dichloroethene, Freon 113, methylene chloride, 1,1-dichloroethane, 1,1,1,-trichloroethane, toluene, tetrachloroethene, acetone, and 2-butanone (MEK). No soil sampling data was identified in available documents relative to MA-1."

Section 4.1.1.3 was revised to state "Groundwater beneath MA-1 will be included in Mesa Area groundwater characterization efforts and will include VOC sampling in selected wells."

VOCs are not currently monitored in KMW-16, LMW-6R, or the other monitoring wells located on the mesa. NDEP's request to include VOC monitoring in these wells will be addressed in a separate source-area-specific work plan that will include the proposed parameter list, frequency and duration of the monitoring and other project-specific details.

Comment #3

4.1.2.3- Based on the information provided, NDEP concurs with the conclusions and recommendations.

Response #3

Comment noted.

Comment #4

4.1.3.3- NDEP generally concurs with the conclusions. Please continue to monitor LMW-5R for all CoCs including VOCs.

Response #4

LMW-5R is currently monitored semi-annually for arsenic, beryllium, boron, cadmium, calcium, chromium, magnesium, manganese, molybdenum, nickel, potassium, selenium, sodium, titanium, vanadium, TDS, chloride, nitrate, sulfate, and specific conductance.

VOCs are not routinely monitored in LMW-5R. NDEP's request to monitor additional parameters in this monitoring well will be addressed in a separate source-area-specific work plan. No additional wording was added to the report to address this comment.

Comment #5

4.1.4.3- Based on the information provided, NDEP concurs with the conclusions and recommendations.

Response #5

Comment noted.

Comment #6

4.1.5.3- NDEP concurs with the conclusions.

Response #6

Comment noted.

Comment #7

4.1.6.3- Please continue to monitor downgradient wells LMW-4R and KMW-12 for PAHs and VOCs.

Response #7

The last paragraph of Section 4.1.7.2. states that "…monitoring well KMW-12 (immediately down-gradient of MA-7) was sampled on November 18, 2010 to evaluate whether contaminants in the WMU-7 area that exceed the NDEP LBCL (DAF 20) have leached to groundwater at levels of concern. KMW-12 was sampled and analyzed for aluminum, antimony, copper, iron, PAHs, and VOCs. These results are summarized in Table 4-11. None of these parameters were detected in the groundwater at concentrations in excess of screening levels."

PAHs and VOCs are not part of the regular monitoring program at LMW-4R, KMW-12, or the other monitoring wells on the mesa. NDEP's request to include VOC and PAH monitoring in these wells will be addressed in a separate source-area-specific work plan that will include the proposed parameter list, frequency and duration of the monitoring and other project-specific details. No additional wording was added to the report to address this comment.

Comment #8

4.1.7.3- High concentrations of TCE and relatively significant concentrations of PCE in soil suggest impacts to groundwater may be possible. Please continue to monitor downgradient wells P-7R, P-6R, P-5R and KMW-8R for VOCs and PAHs on a quarterly basis.

Response #8

The NDEP-approved Final WMU-7 Sampling and Analysis Report dated September 2011 states "The model VLEACH was used to evaluate the potential impact to groundwater of trichloroethene and tetrachloroethene leaching from the WMU-7 soils within the apparent footprint of buried debris. This site-specific, VOC-specific unsaturated zone modeling was used to demonstrate that VOCs are not expected to leach to groundwater at levels of concern." This wording was added to Section 4.1.7.2 of this report. Additionally, monitoring well KMW-12 was sampled on November 18, 2010, and the sample was analyzed for VOCs to evaluate whether these parameters have leached to groundwater at levels of concern. VOCs were not detected in this groundwater sample.

Routine monitoring at the site is currently conducted on a semi-annual basis, as opposed to quarterly. VOCs and PAHs are not part of the regular monitoring program at P-7R, P-6R, P-5R and KMW-8R. NDEP's request to include VOC and PAH monitoring in these wells will be addressed in a separate source-area-specific work plan that will include the proposed parameter list, frequency and duration of the monitoring and other project-specific details. No additional wording was added to the report to address this comment.

Comment #9

4.1.8.3- NDEP concurs with the conclusions and recommendations.

Response #9

Comment noted.

Comment #10

4.1.9.3- NDEP concurs with the conclusions and recommendations.

Response #10

Comment noted.

Comment #11

4.1.10.3- NDEP concurs with the conclusions and recommendations.

Response #11

Comment noted. The recommendation was changed from this source area included in site-side groundwater characterization to further groundwater characterization of this source to be included in the Ponds Area groundwater grouping.

Comment #12

4.2.1.3- The likely source of disposal based on historical aerial photography is approximately 250 ft WNW of KMW-19. NDEP generally concurs with conclusions and recommendations.

Response #12

Comment noted. NVE is considering this area while investigating possible sources of high TDS in the Hogan Wash; however, visual impacts, such as evaporate accumulation, are not apparent. No additional wording was added to the report to address this comment. Further soil and groundwater characterization is planned in this area, the details of which will be provided in a future source-area-specific work plan.

Comment #13

4.2.2.3- When ponds 4C-1 and 4C-2 are decommissioned solids from beneath the liners should be excavated and removed to historic ground water levels for proper disposal. Additional groundwater monitoring wells in the area are recommended *to better characterize ground water within the pond footprint area*.

Response #13

Comment noted. A Ponds C1/C2 Solids Removal Work Plan will be submitted to NDEP for approval prior to solids removal and sampling activities. NV Energy installed additional monitoring well clusters in the C1/C2 area as part of a source-area-specific work plan in the 1st Quarter 2013. The need for additional lateral or vertical delineation in this area will be evaluated in part based on data collection from these wells. No additional language was added to the report to address this comment.

Comment #14

4.2.3.3- The MSDS and/or the CoCs present in Betz COR-TROL should be provided.

Response #14

The material safety data sheet is attached to this Response to Comments Tracking Form for your reference, but has not been added to the report.
The following text was added to Section 4.2.3: "Betz Cor-Trol 778P contains between one and five percent hydroquinone. It is normally used as a dissolved oxygen scavenger/metal passivator. No further information is available on this chemical or its use at the Station. However, it could have ultimately ended up in the pond. Based on the large pond capacity, it seems unlikely that concentrations of this chemical would have approached the aquatic toxicology LC50 of 8.2 mg/L provided in the MSDS for fathead minnows. There are no Nevada-approved analytical methods for hydroquinone. NVE submitted a letter to NDEP on August 27, 2009, requesting that hydroquinone (among other parameters) be excluded from AOC sampling activities at the Station. This request was approved by the NDEP on October 13, 2009."

Comment #15

4.2.4.3- Current groundwater information from the site suggests that a continuing source of contamination may be present in the former pond area. The subsurface clay walls left in place after the demolition of the ponds may have trapped brine below the water table that may have been left in place following removal of the material above the water table. A shallow well approximately 800 ft north of P8-R is recommended to help determine if

additional remedial action is needed in the area (also see general discussion on contaminated material left in place).

Response #15

Comment noted. NVE will obtain NDEP concurrence prior to installation of additional monitoring wells at the site. No additional language was added to the report to address this comment.

Comment #16

4.2.5- Indicate in this section that the "E" Ponds have a leak detection system in place.

Response #16

The 11th paragraph of Section 4.2.5 was revised to state that Ponds E1 and E2 are equipped with an interstitial leak-detection and collection system.

Comment #17

4.2.5.3- The lateral leakage through the dike walls has been evaluated but the vertical leakage and subsequent impacts noted in groundwater have not been thoroughly evaluated. The NDEP understand that lateral leakage will be assessed as a geologic data gap.

Response #17

Comment noted. NVE will obtain NDEP concurrence prior to conducting field work to address geologic and/or source area data gaps. No additional language was added to the report to address this comment.

Comment #18

4.2.6.3- NDEP generally concurs that solids should be removed to the water table. Sources beneath the water table should be further investigated and possibly remediated to address potential and continuing sources of groundwater contamination (See general discussion on source removal).

Response #18

The following wording was added to Section 4.2.6:
"In December 2011, Pond F was taken out of active service by discontinuing the discharge of station effluents to the pond, re-routing the discharges to other station ponds, and pumping the existing water out of the pond to nearly empty. On January 14, 2013, the NDEP Bureau of Water Pollution Control (BWPC) granted closure for Pond F with respect to NVE's NDEP-BWPC Discharge Permit No. NEV91022."
A Pond F Solids Removal Work Plan was submitted to the NDEP in November 2012 and was approved on December 12, 2012. On January 8, 2013, NVE proposed to sample underlying soils following the pond solids removal at four discrete locations for selected parameters. NDEP approved the proposed sampling on January 17, 2013. Solids removal and sampling activities that took place in December 2012 and January 2013 will

be described in a Pond F Solids Removal Completion Report to be submitted to the NDEP."
With respect to further investigation of sources beneath the water table, this can be addressed in a future source-area-specific work plan. The conclusions and recommendations in Section 4.2.6.3 have been revised to indicate that further source-specific soil characterization is recommended.

Comment #19

4.2.7.3- NDEP concurs with the conclusions and recommendations.

Response #19

Comment noted.

Comment #20

4.3.1.3- NDEP concurs with the conclusions and recommendations.

Response #20

Comment noted.

Comment #21

4.3.2.2- Check the maximum detected value for TCE listed on Table 4-36 and revise. Values stated in the text are higher than the 4.5 ug/L maximum value reported on the table.

Response #21

Table 4-36 was revised to reflect a maximum TCE concentration of 64µg/L.

Comment #22

4.3.2.3 The extremely high concentration of p-Isopropyltoluene that appears to have been left in soil at the source is a significant concern. Provide additional data to support that the 4-Isopropyltolune detected in groundwater is a reliable indicator of contamination from p-Isopropyltoluene.

Response #22

The recommendations were changed to include further characterization of soils in this area. The report was clarified in applicable locations to indicate that 4-Isopropyltoluene is the same as p-Isopropyltoluene.

Comment #23

4.3.3.3- According to the text the UST contained gasoline. Please provide an explanation of why GRO, BTEX, or MTBE analyses were not performed on the soil samples.

Response #23

This report summarizes available historical data. Based on data provided in Table E-25, GRO, BTEX and MTBE analyzed in RB-16 and were not detected. There are no other GRO, BTEX or MTBE analyses available in this area; therefore, the recommendation was changed to indicate further soil characterization.

Comment #24

4.3.4.3- NDEP concurs with the conclusions and recommendations.

Response #24

Comment noted.

Comment #25

4.3.5.3- NDEP concurs with the conclusions and recommendations.

Response #25

Comment noted. The recommendation was changed from this source area included in site-wide groundwater characterization to "Groundwater beneath SA-13 will be included in Petroleum Area groundwater characterization efforts. Metals and general chemistry concentrations may be addressed as a different source-specific groundwater area.

Comment #26

4.3.6- Many separate and related sources are covered under this evaluation, making it difficult to determine which source or source(s) was the cause of the diesel free product release. The PSAICR should attempt to focus the likely release points of the free product diesel plume. This effort will support appropriate development of a work plan.
NDEP concurs that remediation of the diesel fuel plume should continue.

Response #26

This report identified potential sources and releases based on available information. Further investigation of these sources will be conducted as part of a petroleum source area study to be described in a future source-area-specific work plan. Section 4.3.6.3 was clarified to state that further characterization of soil and groundwater in the Petroleum Area is recommended. There are likely multiple sources of contamination.

Comment #27

4.3.7.3- NDEP concurs with the conclusions. NDEP recommendations an engineering safety evaluation of the free product recovery system by a qualified environmental engineer to minimize the risk of future releases from the system.

Response #27

Comment noted. A Draft Diesel Remediation System Design Work Plan prepared by Broadbent & Associates, Inc. was submitted to the NDEP on April 18, 2013, which discussed the installation of a secondary containment concrete slab/basin that is located

just south of the existing dual phase system. No additional wording was added to the report to address this comment.

Comment #28

4.3.8.3- Significant levels of MTBE were found in soil for the source area. MTBE was not analyzed in groundwater samples during the investigation. Please analyze future groundwater samples from HM-42 for MTBE.

Response #28

Inclusion of a concentration for MTBE in Table 4-50 was found to be an error. The report was corrected and MTBE is no longer shown in Table 4-50. MTBE was analyzed for and not detected as shown in Table E-33.

Comment #29

4.4.1.3- NDEP concurs with the conclusions and recommendations.

Response #29

Comment noted. Because the report states that soil sampling will be re-evaluated in the future when this pond is taken out of service, the recommendation reflects further soil characterization. The recommendation was changed from this source area included in site-wide groundwater characterization to further source-specific groundwater characterization.

Comment #30

4.4.2.3- Bullet 2-Site specific impacts from SA-2 could be determined by installing groundwater monitoring wells directly upgradient of the potential source.

Response #30

Site specific impacts from SA-2 will be addressed in a future source-area-specific work plan that will be submitted to NDEP for approval prior to implementation. The recommendations were changed to state that source-specific groundwater characterization is recommended.

Comment #31

4.4.3.3- Bullet 2-Site specific impacts from SA-3 may be more effectively evaluated by installing groundwater monitoring wells directly upgradient of the potential source.

Response #31

Site specific impacts from SA-3 will be addressed in a future source-area-specific work plan that will be submitted to NDEP for approval prior to implementation. The recommendations were changed to state that source-specific groundwater characterization is recommended.

Comment #32

4.4.4 — There does not appear to be any investigation of the northern coal pile area. NDEP recommends evaluating the North and South coal piles as separate area/sources. Please discuss the source of TPH in soil at the south coal pile.

Response #32

Table 4-60 summarizes groundwater data in the vicinity of the coal piles. This table includes data from HM-28 and HM-31R which are downgradient of the Units 1,2,3 (northern) coal pile. Data are not available for soils under the Units 1,2,3 coal pile. The source of TPH in the soil by the Unit 4 (southern) coal pile is unknown; however, VOCs were not detected. The recommendation was changed to include further soil characterization, the details of which will be described in a future source-area-specific work plan. Further characterization of the coal piles will be addressed in one or more work plans.

Comment #33

4.4.5.3- NDEP concurs with the conclusions and recommendations.

Response #33

Comment noted.

Comment #34

4.4.6.3- NDEP concurs with the conclusions and recommendations.

Response #34

Comment noted. The recommendation was changed from this source area included in site-wide groundwater characterization to further source-specific groundwater characterization.

Comment #35

4.4.7.3- NDEP generally concurs with the conclusions and recommendations. Future soil sampling should be compared to background (see general discussion on soil background) as well as regulatory limits to assess the potential impacts to the soil under the pond.

Response #35

Site specific impacts from SA-8 will be addressed in a future source-area-specific work plan that will be submitted to NDEP for approval prior to implementation. The recommendations were changed to indicate that source-specific soil and groundwater characterization is recommended.

Comment #36

4.4.8.3- The soil investigation was not sufficient because no analyses were performed of any soil samples. An appropriate study would be based on analytical data rather than

visual information. Conclusions on potential impacts to groundwater may not be valid without valid soil data. The PSAICR should address this issue.

Response #36

NDEP and NVE agreed during the March 13, 2013, Quarterly AOC meeting that additional characterization would not be required for this area. Section 4.4.8 was revised to include further details regarding the previous investigation to demonstrate that additional characterization is not necessary, as follows:
"According to a Limited Site Characterization performed by Converse in 2005, 16 soil borings were advanced in this area to a depth of approximately 15 bgs. The focus of this investigation was to look for signs of buried debris, stained soil, and hydrocarbon or other odors and indications of contamination. Soil cuttings were field screened using a portable Photoionization Detector. The borings were located in a 50 foot center grid pattern over a 100 foot by 400 foot area to encompass the suspect area. The boring logs indicate that the borehole locations were drilled in native soil. The borings consisted of sandy silt with gravel in the top 2.5 feet followed by sandy clay and sandy silt with clay to a depth of approximately 15 bgs. None of the boring logs contained fill or disturbed material. No buried debris was encountered and no visual evidence of impacted soil was found. Soil samples were not submitted for laboratory analysis. Converse recommended no additional investigation (NDEP-62)."

Comment #37

4.4.9.3- NDEP concurs with the conclusions and recommendations.

Response #37

Comment noted.

Comment #38

4.5- Multiple disparate potential sources were lumped into a single section with a single set of recommendations. Based on the information presented, each of the potential sources should be evaluated and addressed separately. NDEP generally concurs with the conclusions and recommendations but suggests more consideration for each of the individual potential sources.

Response #38

While there are multiple sources, they are all related to ash handling and share the same site-related chemicals. However, NVE may prepare separate source-area-specific work plans in the future to address these individual sources or may address them all in one source-area-specific work plan.
Section 4.5.1 was revised to state "These potential source areas were combined because they are all located in the same general area and were all used to manage ash and non-scrubber wastewater from Station activities."
Section 4.5.1.3 was revised to state "SA-18 sources will be included in North Station Area groundwater characterization efforts."

Comment #39

Appendix D- Potential Source Area Summary:
Table General: Tables are often taken out of reports and used as stand-alone documents. NDEP suggests that the recommendations on the table better reflect the recommendations stated in Section 4 of the report.

Response #39

Appendix D Table General: The table was revised to include additional details provided in the recommendations presented in the text.

Comment #40

Table General: Recommendations for the Source Area site-wide groundwater characterization are too broad. See general comments above.

Response #40

Changes to the recommendations for the source areas made in the text in response to General Comment #3 are carried over to Appendix D.

Comment #41

Table Page 2, PA-2 Recommendation: NDEP would like the recommendation for soil framed in terms of defining the vertical extent of contamination.

Response #41

Appendix D Table, PA-2 Recommendation: The recommendation for this source area includes additional soil characterization. The details of the characterization activities will be included in a future source-area-specific work plan to be submitted to NDEP for approval before implementation.
A Ponds C1/C2 Solids Removal Work Plan will be submitted to NDEP for approval prior to solids removal and sampling activities. NV Energy installed additional monitoring well clusters in the C1/C2 area as part of a source-area-specific work plan in the 1st Quarter 2013. The need for additional lateral or vertical delineation in this area will be evaluated in part based on data collection from these wells. No additional language was added to the report to address this comment.

Comment #42

Table Page 2, PA-3 Recommendation: Expand the discussion about the interceptor trench and pumping well to include some of the historic information contained on page 4-37 of report.

Response #42

Appendix D Table, PA-3 Description: The table was revised to include the following wording:
"Permitted pond containing bottom ash, fly ash, scrubber effluent, ash water, and reativator solids. In 2005, Converse Consultants recommended a groundwater interceptor

trench adjacent to Pond 4A and a deeper pumping well within the pond footprint to remediate groundwater in the Pond 4A area. Based on groundwater modeling, Converse Consultants estimated it could take up to 15 years for most of the groundwater with elevated TDS to reach the proposed interceptor trench. It was anticipated that the well would produce 25 gpm and the trench would initially produce 120 gpm. In 2006, the groundwater recovery trench was installed in the Pond 4A area. Pump testing of the trench after installation reportedly yielded flows of approximately 250 gpm. This trench is not currently active and the deep pumping well has not been installed."

Comment #43

Table Page 3, PA-7 Recommendation: Update Pond F recommendation to reflect current status of the pond.

Response #43

Appendix D Table, PA-7 Recommendation: The table was revised to reflect the current status of PA-7 (i.e., additional characterization of soil and groundwater is recommended for Ponds F and G).

Comment #44

Table Page 4, SA-10 Recommendation: VOCs, including TCE, are chemicals of concern for this source area that have not been fully investigated.

Response #44

Appendix D Table, SA-10 Recommendation: The recommendation was changed to include further soil characterization.

Final

To _____ From _____

Submittal Date _____ Approval Date _____

Approver _____

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 20-OCT-2008
Supercedes: 02-AUG-2006

COR-TROL 778-P

1 Identification

Identification of substance or preparation
COR-TROL 778-P

Product Application Area
Water based dissolved oxygen scavenger/metal passivator.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 20-OCT-2008

2 Hazard(s) identification

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*******************************************************************************
                                    EMERGENCY OVERVIEW

  WARNING

        May cause slight irritation to the skin. Skin sensitizer. May cause
        moderate irritation to the eyes. Mists/aerosols may cause
        irritation to upper respiratory tract.

        DOT hazard is not applicable
        Odor: Slight; Appearance: Colorless To Brown, Liquid

        Fire fighters should wear positive pressure self-contained breathing
        apparatus(full face-piece type). Proper fire-extinguishing media:
        dry chemical, carbon dioxide, foam or water
*******************************************************************************

                              POTENTIAL HEALTH EFFECTS

     ACUTE SKIN EFFECTS:
        Primary route of exposure; May cause slight irritation to the skin.
        Skin sensitizer.

     ACUTE EYE EFFECTS:
        May cause moderate irritation to the eyes.

     ACUTE RESPIRATORY EFFECTS:
        Mists/aerosols may cause irritation to upper respiratory tract.
```

INGESTION EFFECTS:
May cause gastrointestinal irritation. Very large doses may cause diarrhea, depression, colic and death. May also cause severe allergic reactions in sensitive individuals.

TARGET ORGANS:
Prolonged or repeated exposures may cause primary irritant dermatitis, skin sensitization, impaired vision, and/or toxicity to the blood.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Prolonged, repeated exposure may result in brownish discoloration of the conjunctiva and changes in the cornea which may lead to decreased visual acuity.

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
123-31-9	HYDROQUINONE (1,4-BENZENEDIOL) Toxic (by ingestion); irritant (eyes); potential sensitizer (skin); IARC=3 (carcinogen status not classifiable)	1-5

4 First-aid measures

SKIN CONTACT:
Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:
Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:
If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

NOTES TO PHYSICIANS:
No special instructions

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).
EXTINGUISHING MEDIA:
dry chemical, carbon dioxide, foam or water
HAZARDOUS DECOMPOSITION PRODUCTS:
elemental oxides
FLASH POINT:
> 200F > 93C SETA(CC)

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.
DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:
Normal chemical handling.
STORAGE:
Keep containers closed when not in use. Store with minimum exposure to light. Shelf life 270 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

HYDROQUINONE (1,4-BENZENEDIOL)
PEL (OSHA): 2 MG/M3
TLV (ACGIH): 2 MG/M3

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.
PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I
RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA’S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR’S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with dust/mist filters.
SKIN PROTECTION:
gauntlet-type neoprene gloves, chemical resistant apron--

Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 Physical and chemical properties

Specific Grav.(70F,21C)	1.002	Vapor Pressure (mmHG)	18.0
Freeze Point (F)	32	Vapor Density (air=1)	> 1.00
Freeze Point (C)	0		
Viscosity(cps 70F,21C)	7	% Solubility (water)	100.0

Odor		Slight
Appearance		Colorless To Brown
Physical State		Liquid
Flash Point	SETA(CC)	> 200F > 93C
pH As Is (approx.)		7.5
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

STABILITY:

Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:

Will not occur.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

elemental oxides

11 Toxicological information

Oral LD50 RAT: >5,000 mg/kg

NOTE - Estimated value

Dermal LD50 RABBIT: >5,000 mg/kg

NOTE - Estimated value

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay

LC50= 8.7; No Effect Level= 4.9 mg/L

Fathead Minnow 96 Hour Static Renewal Bioassay

LC50= 8.2; No Effect Level= 3.1 mg/L

Rainbow Trout 96 Hour Static Acute Bioassay

LC50= 6.3; No Effect Level= 3.7 mg/L

BIODEGRADATION

BOD-28 (mg/g): 27

BOD-5 (mg/g): 27

COD (mg/g): 52

TOC (mg/g): 16

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

DOT HAZARD:	Not Applicable
PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE SOLID, N.O.S.(HYDROQUINONE) 9, UN 3077, PG III, RQ
DOT EMERGENCY RESPONSE GUIDE #:	171

Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory information

TSCA:
All components of this product are included on or are in compliance with the U.S. TSCA regulations.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
479 gallons due to HYDROQUINONE (1,4-BENZENEDIOL);

FOOD AND DRUG ADMINISTRATION:
All ingredients in this product are authorized in 21 CFR176.170 for use in boilers where the steam will be used for manufacturing paper or paperboard.

NSF Registered and/or meets USDA (according to 1998 Guidelines):
Registration number: Not Registered

SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

CAS#	CHEMICAL NAME
123-31-9	HYDROQUINONE (1,4-BENZENEDIOL)

SARA SECTION 313 CHEMICALS:

CAS#	CHEMICAL NAME	RANGE
123-31-9	HYDROQUINONE (1,4-BENZENEDIOL)	2.0-5.0%

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
No regulated constituents present

MICHIGAN REGULATORY INFORMATION

CAS#	CHEMICAL NAME
123-31-9	HYDROQUINONE (1,4-BENZENEDIOL)

16 Other information

HMIS vII		CODE TRANSLATION
Health	1	Slight Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	22-AUG-1995	REVISED FORMAT	** NEW **
	28-SEP-1999	2	22-AUG-1995
	02-AUG-2006	4,7,16	28-SEP-1999
	20-OCT-2008	3,5,15	02-AUG-2006

Preliminary Source Area Identification and Characterization Report

Administrative Order on Consent Activities

NV Energy

Reid Gardner Station

Final

July 2013

20618.04

Certifications

NVE Certification

I certify that this document and all attachments submitted to the Division were prepared under the direction or supervision of NV Energy (NVE) in accordance with a system designed to gather and evaluate the information by appropriately qualified personnel. Based on my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted and provided by NVE is, to the best of my knowledge and belief, true, accurate, and complete in all material respects. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: Darren Patten

Title: Plant Director

Company: NV Energy

Date: 7/29/13

Certified Environmental Manager (CEM) Certification

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Signature:	
Name:	Rebecca L. Svatos
Title:	Project Manager
Company:	Stanley Consultants
Date:	7/29/13
EM Certificate Number	EM-1931
EM Expiration Date:	9/30/2013

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Executive Summary

Introduction

The Reid Gardner Generating Station (Station) is a coal-fired electric power generation facility that produces approximately 600 megawatts (MW) of power from four generating units. The Station is located approximately 45 miles northeast of Las Vegas, within the Moapa Valley. The location of the Station is shown on Figure A-1 in Appendix A. The Station was developed in 1964 and the Station became commercially operational in 1965.

NV Energy (NVE) and the Nevada Division of Environmental Protection (NDEP) entered into an Administrative Order on Consent (AOC) for the Station on February 22, 2008. The AOC calls for NVE to continue with environmental contaminant characterization activities and for the identification of corrective actions and/or clean-up measures for the soil and groundwater at the Station. Additionally, the AOC calls for the implementation and long-term operation and maintenance of these NDEP-approved clean-up measures. This report is prepared for NDEP review and approval under the AOC process.

Objective

The primary objective of this report is to identify potential sources of contamination at the Station and summarize available information for each potential source. The second objective of this report is to identify which potential sources of contamination at the Station will require further characterization to evaluate whether they have impacted soil and/or groundwater at concentrations of concern.

Site Setting

The Station is located within the Moapa Valley, which is a relatively flat-bottomed desert valley that includes the Muddy River, a spring-fed perennial stream that runs through the Station property. The Station property also includes a mesa that is approximately 150 feet above the floodplain and where Station solid waste is disposed in a Class III permitted landfill. Prior to 1964, the area was native desert or irrigated pastureland.

The regional hydrogeologic setting is one of a large basin cut into the White River carbonate bedrock, partly filled with the Horse Spring and Muddy Creek Formations and dissected by valleys that, in turn, are filled with alluvium. Moapa Valley cuts into the Muddy Creek Formation which, for the most part, completely surrounds an approximately 75 foot thick deposit of alluvial sand and gravel. The shallow alluvial aquifer is bound on the bottom and sides by the Muddy Creek Formation. The shallow alluvial aquifer is primarily recharged by several large washes during periods of storms, an upward hydraulic gradient from the underlying bedrock aquifers and infiltration from the Muddy River.

The shallow alluvial groundwater aquifer beneath the Station has been impacted by historical land use practices including past releases of wastewater from on-site spills and former unlined and clay-lined evaporation/settling ponds. Two areas of measureable diesel free product exist on the east side of the Station from past releases from a fuel delivery system. Over 100 monitoring wells have been installed at the Station over the past approximately 35 years to evaluate groundwater contamination, with approximately 100 wells currently being sampled on a regular basis. All monitoring wells at the Station were installed in the alluvial aquifer with the exception of the mesa wells that were apparently installed into the Muddy Creek Formation. Routine groundwater monitoring has been ongoing at the Station over the past approximately 25 years and shows that the depth to groundwater ranges from less than five feet near the Muddy River to over 150 feet on the mesa which is approximately 150 feet higher in elevation. Potentiometric mapping has indicated the overall groundwater flow direction within the shallow aquifer is to the east paralleling the Muddy River, although there are localized variations.

Potential Source Identification Process

Potential source areas at the Station have been identified and are shown on Figure A-2 in Appendix A. To identify these potential source areas, applicable documents from the Encyclopedia of Supporting Documentation were reviewed. Based upon this review, several hundred documents were identified that provide information regarding potential sources of soil and/or groundwater contamination at the Station. These documents include Phase I Environmental Site Assessments (ESAs), Phase II ESAs, the Revised Hydrogeologic Characterization Report (NPC, 2002), and documentation pertaining to releases at the Station. Figure 2-2 summarizes the process that was followed to identify potential sources at the Station.

Station History

The first two generating units at the Station went into service in 1965 and 1968. A third unit was added in 1976, followed by the fourth unit that was commissioned in 1983. Since 1965, there have been many modifications and improvements to the facility.

The Station currently obtains its process water supply from a combination of off-site groundwater wells and upstream surface water withdrawals from the Muddy River. The water is combined and stored in the Raw Water Ponds at the north side of the Station. Water is used without treatment for dust control, fire protection, in the cooling towers, and for miscellaneous use (utility water). After use, utility water is discharged to the ash transport and dewatering system. Some of the raw water is treated by demineralization and then used in the boilers. Cooling tower blowdown is treated before it is reused in the air pollution control equipment. To reduce water usage, the Station recycles its water as much as possible. Water which has been used beyond serviceable limits is discharged to lined evaporation ponds. There are no surface water discharges of wastewater from the Station.

The evaporation ponds were originally designed and constructed according to engineering practices and regulations in effect at the time of construction. Some of the first ponds (e.g., former Pond D and Pond E) were not lined. Other early ponds (e.g., Ponds 4B and 4C) tied into existing geologic clayey soils and had berms that were built to engineering standards. Groundwater at the Station has been contaminated by leakage from these originally unlined ponds. Today, all active evaporation ponds are double-lined with high density polyethylene (HDPE) and have an interstitial leak-detection and collection system to protect groundwater.

Wastes historically and currently generated at the Station include, but are not limited to, ash left from coal combustion, pond solids (fly ash, bottom ash, salts remaining after evaporation), water treatment wastes, and municipal-type solid wastes. Historically, many of these wastes have been disposed at locations throughout the plant that have been designated as Waste Management Units (WMUs).

Potential Source Areas

For each potential source area, available historical information as well as available soil and groundwater data was reviewed and summarized. Based on the available information, a recommendation is made regarding the need for further soil and/or groundwater characterization for each potential source area. Potential source areas that are characteristically, hydrogeologically and geographically similar have been grouped together for the purpose of prioritizing groundwater characterization phase activities at the Station. For the purpose of this report, four groundwater groupings have been determined; Mesa Area Groundwater, Ponds Area Groundwater, Petroleum Area Groundwater, and North Station Area Groundwater. These groupings are preliminary and are subject to change as further information is gathered during the Conceptual Site-Wide Model (CSM) process. This process is discussed further in Section 2.1 of this Report. Recommendations were also made to further characterize many of the potential source areas on a source-specific basis. These recommendations are summarized below on Table ES-1.

Four potential source areas have been adequately characterized for the purposes of the source area identification and characterization process (e.g., no further soil or groundwater characterization is recommended). In the future, NVE may request No Further Investigation or No Further Action determinations from NDEP for these source areas by submitting reports that summarize source area data and describe the rationale for demonstrating that no further investigation or remediation is required at that source area.

Additionally, NVE prioritized each of the potential source areas for planning of further characterization at the Station. General criteria used for this prioritization are as follows:

- Proximity/potential pathways of contamination to receptors,
- Current impacts to groundwater,
- Likelihood of future impacts to groundwater,
- Continuing source of contamination,
- Chemicals of Concern (CoCs).

Using these criteria, NVE identified five potential source areas as “high priority”. These potential source areas were assigned an “A” priority. Seven source areas were identified as “medium priority” and were assigned a “B” priority. The remaining 23 potential source areas were identified as “low priority” and were assigned a “C” priority. These assigned priorities are preliminary and are subject to change as further information is gathered during the CSM process.

Table ES-1 Recommendations for Further Characterization of Potential Source Areas

	Source No.	Description	Further Source Characterization Priority*	Further Soil Characterization	Further Groundwater Characterization
Potential Mesa Source Areas	MA-1	Closed Sanitary Landfill (WMU-1)	C	None	Mesa Area
	MA-2	Special Asbestos Waste Cell (WMU-2) (Actively Permitted)	C	None	None
	MA-3	Disposal Area for Construction and Demolition Debris (WMU-3)	C	None	Mesa Area
	MA-4	Class III (Industrial Waste) Landfill (WMU-4) (Active Permit)	C	None	Mesa Area
	MA-5	Closed Ash Disposal Site (WMU-5)	C	None	Mesa Area
	MA-6	Evaporation Ponds P1 - P5	C	None	Mesa Area
	MA-7	Landfill Used for Industrial and Non-Industrial Waste (WMU-7)**	B	None	Source-Specific
	MA-8	Disposal Area for Water Treatment Waste (WMU-9)	C	None	Mesa Area
	MA-9	Former Mesa Dredge Pond (WMU-10)	C	None	Mesa Area
	PA-4	Closed Fly Ash Fill Area Under Landfill Haul Road (WMU-6)	C	X	Ponds Area
Potential Pond Source Areas	PA-1	Hogan Wash	B	X	Source-Specific
	PA-2	Ponds 4B and 4C	B	X	Ponds Area
	PA-3	Former Pond 4A	A	X	Ponds Area
	PA-5	Former Pond D (West Pond)	A	X	Ponds Area
	PA-6	Ponds E (East Pond, Pond C, Pond D)	A	X	Ponds Area
	PA-7	Pond F and Former Pond G (Units 1,2,3 Laydown Ponds)	A	X	Ponds Area
	PA-8	Hydrogen Peroxide Tank Release	C	None	None
Potential Petroleum Source Areas	SA-9	Units 1 and 2 Emergency Diesel Generator	C	X	None
	SA-10	Former Units 1,2,3 Lube Oil Rack	B	X	Source-Specific
	SA-11	Former Gasoline UST (1000-gallon) and Warehouse 1	B	X	Petroleum Area
	SA-12	Former Diesel AST (850,000- gallon)	C	None	None
	SA-13	Former Diesel Fuel Unloading Area	C	None	Petroleum Area
	SA-14	Former Underground Product Piping, Petroleum Tanks	A	X	Petroleum Area
	SA-15	Free Product Recovery System	C	X	Petroleum Area
	SA-16	Vehicle Maintenance Area	C	X	Source-Specific
Potential Station Source Areas	SA-1	Unit 4 Treated Water Pond	C	X	Source-Specific
	SA-2	Unit 4 Cooling Tower	C	None	Source-Specific
	SA-3	Unit 4 Cooling Tower Catch Basin	C	X	Source-Specific
	SA-4	Coal Piles and Fly Ash Under Unit 4 Coal Pile (WMU-12)	B	X	Source-Specific
	SA-5 and SA-6	Area of Previous Fly Ash Fill (WMU-13 and WMU-14)	C	X	None
	SA-7	Unit 4 Settling Pond (Foster Wheeler Pond)	C	X	Source-Specific
	SA-8	Units 1, 2, 3 Catch Basin	C	X	Source-Specific
	SA-17	Reported Previous Waste Disposal Area (WMU-8)	C	None	None
	SA-19	Units 1, 2, 3 Scrubbers and Unit 4 Absorber	C	X	Source-Specific
Potential Northern Station Source Area	SA-18	ASP-1, ASP-2, ASP-3, Former Clear Wells, Former Fly Ash Disposal Area (WMU-11)	B	X	North Station Area
TOTAL				**21**	**29**

*A – High Priority, B – Medium Priority, C – Low Priority
**NVE is currently evaluating remedial options for MA-7

Section 1

Introduction and Background

1.1 Introduction

The Reid Gardner Generating Station (Station) is a coal-fired electric power generation facility that can produce approximately 600 megawatts (MW) of power from four generating units. The Station is located approximately 45 miles northeast of Las Vegas, within the Moapa Valley. The location of the Station is shown on Figure A-1 in Appendix A. The Station was developed in 1964 and became commercially operational in 1965.

NV Energy (NVE) and the Nevada Division of Environmental Protection (NDEP) entered into an Administrative Order on Consent (AOC) for the Station on February 22, 2008 (NDEP and NVE, 2008). The AOC calls for NVE to continue with environmental contaminant characterization activities and for the identification of corrective actions and/or clean-up measures for the soil and groundwater at the Station. Additionally, the AOC calls for the implementation and long-term operation and maintenance of these NDEP-approved clean-up measures. This report is prepared for NDEP review and approval under the AOC process.

1.2 Objective

The primary objective of this report is to identify potential sources of contamination at the Station and summarize available information for each potential source. A source is defined by Section 3.1.9 of American Society for Testing and Materials Standard E 1689-95 (reapproved 2008) Standard Guide for Developing Conceptual Site Models for Contaminated Sites (ASTM, 2008) as *"the location from which a contaminant(s) has entered or may enter a physical system."* The second objective of this report is to identify which potential sources of contamination at the Station will require further characterization to evaluate whether they have impacted soil and/or groundwater at concentrations of concern. The potential source identification process used for the Station is discussed in Section 2.

1.3 Site Setting

The Station is located within the Moapa Valley, which is a relatively flat-bottomed desert valley that includes the Muddy River, a spring-fed perennial stream that runs through the Station property. The Station property also includes a mesa that is approximately 150 feet above the floodplain and where Station solid waste is disposed in a Class III permitted landfill. Prior to 1964, the area was native desert or irrigated pastureland.

1.4 Hydrogeology

The Muddy River and associated springs are a discharge area of the White River regional groundwater system. The regional hydrogeologic setting is one of a large basin cut into the White River carbonate bedrock, partly filled with the Horse Spring and Muddy Creek Formations and dissected by valleys that, in turn, are filled with alluvium. Moapa Valley cuts into the Muddy Creek Formation which, for the most part, completely surrounds an approximately 75 foot thick deposit of alluvium. The shallow alluvial aquifer is bound on the bottom and sides by the Muddy Creek Formation. The shallow alluvial aquifer is primarily recharged by several large washes during periods of storms, an upward hydraulic gradient from the underlying bedrock aquifers and infiltration from the Muddy River.. Clay layers within the Muddy Creek formation act as barriers limiting the groundwater flow between aquifers. Saturated sandstone and siltstone zones within the Muddy Creek Formation were encountered during deep drilling activities at the Station (Hess, 1986). In some locations the Horse Spring Formation underlies the Muddy Creek Formation and the underlying White River carbonates. Saturated zones within the limestones, sandstones, siltstone, and volcanic tuff layers of the Horse Spring Formation have been documented (Pohlmann, et al, 1988). Vertical hydraulic gradients in the vicinity of the Station are generally upward from the carbonate aquifer to the shallow alluvial aquifer (Mayer and Congdon, 2007). Regionally, this is evident by the numerous springs (i.e., Muddy Spring, Warm Spring) located northwest of the Station that form the headwaters for the Muddy River (Pohlmann, et al, 1988).

The closest water supply wells are located more than one mile downstream from the plant, with the closest domestic wells over two miles away. The Station water supply is from the Muddy River and from several alluvial or bedrock wells located approximately eight to 13 miles northwest (upstream) of the Station. Water is transferred from the wellheads to the Station via an underground pipe line. These wells are located in the flood plain of the Muddy River and range from 70 feet to 135 feet deep and produce from 100 gallons per minute (gpm) to 1300 gpm.

1.5 Groundwater Monitoring Program

The shallow alluvial groundwater aquifer beneath the Station has been impacted by historical land use practices including past releases of wastewater from on-site spills and former unlined and clay-lined evaporation/settling ponds. Two areas of measureable diesel free product exist on the east side of the Station from past releases from a fuel delivery system. Over 100 monitoring wells have been installed at the Station over the past approximately 35 years to evaluate groundwater impacts, with approximately 100 wells currently being sampled on a regular basis. Most of the monitoring wells installed at the Station within the river valley were completed in the alluvial aquifer; however, some of the deeper wells may have been completed in the Muddy Creek aquifer. The wells on the mesa and many of the wells north of the Station are completed in the Muddy Creek aquifer. Routine groundwater monitoring has been ongoing at the Station over

the past approximately 25 years and shows that the depth to groundwater ranges from less than five feet near the Muddy River to over 150 feet on the mesa which is approximately 150 feet higher in elevation. While the shallow alluvium and Muddy Creek Formation aquifers are different saturated zones, they appear to be interconnected in the vicinity of the mesa. Although some potentially important localized variations exist, potentiometric mapping has indicated that the overall groundwater flow direction within the shallow aquifer is to the east paralleling the Muddy River (Appendix B, Figure 2A).

Figures from the Fourth Quarter 2011 Groundwater Monitoring and Remediation Report displaying shallow groundwater elevations as well as figures displaying arsenic, magnesium, manganese, selenium, sodium, sulfate, and TDS concentrations in the Station groundwater are provided in Figures 2A through 10 in Appendix B of this report.

Section 2

Potential Source Area Identification Process

When the AOC was signed on February 22, 2008, the following general objectives were agreed upon (AOC Section V.1):

"The objectives of the Parties in entering into this AOC are to protect human health or welfare and the Environment at and near the Site by the design and implementation of Response Actions at or near the Site…"

In addition, the objectives were more specifically addressed in the AOC Scope of Work in Appendix B, Section 2.0:

"The overall objective for the Scope is to provide a framework for the completion of characterization activities for groundwater and soil within the Site boundaries and for the identification and implementation of Corrective Actions applicable to each media as necessary. The common objective of all parties is to seek permanent Remedies for all media that address current and future risks to human health and the Environment."

This Preliminary Source Area Identification and Characterization Report was prepared as part of the AOC implementation. Section 2.1 describes the overall NDEP-approved approach to the investigation and characterization of contamination at and near the Station. The potential source area identification and evaluation activities documented in this report are briefly discussed in the paragraph titled "Identify, Evaluate and Characterize Source Areas". The intent of this report is not to fully characterize source areas, but rather to develop a list of potential source areas, present existing data previously collected to characterize these areas, and identify which areas need further investigation. Section 2.2 describes the process that was used to identify the potential source areas discussed in this report and Section 2.3 describes the process that was used to evaluate them. Finally, Section 2.4 summarizes the screening levels used to evaluate potential source area data. For those source areas where further investigation is recommended, site-

specific sampling and analysis plans will be developed and implemented in the future. The collected data will initially be compared with the screening levels discussed in Section 2.4, but site-specific action levels may also be developed in the future.

For those source areas where additional site-specific characterization is not recommended, NVE may request No Further Action or No Further Investigation determinations from NDEP in the future. NVE will provide sufficient and adequate reasoning describing the rationale for demonstrating that no further investigation or remediation is required at that source area.

2.1 Overall Conceptual Site Model Approach

The deliverables listed in the AOC (Section 3.0 of the Scope of Work in Appendix B) were identified to meet the AOC objectives, which include the preparation of a Conceptual Site Model (CSM). NVE previously submitted a report entitled "*Revised Site-Wide Conceptual Site Model (CSM) Process*" dated January 25, 2010, that was approved by the NDEP (Stanley Consultants, 2010a). This report included a CSM Flow Diagram that has since been revised and is included as Figure 2-1 at the end of this section and is described below.

Assemble Background Information - This effort is essentially complete through the preparation of the Encyclopedia of Supporting Documentation (Encyclopedia) which lists over 400 historical documents relevant to the AOC activities at the Station. To develop the Encyclopedia, documents relevant to the AOC were reviewed at the Station and at the NVE and NDEP offices in Las Vegas.

Develop Preliminary Site-Related Chemicals List - A Preliminary Site-Related Chemicals (SRC) list containing over 100 parameters has been prepared and approved by NDEP. This list of chemicals that may be present in soil and groundwater was developed based on review of the historical documents discussed above. In determining the SRCs for each potential source area, Material Safety Data Sheets (MSDSs) and laboratory data, where available, were reviewed for waste streams and other discharges generated at the facility including fly ash, bottom ash, process wastewater (pre- and post-scrubber installation), pond solids (flyash with salts), water treatment solids (calcium oxide/dioxide), cooling tower blowdown, and general solid wastes. If a parameter suite (e.g., volatile organic compounds [VOCs], metals, etc.) was determined to be present in a waste material or discharge that contributed to a potential source area, that parameter suite was included in the list of SRCs associated with that particular source area.

Identify, Evaluate and Characterize Source Areas - Documents from the Encyclopedia were reviewed to identify potential sources of soil and groundwater contamination associated with the Station. This Preliminary Source Area Identification and Characterization report presents the results of this effort to identify potential source areas and includes existing soil and groundwater data available from Encyclopedia documents. This report also identifies source areas where additional characterization is required.

Evaluate Background Concentrations - Concurrent with the potential source area characterization activities, the NDEP-approved *Evaluation of Background Conditions Work Plan* (Stanley Consultants, 2010b) was implemented. The results of the background sampling will be used to evaluate background soil and groundwater concentrations and will be summarized in

future deliverables. Once background concentrations are established for the Station, they will be used to evaluate soil and groundwater data.

Identify and Address Geologic Data Gaps - The installation of background monitoring wells is the first opportunity for collection of detailed geologic data as part of the AOC implementation. The boring logs developed during the background well installations will be used to aid in the interpretation of other existing geologic data. Therefore, following implementation of the Evaluation of Background Conditions Work Plan, existing geologic data will be reevaluated and geologic data gaps identified. If necessary, a Geologic Data Gaps Work Plan will be developed and submitted for NDEP review and approval.

Develop Preliminary Migration Pathways and Environmental Receptors - Following implementation of the Geologic Data Gaps Work Plan, the Station hydrogeology should be understood well enough to make a preliminary evaluation of pathways and receptors associated with sources of soil and groundwater contamination.

Develop Preliminary CSM With Data Gaps - Once source areas have been identified, background concentrations have been established, and Station geology is better understood, there should be enough information available to prepare a Preliminary CSM with Data Gaps. This Preliminary CSM will be submitted to NDEP for review. Data needed to adequately characterize the nature and extent of soil and groundwater contamination will be identified along with data needed to evaluate pathways and receptors associated with sources of soil and groundwater contamination.

Collect Additional Data - Once NDEP has approved the Preliminary CSM with Data Gaps, a work plan (or work plans) will be submitted to address identified data gaps. Specific analyte lists will be developed for individual source areas. Once the Data Gaps Work Plan(s) is approved by NDEP, additional data collection will take place.

Develop Final CSM - The final CSM will be prepared when the identified data gaps have been adequately addressed. No additional data collection will be necessary when the following tasks are complete:

- Background concentrations have been established
- The nature and extent of contamination is established
- Migration pathways and environmental receptors are established

For each identified source of soil and/or groundwater contamination, the pathways and receptors will be evaluated. Where there is a complete pathway that could result in exposure to receptor(s) at unacceptable levels, the need for corrective action will be identified. The AOC implementation may then proceed with Corrective Action Alternative Studies and Corrective Action Plans for those sources that need to be addressed by either eliminating pathways and/or reducing receptor risks to acceptable levels. The AOC process will conclude with implementation of selected corrective action plans as well as corrective action monitoring and maintenance until corrective action completion is approved by NDEP.

Prior to developing the final CSM for the entire site, a "mini-CSM" approach may be pursued for individual source areas or groups of source areas (sub-areas) where the site characteristics are relatively well known or are similar. The same AOC process could continue for that sub-area independent of site-wide activities. This would allow investigations and corrective actions to occur in well-defined sub-areas before the site-wide CSM is final. Another example of the use of a "mini-CSM" approach would be for site-wide groundwater. In this case, the groundwater impacts from multiple source areas are difficult to separate so site-wide groundwater can be investigated as one or more sub-areas.

2.2 Potential Source Area Identification Process

Potential source areas at the Station are identified and discussed in detail in Section 4, shown on Figure A-2 in Appendix A, and summarized in the Potential Source Area Summary Table in Appendix D. To identify these potential source areas, applicable documents from the Encyclopedia were reviewed. Based upon this review, several hundred documents were identified that provide information regarding potential sources of soil and/or groundwater contamination at the Station. These documents include Phase I Environmental Site Assessments (ESAs), Phase II ESAs, the Revised Hydrogeologic Characterization Report (AOC-109), and documentation pertaining to releases at the Station. A copy of the Encyclopedia is provided in Appendix C. References to documents included in the Encyclopedia are provided throughout this report with their Encyclopedia document number (e.g., AOC-#, NDEP-#, etc.) Other documents that were prepared recently are not listed in the Encyclopedia, but are included in the references in Section 6. Figure 2-2 at the end of this section summarizes the process that was followed to identify potential source areas at the Station and is described in the following paragraphs.

A 1998 Phase I ESA conducted by CH2MHill (NDEP-025), a Phase II ESA conducted by Black and Veatch (AOC-50) and subsequent Phase II ESAs conducted by Kleinfelder at the Station in 2000 were reviewed. If the Phase I and/or Phase II ESAs recommended further action relevant to a potential source area, it was identified as a potential source area in this report and relevant soil and/or groundwater data are included. Waste Management Units (WMUs) were previously identified at the Station in the 2002 Hydrogeologic Characterization Report (AOC-109) that was approved by the NDEP on August 11, 2003. Because NDEP previously approved the identification of these WMUs, they have all been included as potential source areas in this report. Additionally, Hogan Wash has also been included as a potential source area due to its inclusion in the 2002 Hydrogeologic Characterization Report.

Documentation pertaining to past releases at the Station was also reviewed. A release was not included as a potential source area if NDEP had stated that no further action was required. A potential source area related to a release was included in this report if additional action is required and/or if NDEP requested that the source area be included. Soil and/or groundwater data collected following a release at a potential source area (where available) is included in this report.

Because groundwater contamination has been documented resulting from historic, unlined on-site evaporation and settling ponds, all on-site ponds containing anything other than untreated raw water were included as potential source areas unless they were originally constructed with a synthetic liner and there were no known releases from the pond. On-site chemical storage areas were also considered when identifying potential source areas at the Station. On-site chemical

storage areas were only included as potential source areas if there was no secondary containment for the chemical and/or there were known releases from the chemical storage area.

2.3 Potential Source Area Evaluation Process

Once potential source areas were identified at the Station, an evaluation was completed to determine which would require further testing to evaluate if they have impacted soil and/or groundwater at concentrations of concern. Figure 2-3 at the end of this section summarizes the general process that was followed to evaluate potential source areas at the Station and is described in the following paragraphs.

The first step in evaluating a potentially contaminated site is to determine whether a source of contamination is still present. Investigation and cleanup of site contamination should not begin until the source of the contamination has been removed or the source has been controlled such that it does not continue to cause more contamination. Examples of sources of contamination identified at the Station are unlined ponds and leaking underground diesel piping. If it is possible to remove or control a source of contamination and it is necessary to do so in order to prevent further contamination, source removal/control is the first step to consider.

Once the need for source removal was addressed, the potential for soil or groundwater contamination to be present at concentrations of concern at the source area was considered. If there was not enough information to answer this question, further investigation was recommended. If there is minimal potential for contamination from a source area, no further investigation is required. For example, there may not be the potential for soil or groundwater contamination at concentrations of concern if the chemical at the source area is not likely to cause contamination or if there is no pathway from the source area to a receptor.

If there is the potential for soil or groundwater contamination at concentrations of concern, existing data (if available) was reviewed. If this data was adequate to characterize the source area, no further investigation was recommended. If there was no data or if the available data did not adequately characterize the source area, further investigation was recommended. If no more data is needed and if contamination was not present at concentrations of concern, no further source-specific characterization was recommended.

In those cases where enough data was available to show that contamination was present at concentrations of concern, the next step would be to evaluate the need for corrective action. This effort would be conducted separately from this Preliminary Source Area Identification and Characterization Report.

For those source areas where additional site-specific characterization is not recommended, NVE may request No Further Action or No Further Investigation determinations from NDEP in the future. NVE will provide sufficient and adequate reasoning describing the rationale for demonstrating that no further investigation or remediation is required at that source area.

Because groundwater has been impacted by multiple source areas and the plumes would be difficult to characterize separately, site-wide groundwater will be investigated as one or more sub-areas under the AOC. For example, groundwater in the area where unlined ponds were historically operated will likely be treated as one sub-area rather than investigating the

groundwater impacts of each individual pond. A separate sub-area investigation could be where multiple petroleum-related sources have affected groundwater. For the purpose of this report, four groundwater groupings have been determined; Mesa Area Groundwater, Ponds Area Groundwater, Petroleum Area Groundwater, and North Station Area Groundwater. These groupings are preliminary and are subject to change as further information is gathered during the CSM process. Recommendations were also made to further characterize many of the potential source areas on a source-specific basis. These groundwater characterization efforts will address the nature and extent of groundwater contamination.

2.4 Screening Levels

During the evaluation of existing soil and groundwater data to assess whether contamination is present at concentrations of concern, available state and federal screening levels were used. These screening levels are periodically updated by the regulatory agencies. For the purposes of this report, NDEP screening levels dated January 2012 are used for comparison. According to EPA Region 9, the Region 9 PRGs have been harmonized with similar risk-based screening levels used by Regions 3 and 6 into a single table. These screening levels dated November 2011 are also used for comparison purposes. Figure 2-4 provides a soil screening levels decision tree based on NDEP screening level guidance and potential exposure pathways at the Station.

The following screening levels can be used to evaluate soil data:

- **Background Concentrations** - Background concentrations can be established for parameters at a site that are naturally occurring at a concentration above a screening level. For example, if a parameter were present above a screening level but below an established background concentration, corrective action may not be required. NDEP Action Levels that were established for the Station in 2003 are currently being re-evaluated. NVE is in the process of evaluating background concentrations for soil and groundwater at the site in accordance with the NDEP-approved Evaluation of Background Conditions Work Plan dated January 2010. Once established, soil concentrations will first be compared to the established background concentrations.

- **NDEP Basic Comparison Level (BCL) – Outdoor Industrial/Commercial Worker -** The State of Nevada has not formally established soil screening levels. Based on discussions with NDEP, screening levels are being considered for the Station that were determined by NDEP for the BMI Complex. These BCLs were developed to protect the health of outdoor industrial or commercial workers who may be exposed to the soil. Worker exposure could occur through dermal contact as well as through ingestion and/or inhalation of dust from the soil. The BCLs were derived using equations from Environmental Protection Agency (EPA) guidance, EPA toxicity criteria, and EPA exposure factors. The screening levels are available in the *User's Guide and Background Technical Document for Nevada Division of Environmental Protection Basic Comparison Levels for Human Health for the BMI Complex and Common Areas* (NDEP, 2012).

- **EPA Regional Screening Level (RSL) - Industrial Soil** - EPA establishes generic screening levels based on default exposure parameters and factors that represent reasonable maximum exposure conditions for long-term exposures. These screening levels are available in the *EPA Regional Screening Level (RSL) Summary Table* (EPA, 2011). These RSLs are based on the methods outlined in the EPA's *Risk Assessment Guidance for Superfund, Part B Manual (EPA, 1991)* and *Soil Screening Guidance (EPA, 1996 and 2002)*. The Industrial Soil RSLs are based on protection of the health of workers who could be exposed to the soil through dermal contact, inhalation, and/or ingestion. They may be used when NDEP has not determined a BCL for a particular parameter.

- **NDEP Leaching BCL (LBCL)** – LBCLs were developed by NDEP for use at the BMI Complex and Common Areas in Henderson, Nevada (NDEP, 2012) specifically to address the soil leaching to groundwater migration pathway. An LBCL is the soil concentration above which a contaminant is predicted to leach to groundwater and cause groundwater contamination above the BCL concentration for groundwater. A Dilution Attenuation Factor (DAF) is used to account for dilution and attenuation that occurs as contaminants leach towards groundwater. Based on discussions with NDEP, the LBCL for DAF = 20 was used for mesa source areas and the LBCL for DAF = 1 was used for all other source areas at the Station. The LBCL can be used to evaluate soil data in addition to the BCL/RSL.

- **EPA Maximum Contaminant Level (MCL)-based SSL** - EPA also establishes generic screening levels for the soil leaching to groundwater migration pathway (EPA, 2011). A MCL-based SSL is the soil concentration above which a contaminant is predicted to leach to groundwater and cause groundwater contamination above the drinking water MCL. This SSL may be used when NDEP has not determined an LBCL for a particular parameter.

- **EPA Risk-Based Soil Screening Level (SSL)** - Soil screening levels have also been derived by EPA for chemicals of concern which do not have an MCL (EPA 2011). A risk-based SSL for the soil leaching to groundwater exposure pathway is the soil concentration above which a contaminant is predicted to leach to groundwater and cause groundwater contamination at a level that could cause human health impacts. The risk-based soil leaching to groundwater SSL may be used when NDEP has not determined a LBCL for a particular parameter and there is not an MCL-based SSL.

In discussions with NDEP, it was agreed that available soil data for potential source areas would be compared to the BCLs for Outdoor Industrial/Commercial Workers. If no BCL was available, soil data was compared with the EPA RSL screening level for Industrial Soil. In cases where the BCL and RSL were significantly different, both were considered when evaluating the data. Additionally, as NDEP and NVE agreed, soil data was compared to the NDEP LBCL to evaluate the possibility of contaminants leaching to groundwater. If the NDEP LBCL was not available, then EPA risk-based or MCL-based SSLs were used. In cases where the LBCL and SSL were significantly different, both were considered when evaluating the data. In some cases, no soil screening levels were available for comparison. Table 2-1 summarizes the soil screening levels

for parameters included in the NDEP-approved Preliminary SRC list for which Nevada-certified laboratories are available. These screening levels are used to evaluate potential source areas.

Historically, the NDEP action level for total petroleum hydrocarbons (TPH) in soil was 100 milligrams per kilogram (mg/kg). The revised regulation (R189-08A) adopted by the State Environmental Commission on August 25, 2009 removes the soil action level for TPH; therefore, petroleum impacted soils will now be evaluated based on data for specific volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs) commonly associated with petroleum product releases.

Figure 2-5 provides a groundwater screening levels decision tree that summarizes the process that was used to evaluate available groundwater data.

The following screening levels can be used to evaluate groundwater data:

- **Background Concentrations** – As described above, groundwater concentrations will first be compared to the background concentrations once they are established under the AOC.

- **Nevada/Federal Primary MCL -** These screening levels are legally enforceable standards that apply to public drinking water systems. Primary MCLs protect public health by limiting the levels of contaminants in drinking water. The State of Nevada has adopted the federal MCLs. In the absence of background concentrations, this screening level is the most important of all of the groundwater screening levels.

- **NDEP BCL—Residential Water** – This is a groundwater screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water use takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities (NDEP, 2012). During discussions with NDEP it was agreed that the BCL for residential water would be used for screening groundwater concentrations in the absence of Primary MCLs and because there were no BCLs developed for industrial worker exposure.

- **EPA RSL – Tapwater -** EPA establishes generic screening levels based on default exposure parameters and factors that represent reasonable maximum exposure conditions for long-term exposures. These screening levels are available in the *EPA Regional Screening Level (RSL) Summary Table* (EPA, 2011). The tapwater RSLs are protective of the human health of residents and take into account exposure through ingestion and inhalation of vapors. EPA tapwater RSLs may be used when other screening levels are unavailable; there are no EPA tapwater RSLs for industrial worker exposure.

In discussions with NDEP, it was agreed that potential source area groundwater data would first be compared to background concentrations, once they are established under the AOC. Since background concentrations are not yet available, groundwater data in this evaluation was first compared to the Nevada/Federal Primary MCL. If no Primary MCL was available, groundwater data was compared to the BCL for Residential Water. When no NDEP BCL was available, the EPA RSL for tapwater was used for screening purposes. Sometimes the BCL and RSL were

significantly different and both were considered when evaluating the data. Although not shown on Figure 2-5, the State of Nevada has adopted secondary drinking water standards that are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as objectionable taste, odor, or color). Because these secondary standards are only guidelines, exceedance of secondary MCLs would not necessarily lead to corrective action. However, these secondary MCLs were taken into consideration when evaluating groundwater data. In some cases, no groundwater screening levels were available for comparison. Table 2-2 summarizes the groundwater screening levels for parameters included in the NDEP-approved Preliminary SRC list for which Nevada-certified laboratories are available. These screening levels are used to evaluate potential source areas.

Table 2-1 Soil Screening Levels

Parameter Name	EPA MCL-based SSL [1]	EPA Risk-based SSL [2]	EPA RSL Industrial Soil [3]	NDEP BCL Outdoor Worker [4]	NDEP LBCL (DAF 1) [5]	NDEP LBCL (DAF 20) [6]
Metals (mg/kg)						
Aluminum	NA	23000	990000	100000	75	1500
Antimony	0.27	0.27	410	454	0.3	6
Arsenic (cancer endpoint)	0.29	0.0013	1.6	1.77	1	20
Barium	82	120	190000	100000	82	1640
Beryllium	3.2	13	2000	2230	3	60
Boron	NA	9.9	200000	100000	23.4	467
Cadmium	0.38	0.52	NA	560	0.4	8
Calcium	NA	NA	NA	NA	NA	NA
Chromium (Total)	180000	NA	NA	NA	NA	NA
Hexavalent Chromium	NA	0.00059	5.6	1360	2	40
Cobalt	NA	0.21	300	337	33	660
Copper	46	22	41000	42200	35.2	704
Iron	NA	270	720000	100000	7.56	151
Lead	14	NA	800	800	NA	NA
Magnesium	NA	NA	NA	100000	649	13000
Manganese	NA	21	23000	100000	3.26	65.2
Mercury	0.1	0.033	43	341	0.104	2.09
Molybdenum	NA	1.6	5100	5680	3.64	72.7
Nickel	NA	20	20000	21800	7	140
Potassium	NA	NA	NA	NA	NA	NA
Selenium	0.26	0.4	5100	5680	0.3	6
Silver	NA	0.6	5100	5680	2	40
Sodium	NA	NA	NA	NA	NA	NA
Thallium	0.14	0.011	10	79.5	0.4	8
Titanium	NA	NA	NA	100000	150000	3000000
Vanadium	NA	78	5200	5680	300	6000
Zinc	NA	290	310000	100000	620	12400
Asbestos (Percentage by weight)						
Asbestos	NA	NA	NA	NA	NA	NA
General Chemistry (units listed below)						
Nitrogen, Ammonia (as N) (mg/kg)	NA	NA	NA	100000	NA	NA
Chloride (mg/kg)	NA	NA	NA	NA	NA	NA
Fluoride (mg/kg)	NA	93	41000	41000	NA	NA
Nitrogen, Nitrate (as N) (mg/kg)	NA	NA	1600000	100000	NA	NA
pH (S.U.)	NA	NA	NA	NA	NA	NA
Silica (mg/kg)	NA	NA	18000000	NA	NA	NA
Sulfate (mg/kg)	NA	NA	NA	NA	NA	NA
Phosphorus, Total (mg/kg)	NA	NA	NA	NA	NA	NA
Total Dissolved Solids (mg/kg)	NA	NA	NA	NA	NA	NA
TPH (mg/kg)						
DRO (C10-C22)	NA	NA	NA	NA	NA	NA
ORO (C22-C32)	NA	NA	NA	NA	NA	NA
Total (C10-C32)	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	NA	NA	NA	NA	NA
PCBs (µg/kg)						
Aroclor 1016	NA	92	21000	23600	NA	NA
Aroclor 1221	NA	0.074	540	826	NA	NA
Aroclor 1232	NA	0.074	540	826	NA	NA
Aroclor 1242	NA	5.3	740	826	NA	NA
Aroclor 1248	NA	5.2	740	826	NA	NA
Aroclor 1254	NA	8.8	740	826	NA	NA
Aroclor 1260	NA	24	740	826	NA	NA
SVOC (µg/kg)						
Bis(2-ethylhexyl)phthalate	1400	17	120000	137000	180000	3600000

Table 2-1 Soil Screening Levels						
Parameter Name	**EPA MCL-based SSL [1]**	**EPA Risk-based SSL [2]**	**EPA RSL Industrial Soil [3]**	**NDEP BCL Outdoor Worker [4]**	**NDEP LBCL (DAF 1) [5]**	**NDEP LBCL (DAF 20) [6]**
PAHs (µg/kg)						
Acenaphthene	NA	4100	33000000	2560000	29000	580000
Anthracene	NA	42000	170000000	9920000	590000	11800000
Benzo(a)anthracene	NA	10	2100	2340	80	1600
Benzo(a)pyrene	240	3.5	210	234	400	8000
Benzo(b)fluoranthene	NA	35	2100	2340	200	4000
Benzo(g,h,i)perylene	NA	NA	NA	34100000	NA	NA
Benzo(k)fluoranthene	NA	350	21000	23400	2000	40000
Bis (2-ethylhexyl)Phthalate	1400	17	120000	137000	180000	3600000
Chrysene	NA	1100	210000	234000	8000	160000
Fluoranthene	NA	70000	22000000	24400000	210000	4200000
Fluorene	NA	4000	22000000	3670000	28000	560000
Indeno(1,2,3-cd)pyrene	NA	120	2100	2340	700	14000
Naphthalene	NA	0.47	18000	17400	4000	80000
Phenanthrene	NA	NA	NA	24500	NA	NA
Pyrene	NA	9500	17000000	19300000	210000	4200000
1,1-Biphenyl (Biphenyl)	NA	8.7	210000	56800000	NA	NA
Dioxins (ng/kg)						
1,2,3,4,7,8-HxCDD	NA	NA	NA	309	NA	NA
2,3,7,8-TCDD	15	0.26	18	17.7	NA	NA
2,3,7,8-TCDD Equivalence[7]	15	0.26	18	17.7	NA	NA
VOCs (µg/kg)						
1,1,1,2-Tetrachloroethane	NA	0.19	9300	20300	NA	NA
1,1,1-Trichloroethane	70	2600	38000000	1390000	100	2000
1,1,2,2-Tetrachloroethane	NA	0.026	2800	2590	0.2	4
1,1,2-Trichloroethane	1.6	0.077	5300	5800	0.9	18
1,1-Dichloroethane	NA	0.68	17000	23300	1000	20000
1,1-Dichloroethene	2.5	93	1100000	1400000	3	60
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NA	15	490000	NA	NA	NA
1,2,3-Trichloropropane	NA	0.00028	95	106	NA	NA
1,2,4-Trichlorobenzene	200	2.9	99000	110000	300	6000
1,2,4-Trimethylbenzene	NA	21	260000	671000	NA	NA
1,2-Dibromo-3-chloropropane	0.086	0.00014	69	58.3	NA	NA
1,2-Dibromoethane	0.014	0.0018	170	185	NA	NA
1,2-Dichlorobenzene	580	270	9800000	373000	900	18000
1,2-Dichloroethane	1.4	0.042	2200	2410	1	20
1,2-Dichloropropane	1.7	0.13	4700	4540	1	20
1,3,5-Trimethylbenzene	NA	120	10000000	254000	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	373000	NA	NA
1,3-Dichloropropane	NA	99	20000000	71600	1	20
1,4-Dichlorobenzene	72	0.4	12000	14300	100	2000
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA
2-Butanone	NA	1000	200000000	34100000	NA	NA
2-Chlorotoluene	NA	170	20000000	511000	NA	NA
4-Chlorotoluene	NA	7.9	1400000	2150000	NA	NA
2-Hexanone	NA	180	20000000	NA	NA	NA
4-Isopropyltoluene	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	230	53000000	17200000	NA	NA
Acetone	NA	2400	630000000	100000000	800	16000
Acetonitrile	NA	26	3700000	6840000	NA	NA
Acrylonitrile	NA	0.0098	1200	1380	NA	NA
Allyl Chloride	NA	0.2	3400	3890	NA	NA
Benzene	2.6	0.2	5400	4500	2	40
Bromobenzene	NA	36	1800000	695000	NA	NA

Table 2-1 Soil Screening Levels

Parameter Name	EPA MCL-based SSL [1]	EPA Risk-based SSL [2]	EPA RSL Industrial Soil [3]	NDEP BCL Outdoor Worker [4]	NDEP LBCL (DAF 1) [5]	NDEP LBCL (DAF 20) [6]
Bromochloromethane	NA	21	680000	NA	NA	NA
Bromodichloromethane	22	0.032	1400	3600	30	600
Bromoform	21	2.1	220000	242000	40	800
Bromomethane	NA	1.8	32000	42900	10	200
Carbon disulfide	NA	210	3700000	721000	2000	40000
Carbon tetrachloride	1.9	0.15	3000	4070	3	60
Chlorobenzene	68	49	1400000	695000	70	1400
Chloroethane	NA	NA	NA	1100000	NA	NA
Chloroform	22	0.053	1500	1710	30	600
Chloromethane	NA	49	500000	8950	NA	NA
cis-1,2-Dichloroethene	21	8.2	2000000	791000	20	400
cis-1,3-Dichloropropene	NA	0.15	8100	1750	0.2	4
cis-1,4-Dichloro-2-Butene	NA	0.00054	35	NA	NA	NA
Dibromochloromethane	21	0.039	3300	6150	20	400
Dibromomethane	NA	1.9	110000	210000	NA	NA
Dichlorodifluoromethane	NA	300	400000	340000	NA	NA
Ethyl Methacrylate	NA	99	7500000	140000	NA	NA
Ethylbenzene	780	1.5	27000	21000	700	14000
Hexachlorobutadiene	NA	0.5	22000	24600	100	2000
Isopropylbenzene	NA	640	11000000	647000	NA	NA
Methylene chloride	1.3	1.2	53000	60400	1	20
m,p-xylene	9800	190	2700000	214000	10000	200000
Methacrylonitrile	NA	0.17	18000	24100	NA	NA
Methyl Methacrylate	NA	300	21000000	2720000	NA	NA
Methyl-tert-butyl-ether	NA	2.8	220000	216000	NA	NA
Naphthalene (VOC)	NA	0.47	18000	17400	4000	80000
n-Butylbenzene	NA	2500	51000000	237000	NA	NA
n-Propylbenzene	NA	990	21000000	237000	NA	NA
o-xylene	NA	190	3000000	282000	9000	180000
Pentachloroehtane	NA	0.27	19000	NA	NA	NA
p-Isopropyltoluene	NA	NA	NA	647000	NA	NA
sec-Butylbenzene	NA	NA	NA	223000	NA	NA
Styrene	110	1200	36000000	1730000	200	4000
tert-Butylbenzene	NA	NA	NA	393000	NA	NA
Tetrachloroethene	2.3	0.033	2600	3280	3	60
Toluene	690	590	45000000	521000	600	12000
trans-1,2-Dichloroethene	29	25	690000	600000	30	600
trans-1,4-Dichloro-2-Butene	NA	0.00054	35	NA	NA	NA
Trichloroethene	1.8	0.16	6400	5490	3	60
Trichlorofluoromethane	NA	690	3400000	1980000	NA	NA
Vinyl Acetate	NA	87	4100000	2710000	8000	160000
Vinyl chloride	0.69	0.0053	1700	1860	0.7	14
Xylenes, Total	9800	190	2700000	214000	10000	200000
Aldehyde and Diols (mg/kg)						
Acetaldehyde	NA	0.00045	52	77.7	NA	NA
Ethylene Glycol	NA	6.3	1200000	100000	NA	NA
Formaldehyde	NA	0.62	120000	41.6	NA	NA

Table 2-1 Soil Screening Levels						
Parameter Name	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**	**NDEP LBCL (DAF 20)[6]**

NA – Not Available

Notes:
Radionuclides not listed.
Footnotes:
[1] EPA MCL-based SSL: EPA Soil Screening Level (SSL) (MCL-Based)—Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] EPA Risk-based SSL: EPA SSL (Risk-Based)- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3] EPA RSL Industrial Soil: EPA Regional Screening Level (RSL) (Industrial Soil)-- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4] NDEP BCL Outdoor Worker: NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)-- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: Updated User's Guide and Tables (January 2012).
[5] NDEP LBCL (DAF1): NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)-- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).
[6] NDEP LBCL (DAF20): NDEP Leaching BCL Dilution Attenuation Factor of 20 (LBCL DAF1)-- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).
[7] 2,3,7,8-TCDD Equivalence level from "Update to the ATSDR Policy Guideline for Dioxins and Dioxin-Like Compounds in Residential Soil" http://www.atsdr.cdc.gov/substances/dioxin/policy/

Table 2-2 Groundwater Screening Levels				
Parameter Name	**Federal/ Nevada Primary MCL [1]**	**Nevada Secondary MCL [2]**	**NDEP BCL - Residential Water [3]**	**EPA Tap Water [4]**
Metals (mg/L)				
Aluminum	NA	0.2	36.5	16
Antimony	NA	NA	0.006	0.006
Arsenic	0.01	NA	0.01	0.000045
Barium	2	NA	2	2.9
Beryllium	0.004	NA	0.004	0.016
Boron	NA	NA	7.3	3.1
Cadmium	0.005	NA	0.005	0.0069
Calcium	NA	NA	NA	NA
Chromium (Total)	0.1	NA	NA	NA
Hexavalent Chromium	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA
Copper	NA	NA	1.3	0.62
Iron	NA	0.6	25.6	11
Lead	0.015	NA	0.015	NA
Magnesium	NA	150	207	NA
Manganese	NA	0.1	5.11	0.32
Mercury	0.002	NA	0.002	0.00063
Molybdenum	NA	NA	0.183	0.078
Nickel	NA	NA	0.73	0.3
Potassium	NA	NA	NA	NA
Selenium	0.05	NA	0.05	0.078
Silver	NA	NA	0.1825	0.071
Sodium	NA	NA	NA	NA
Thallium	NA	NA	0.002	0.00016
Titanium	NA	NA	146	NA
Vanadium	NA	NA	0.183	0.078
Zinc	NA	5	11	4.7
Asbestos (fibers/L)				
Asbestos	7,000,000	NA	NA	NA
General Chemistry (Units listed below)				
Nitrogen, Ammonia (as N) (mg/L)	NA	NA	0.209	NA
Chloride (mg/L)	NA	400	NA	NA
Fluoride (mg/L)	4	2	4	0.62
Nitrogen, Nitrate (as N) (mg/L)	10	NA	10	25
Nitrogen, Nitrite (as N) (mg/L)	1	NA	1	1.6
pH (S.U.)	NA	9	NA	NA
Silica (mg/L)	NA	NA	NA	NA
Sulfate (mg/L)	NA	500	NA	NA
Phosphorus, Total (mg/L)	NA	NA	NA	NA
Total Dissolved Solids (mg/L)	NA	1000	NA	NA
TPH (mg/L)				
DRO (C10-C22)	NA	NA	NA	NA
ORO (C22-C32)	NA	NA	NA	NA
Total (C10-C32)	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	NA	NA	NA
PCBs (µg/L)				
Aroclor 1016	0.5	NA	0.96	0.96
Aroclor 1221	0.5	NA	0.0336	0.0068
Aroclor 1232	0.5	NA	0.0336	0.0068
Aroclor 1242	0.5	NA	0.0336	0.034
Aroclor 1248	0.5	NA	0.0336	0.034
Aroclor 1254	0.5	NA	0.0336	0.034
Aroclor 1260	0.5	NA	0.0336	0.034
SVOC (µg/L)				

Table 2-2 Groundwater Screening Levels				
Parameter Name	**Federal/ Nevada Primary MCL [1]**	**Nevada Secondary MCL [2]**	**NDEP BCL - Residential Water [3]**	**EPA Tap Water [4]**
Bis(2-ethylhexyl)phthalate	6.0	NA	6.00	4.8
PAHs (µg/L)				
1,1-Biphenyl (PAH)	NA	NA	1830	0.83
Acenaphthene	NA	NA	6.24	400
Anthracene	NA	NA	6.25	1300
Benzo(a)anthracene	NA	NA	0.0921	0.029
Benzo(a)pyrene	NA	NA	0.2	0.0029
Benzo(b)fluoranthene	NA	NA	0.0921	0.029
Benzo(g,h,i)perylene	NA	NA	1100	NA
Benzo(j)fluoranthene	NA	NA	NA	0.056
Benzo(k)fluoranthene	NA	NA	0.921	0.29
Chrysene	NA	NA	9.21	2.9
Fluoranthene	NA	NA	1460	630
Indeno(1,2,3-cd)pyrene	NA	NA	0.0921	0.029
Naphthalene	NA	NA	0.143	0.14
Phenanthrene	NA	NA	6.22	NA
Pyrene	NA	NA	6.22	87
1,1-Biphenyl (SVOC)	NA	NA	1830	0.83
Dioxins (ng/L)				
2,3,7,8-TCDD	0.03	NA	0.03	0.00052
2,3,7,8-TCDD Equivalence	NA	NA	NA	NA
VOCs (µg/L)				
1,1,1,2-Tetrachloroethane	NA	NA	0.524	0.5
1,1,1-Trichloroethane	200	NA	200	7500
1,1,2,2-Tetrachloroethane	NA	NA	0.0671	0.066
1,1,2-Trichloroethane	5	NA	5	0.24
1,1-Dichloroethane	NA	NA	2.42	2.4
1,1-Dichloroethene	7	NA	7	260
1,1-Dichloropropene	NA	NA	NA	NA
1,2,3-Trichlorobenzene	NA	NA	NA	5.2
1,2,3-Trichloropropane	NA	NA	0.00224	0.00065
1,2,4-Trichlorobenzene	70	NA	70	0.99
1,2,4-Trimethylbenzene	NA	NA	14.6	15
1,2-Dibromo-3-chloropropane	0.2	NA	0.2	0.00032
1,2-Dibromoethane	0.05	NA	0.05	0.0065
1,2-Dichlorobenzene	600	NA	600	280
1,2-Dichloroethane	5	NA	5	0.15
1,2-Dichloropropane	5	NA	5	0.38
1,3,5-Trimethylbenzene	NA	NA	14.5	87
1,3-Dichlorobenzene	NA	NA	86.7	NA
1,3-Dichloropropane	NA	NA	8.25	290
1,4-Dichlorobenzene	75	NA	75	0.42
2,2-Dichloropropane	NA	NA	NA	NA
2-Butanone	NA	NA	7060	4900
2-Chlorotoluene	NA	NA	91.25	180
4-Chlorotoluene	NA	NA	NA	190
4-Isopropyltoluene	NA	NA	834	NA
4-Methyl-2-pentanone	NA	NA	1990	1000
Acetone	NA	NA	21800	12000
Benzene	5	NA	5	0.39
Bromobenzene	NA	NA	87.6	54
Bromodichloromethane	80	NA	0.117	0.12
Bromoform	80	NA	8.51	7.9
Bromomethane	NA	NA	8.66	7
Carbon disulfide	NA	NA	1040	720
Carbon tetrachloride	5	NA	5	0.39

Table 2-2 Groundwater Screening Levels				
Parameter Name	**Federal/ Nevada Primary MCL [1]**	**Nevada Secondary MCL [2]**	**NDEP BCL - Residential Water [3]**	**EPA Tap Water [4]**
Chlorobenzene	100	NA	100	72
Chloroethane	NA	NA	23.2	NA
Chloroform	NA	NA	0.193	0.19
Chloromethane	NA	NA	2.7	190
cis-1,2-Dichloroethene	70	NA	70	28
cis-1,3-Dichloropropene	NA	NA	NA	NA
Dibromochloromethane	80	NA	0.147	0.15
Dibromomethane	NA	NA	8.16	7.9
Dichlorodifluoromethane	NA	NA	395	190
Ethylbenzene	700	NA	700	1.3
Hexachlorobutadiene	NA	NA	0.862	0.26
Isopropylbenzene	NA	NA	679	390
m,p-Xylene	10000	NA	10000	190
Methylene chloride	5	NA	5	4.7
Methyl-tert-butyl-ether	NA	NA	12.5	12
Naphthalene (VOC)	NA	NA	0.143	0.14
n-Butylbenzene	NA	NA	254	780
n-Propylbenzene	NA	NA	254	530
o-Xylene	NA	NA	1220	190
sec-Butylbenzene	NA	NA	254	NA
Styrene	100	NA	100	1100
tert-Butylbenzene	NA	NA	254	NA
Tetrachloroethene	5	NA	5	0.072
Toluene	1000	NA	1000	860
trans-1,2-Dichloroethene	100	NA	100	86
Trichloroethene	5	NA	5	0.44
Trichlorofluoromethane	NA	NA	1290	1100
Vinyl chloride	2	NA	2	0.015
Xylenes, Total	10000	NA	10000	190
Aldehydes and Diols (mg/L)				
Ethylene Glycol	NA	NA	73	73
Formaldehyde	NA	NA	0.00146	7.3

NA – Not Available

Notes:
Radionuclides not listed.

Footnotes:
[1] Federal/Nevada Primary MCL: Primary Maximum Contaminant Level (MCL)-- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2] Nevada Secondary MCL: Nevada Secondary MCL-- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as objectionable taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3] NDEP BCL - Residential Water: NDEP Basic Comparison Level (Residential Water)—Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: Updated User's Guide and Tables (January 2012).
[4] EPA Tap Water: EPA Regional Screening Level (RSL) (Tapwater)-- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Figure 2-1
Conceptual Site Model Flow Diagram
NVE Reid Gardner Station
AOC Implementation

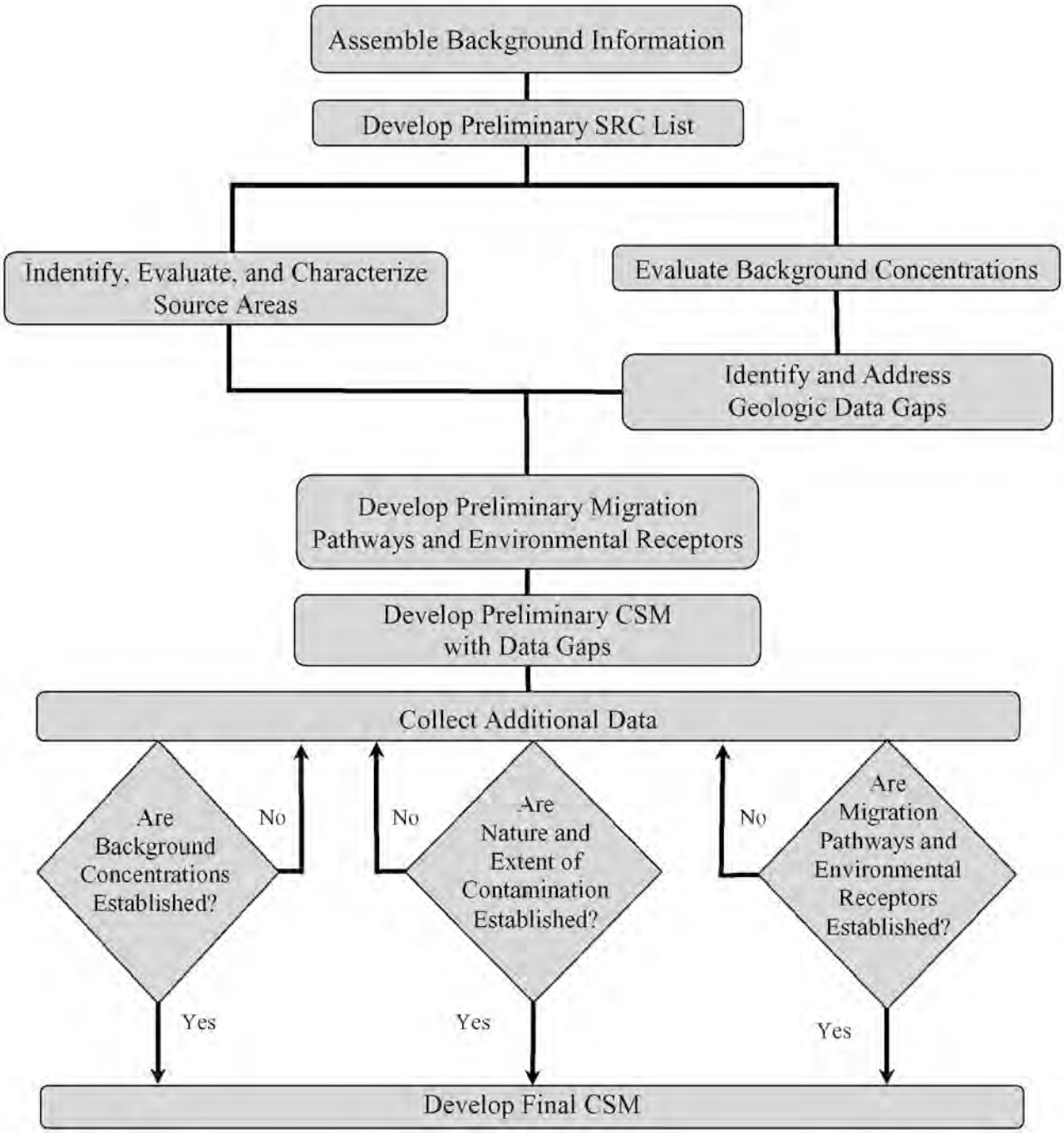
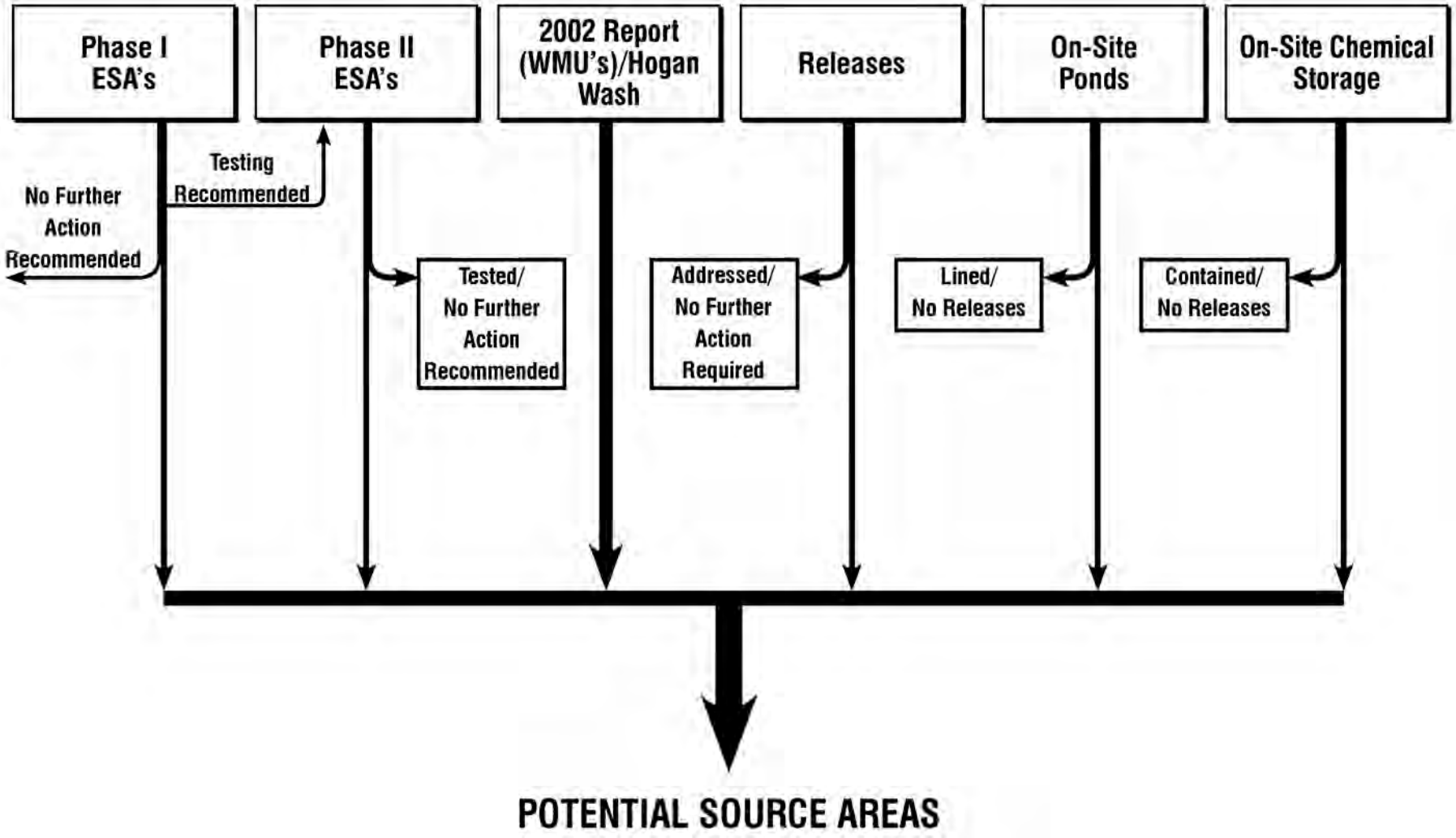


Figure 2-2
Potential Sources Identification Process
NVE Reid Gardner Station
AOC Implementation



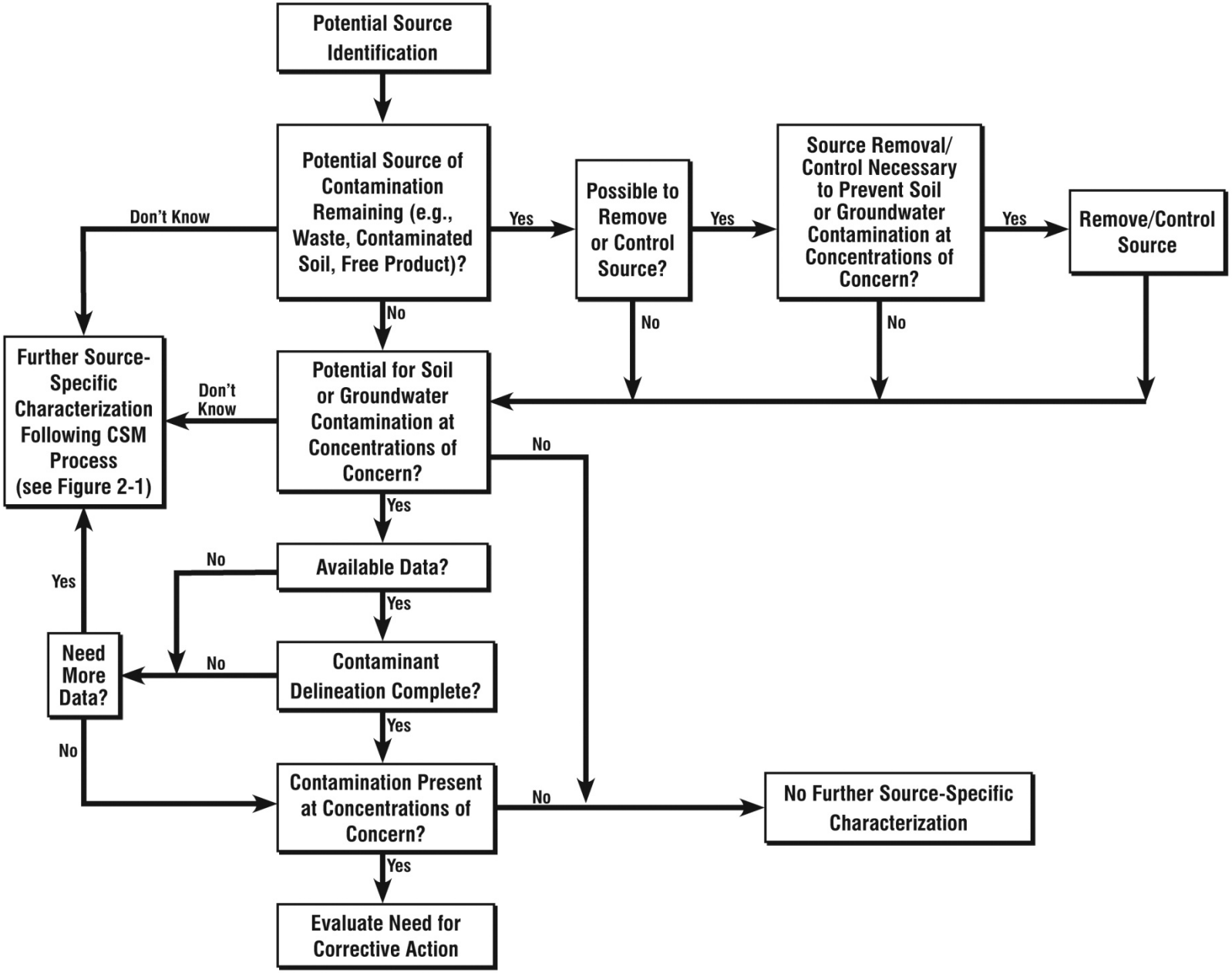

Potential Source Identification
Potential Source of Contamination Remaining (e.g., Waste, Contaminated Soil, Free Product)?
Don't Know
Yes
No
Possible to Remove or Control Source?
Yes
No
Source Removal/ Control Necessary to Prevent Soil or Groundwater Contamination at Concentrations of Concern?
Yes
No
Remove/Control Source
Further Source-Specific Characterization Following CSM Process (see Figure 2-1)
Don't Know
Potential for Soil or Groundwater Contamination at Concentrations of Concern?
No
Yes
Available Data?
No
Yes
Need More Data?
Yes
No
Contaminant Delineation Complete?
No
Yes
Contamination Present at Concentrations of Concern?
No
Yes
No Further Source-Specific Characterization
Evaluate Need for Corrective Action

Figure 2-4
Soil Screening Levels Decision Tree
NVE Reid Gardner Station
AOC Implementation

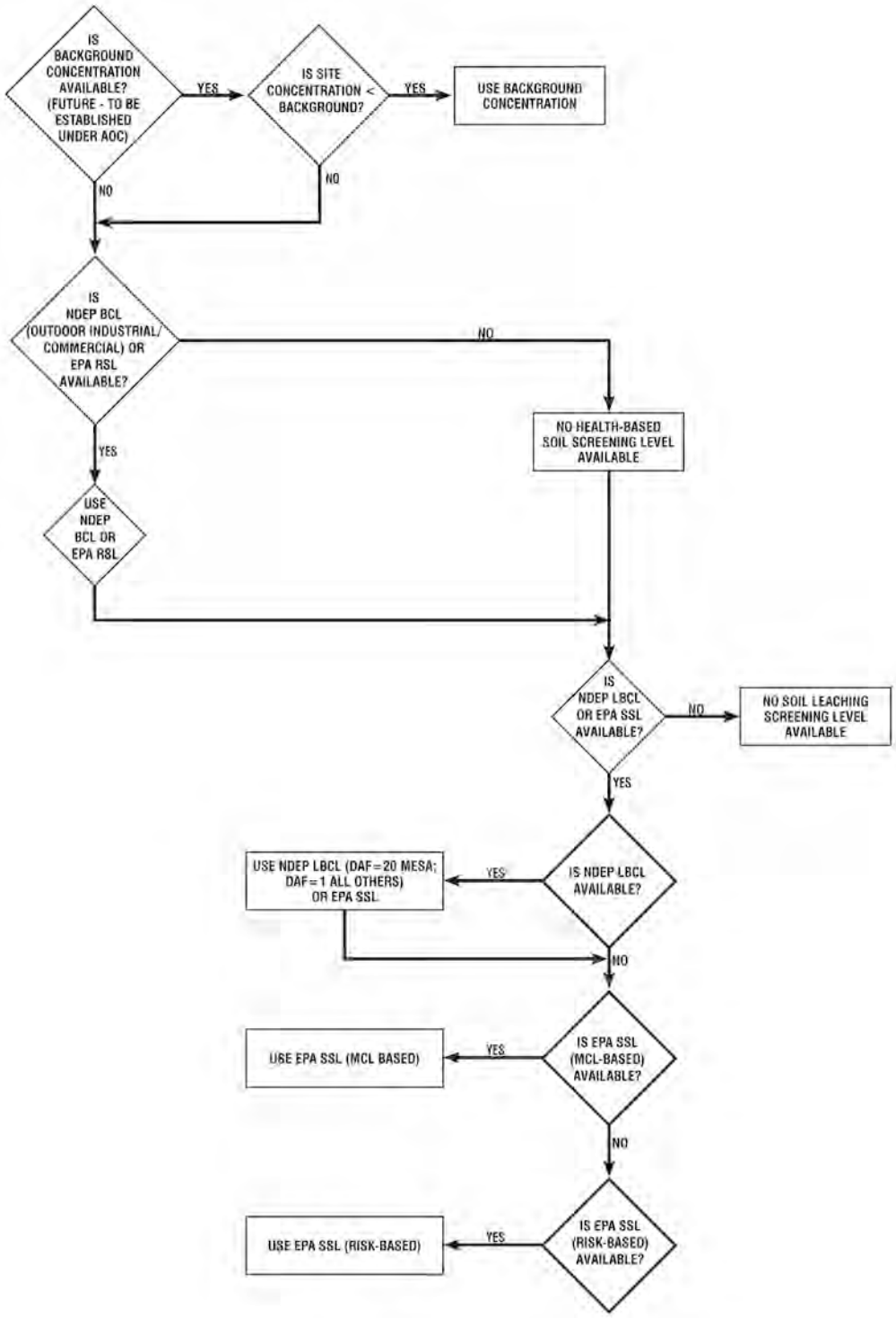
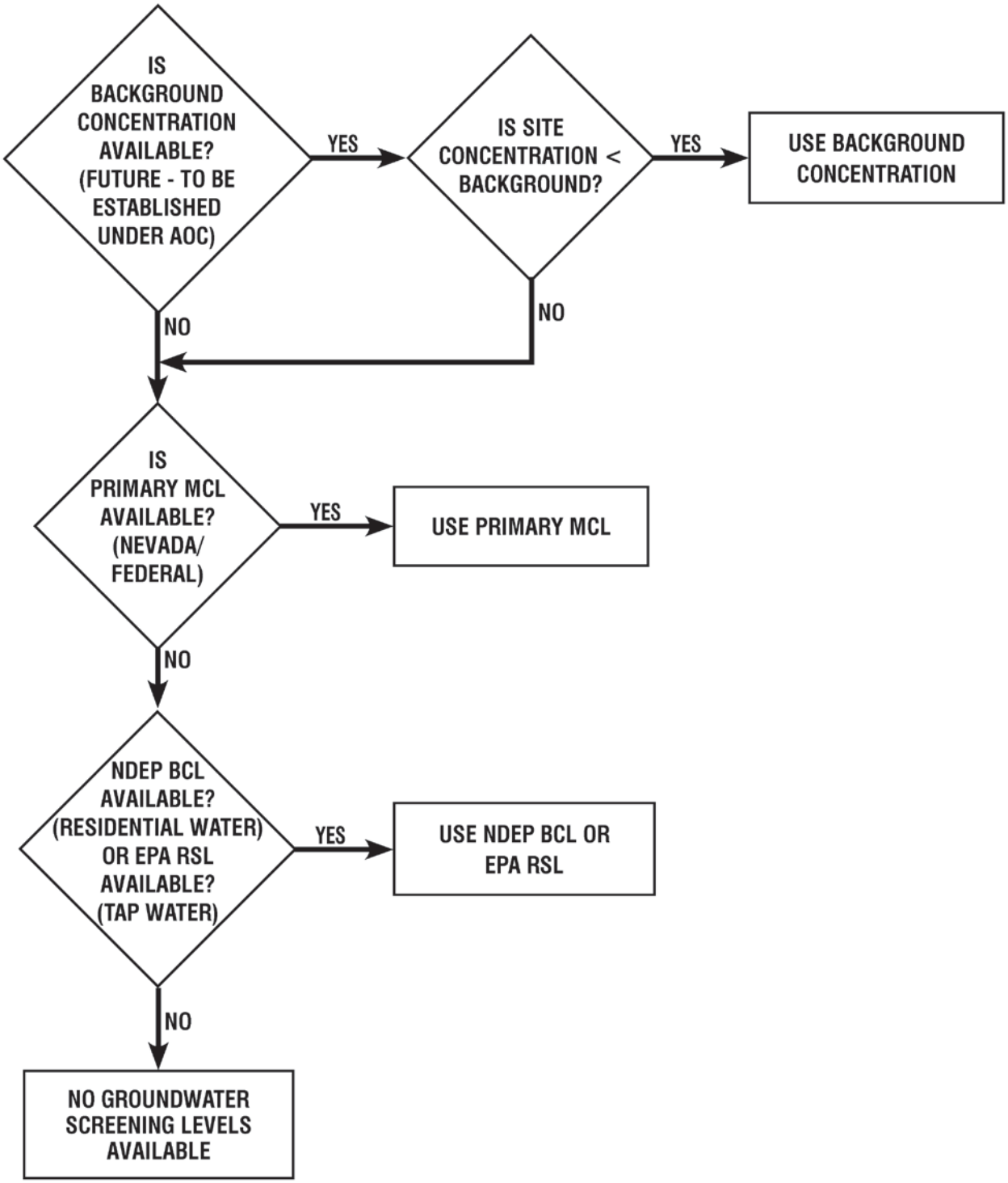


Figure 2-5
Groundwater Screening Levels Decision Tree
NVE Reid Gardner Station
AOC Implementation



Section 3

Station History

3.1 General History

The Station consists of a coal-fired, steam-electric generating plant with four operating units that can produce approximately 600 MW of power. The first two generating units went into service in 1965 and 1968. A third unit was added in 1976, followed by the fourth unit that was commissioned in 1983. Since 1965, there have been many modifications and improvements to the facility. The primary source of coal for all units at the Station has been from coal mines in the Uinta Basin located in Utah and portions of Colorado until 2009. Since that time, some coal obtained from mines in the Powder River Basin, Wyoming has been blended and used in Units 1-3 only. Table 3-1 contains a chronology of major events relevant to the potential sources discussed in this report. It was prepared based on interviews with NVE personnel and a review of documents contained in the Encyclopedia of Supporting Documentation (provided in Appendix C). These dates are estimated based on available information.

Table 3-1 Chronology of Events - NV Energy Reid Gardner Station

1965	Plant becomes operational with Unit 1 on-line; 850,000-gallon diesel tank constructed in the northern portion of the plant area. Evaporation ponds P1, P2, P3, P4, P5, and WMU-7 constructed on the mesa. Ash retention area (ASP-1 or Pond A) constructed in vicinity of current raw water ponds.
1968	Unit 2 on-line.
1969	ASP-2 (Pond B) constructed in vicinity of current raw water ponds.
1969-1973/1974	Evaporation ponds (referred to as Ponds C and D) constructed in current Pond E1/E2 location.
1973-1974	Units 1 and 2 scrubbers on-line.

Table 3-1 Chronology of Events - NV Energy Reid Gardner Station	
1974	Pond E constructed in former Pond C and D location, Pond D constructed.
1976	Unit 3 on-line along with scrubber.
≥1976	ASP-3 constructed in vicinity of current raw water ponds.
1980	WMU-1 permitted and placed into service on the mesa. WMU-5 and WMU-6 placed into service.
Early 1980s	ASP 1 over-excavated for raw water ponds construction. WMU-11 and WMU-12 constructed in the vicinity of the current raw water ponds and near the Unit 4 Coal Pile, respectively.
1983	Unit 4 (with absorbers) on-line along with Ponds 4A, 4B, and 4C (C1, C2, C3) with clay slurry walls and clay cores.
1985	WMU-7 taken out of service and covered.
1986	Ponds F and G built with slurry walls and clay cores; ASP-2 and ASP-3 closed; Ponds P1, P2, P3, P4, and P5 taken out of service. WMU-4 constructed on the mesa (current permitted landfill location).
1986	Diesel fuel leak discovered at north end of station and remediation began using three recovery wells.
1985-1986	WMU-3 constructed on the mesa for disposal of Unit 4 cooling tower debris.
1987	WMU-5 and WMU-6 taken out of service
<1988	Ponds 4B and Pond 4C each divided into three ponds.
1989	Clay slurry walls installed around Ponds D, E1, and E2 and berm height increased.
1990-1991	ASP-2 and ASP-3 reopened for evaporating decant water from diesel recovery system.
Mid-1990's	WMU-9 constructed on the mesa.
1991	WMU-2 constructed on the mesa.
1993	WMU-1 taken out of service.
1994	WMU-1 capped with fly ash and soil.
1994	Diesel recovery system expanded with addition of one product recovery trench.
1995	Diesel recovery system expanded with addition of four product recovery trenches.
<1997	WMU-3 covered with native material.
1999	Mesa dredge pond (same as WMU-10) built on the mesa.
1999	Pond 4A taken out of service and covered.
1999	Ponds 4B2, 4B3, 4C1, 4C2, and 4C3 taken out of service. WMU-10 lined with 60-mil HPDE liner.
2000	Pond 4B2, 4B3 taken out of service. All C Ponds taken out of service.

Table 3-1 Chronology of Events - NV Energy Reid Gardner Station	
2000	Diesel recovery system area expanded with addition of one recovery well.
2000	Ponds 4C2 and 4C3 combined and named 4C2.
2001	ASP-2 and ASP-3 closed.
2001	Pond 4C2 double lined with HDPE and aerators put into service.
2001	Ponds E1 and E2 taken out of service.
2001	Pond D taken out of service.
2002	Pond 4C1 double-lined with HDPE and aerators put into service.
2002	Mesa dredge pond (WMU-10) taken out of service.
2002	Pond 4C1 HDPE liner system installed and pond placed back in service.
2002	Two groundwater recovery trenches installed along Ponds D and E.
2002	Diesel recovery system expanded with addition of nine recovery wells.
2003	Pond D taken out of service with part of the area converted to a storm water pond with a single HDPE liner.
2003	Pond E separated into Ponds E1 and E2, HDPE liner system installed, and ponds placed back in service.
2003	Existing diesel recovery system replaced with vacuum-enhanced recovery system with eight wells, one pumping well, and two passive wells.
2005	Pond B1 taken out of service.
2005	Mesa Decant Pond built on mesa with single HDPE liner. WMU-9 closed.
2006	Groundwater recovery trench installed in Pond 4A area.
2007	Pond 4B3 HDPE liner system installed and pond placed back into service.
2007	Pond 4C1 inactive.
2007	Pond F HDPE liner system installed and pond placed back into service.
2008	Ponds 4B1 and 4B2 HDPE liner system installed and ponds placed back into service.
2008	Mesa Decant Pond taken out of service.
2008	Ponds 4C2 inactive.
2008	Pond G taken out of service.
2009	Mesa Decant Pond, Pond D, and Pond G closed with NDEP-Bureau of Water Pollution Control (NDEP-BWPC).

Table 3-1 Chronology of Events - NV Energy Reid Gardner Station	
2009	850,000-gallon diesel tank removed.
2010	Ponds D and G solids removed.
2012	Pond F taken out of service and solids removed.
2013	Pond F Closure with the NDEP-BWPC

3.2 Process Flow Diagram

The Station currently obtains its process water supply from a combination of off-site groundwater wells and upstream surface water withdrawals from the Muddy River. The water is combined and stored in the Raw Water Ponds at the north side of the Station. A generalized water/waste process flow diagram for current operations is provided as Figure 3-1 at the end of this Section. To reduce water usage, the Station recycles its water as much as possible. Water which has been used beyond serviceable limits is discharged to lined evaporation ponds. There are no surface water discharges of wastewater from the Station.

Water from the Raw Water Ponds is used without treatment for dust control, fire protection, in the cooling towers, and for miscellaneous use (utility water). After use, utility water is discharged to the ash transport and dewatering system. Some of the raw water is treated by demineralization and then used in the boilers. Cooling tower blowdown is treated before it is reused in the air pollution control equipment on the four generating units (wet scrubbers for Units 1, 2, and 3; absorber for Unit 4). Untreated cooling tower blowdown is used for dust control, as utility water, or disposed in the evaporation ponds. The scrubber/absorber blowdown water is discharged to the effluent forwarding pump station (EFPS) storage tank prior to being routed to the evaporation ponds for final disposal. Bottom ash from the four boilers goes to the on-site mesa landfill. Decant overflow water from the ash system is eventually discharged to the evaporation ponds. Treated water from the diesel recovery system can also be used for dust control. On-site storm water is collected and discharged into the evaporation ponds.

3.3 Pond History

The evaporation ponds were originally designed and constructed according to engineering practices and regulations in effect at the time of construction. Some of the first ponds (e.g., former Pond D and Pond E) were not lined. Other ponds (e.g., Ponds 4B and 4C) tied into existing geologic clayey soils and had berms that were built to engineering standards. Groundwater at the Station has been contaminated by leakage from these originally unlined ponds. Today, all active evaporation ponds are double-lined with HDPE and have an interstitial leak-detection and collection system to protect groundwater.

In May 1997, the NDEP issued Administrative Order NV052797W1 requiring NVE to submit a site-wide plan and schedule to eliminate the migration of contaminants into the groundwater. In

compliance with the order, NVE committed to either line all wastewater ponds with double synthetic liner systems or remove the ponds from service by April 2010.

To comply with the Order, NVE installed liner systems in eight evaporation ponds (Ponds 4C1, 4C2, 4B1, 4B2, 4B3, E1, E2, and F). Additionally, NVE took three ponds (Ponds 4A, D and G) out of service. NVE also constructed one new ash water settling pond on the mesa with a single HDPE liner (Mesa Decant Pond, which is no longer in service). NVE completed the requirements of the 1997 Order prior to April 2010.

A pond timeline is provided in Table 3-2. Further historical information for the ponds is provided in Section 4 and in the Potential Source Area Summary Table in Appendix D.

3.4 Waste Management History

Wastes historically and currently generated at the Station include, but are not limited to, fly ash, bottom ash, salts remaining after evaporation, water treatment wastes, and municipal-type solid wastes. Historically, many of these wastes were disposed at locations throughout the Station that were designated as WMUs. A waste management timeline is presented in Table 3-3. Additional historical information is provided in Section 4 of this report and in the Potential Source Area Summary Table in Appendix D.

Table 3-2 **Pond Timeline**

Year	P Ponds (P1-P5)	ASP-1 (Pond A)	ASP-2 (Pond B)	ASP-3	Unit 1,2,3 Catch Basin	Original Ponds C&D	Pond D	Pond E (E1-E2)	Raw Water Ponds	Pond 4A	Pond 4B1	Pond 4B2	Pond 4B3	Pond 4C1	Pond 4C2	Pond 4C3	Pond F	Pond G	Unit 4 Treated Water Pond	Unit 4 Settling Pond (Foster Wheeler)	Unit 4 Cooling Tower Catch Basin	Mesa Dredge Pond	Mesa Decant Pond	Year
UNIT 1 ON-LINE WITHOUT SCRUBBERS																								
1965																								1965
1966																								1966
1967																								1967
1968																								1968
UNIT 2 ON-LINE WITHOUT SCRUBBERS																								
1969																								1969
1970																								1970
1971																								1971
1972																								1972
1973																								1973
UNITS 1 AND 2 RETROFITTED WITH SCRUBBERS																								
1974							compacted native soil	compacted native soil																1974
1975																								1975
UNIT 3 ON-LINE WITH SCRUBBERS																								
1976					Concrete lined																			1976
1977																								1977
1978																								1978
1979																								1979
1980																								1980
1981																								1981
1982									asphalt lined															1982
UNIT 4 ON-LINE WITH SCRUBBER																								
1983										clay lined	clay lined - 4B	clay lined - 4B	clay lined - 4B	clay lined - 4C	clay lined - 4C	clay lined - 4C				concrete lined	concrete lined			1983
1984																			asphalt lined					1984
1985																								1985
1986																	compacted native soil	compacted native soil						1986
1987												split to 3 ponds	split to 3 ponds											1987
1988											split to B1-3													1988
1989																								1989
1990														3 ponds-early 90s	3 ponds-early 90s	3 ponds-early 90s								1990
1991																								1991
1992																								1992
1993																								1993
1994																								1994
1995																								1995
1996																								1996
1997																			HDPE-lined 1997-2000					1997
1998																								1998
1999																						HDPE lined		1999
2000															4C2/4C3 combined	4C2/4C3 combined								2000
2001															HDPE									2001
2002														HDPE		HDPE								2002
2003								HDPE lined, split to E1-E2																2003
2004																								2004
2005																							HDPE lined	2005
2006																								2006
2007													HDPE lined				HDPE lined							2007
2008											HDPE lined	HDPE lined												2008
2009																								2009
2010																								2010
2011																								2011
2012																								2012

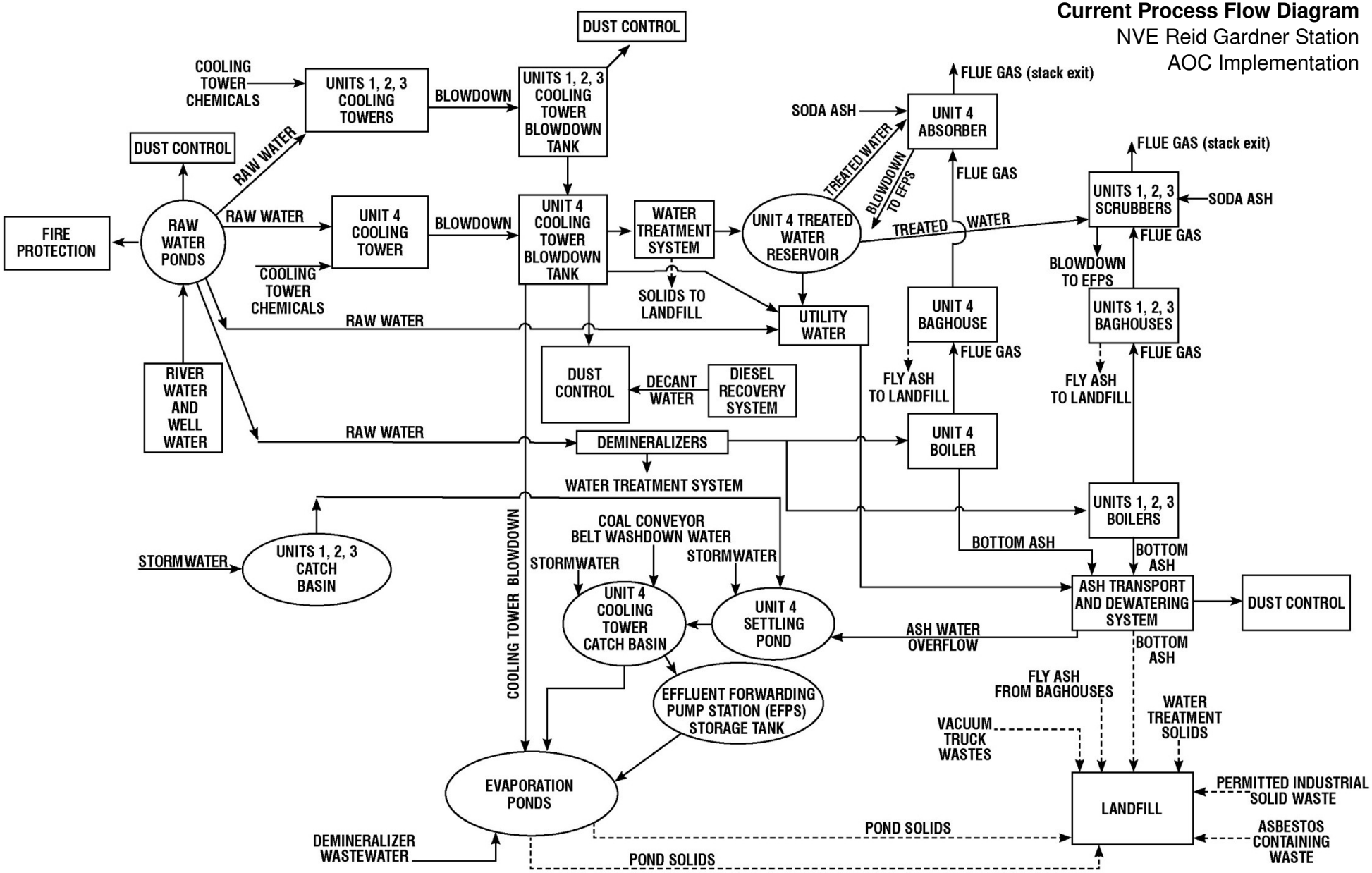
Yellow shading indicates pond is active. Notes in yellow shading indicate liner system or pond configuration.

Table 3-3 Waste Management Timeline

Year	WMU-7	WMU-11	WMU-12	WMU-5	WMU-6	WMU-4	WMU-3	WMU-1	WMU-2	WMU-9	WMU-10	Year
UNIT 1 ON-LINE WITHOUT SCRUBBERS												
1965	municipal-type wastes											1965
1966												1966
1967												1967
1968												1968
UNIT 2 ON-LINE WITHOUT SCRUBBERS												
1969												1969
1970												1970
1971												1971
1972												1972
1973												1973
UNITS 1 AND 2 RETROFITTED WITH SCRUBBERS												
1974												1974
1975												1975
UNIT 3 ON-LINE WITH SCRUBBERS												
1976												1976
1977												1977
1978												1978
1979												1979
1980		early 1980s – fly ash		Fly ash	Fly ash			municipal-type wastes, C&D waste				1980
1981												1981
1982		end date unknown										1982
UNIT 4 ON-LINE WITH SCRUBBER												
1983			Fly ash-dates unknown									1983
1984							cooling tower demolition debris/ fly ash					1984
1985												1985
1986						Fly ash						1986
1987									Asbestos wastes			1987
1988												1988
1989												1989
1990												1990
1991												1991
1992												1992
1993										Mid-90s-Water treatment wastes		1993
1994												1994
1995												1995
1996												1996
1997												1997
1998												1998
1999											Fly ash, pond salts	1999
2000												2000
2001												2001
2002												2002
2003												2003
2004												2004
2005												2005
2006												2006
2007												2007
2008												2008
2009												2009
2010												2010
2011												2011
2012												2012

Yellow shading indicates that the Waste Management Unit (WMU) is active. Notes included in the yellow shading indicate type of waste placed and dates (if specific dates are unknown)

Figure 3-1
Current Process Flow Diagram
NVE Reid Gardner Station
AOC Implementation



Section 4

Potential Source Areas

Potential source areas at the Station were identified using related historical documents in the Encyclopedia. NVE submitted the Encyclopedia (provided in Appendix C) to the NDEP on January 11, 2008 (updated and submitted February 2009, February 2010, and January 2011). These potential source areas, discussed in this section, include the following five groups; in order:

- Mesa
- Pond
- Petroleum
- Station
- North Station

At the beginning of each sub-section group, a table is provided which lists the potential source areas within the group. Next, each potential source area is discussed beginning with a table including the title, date, and author of each Encyclopedia document referenced. In each potential source area discussion, available historical information is presented along with a discussion of SRCs for which Nevada-certified laboratories are available (shown on Tables 2-1 and 2-2), and a summary of available soil and groundwater data. Based on this information, a recommendation is made regarding the need for further characterization.

4.1 Potential Mesa Source Areas

The potential mesa source areas are located on the mesa on the southwest side of the Station as shown on Figure A-3 and described in Table 4-1. These potential source areas have been used for disposal of a variety of wastes from Station operations. The current permitted landfill is listed as a potential source area and includes most of the other potential source areas within its footprint. The Mesa Decant Pond seen in the figure was installed in 2005 with a single HDPE liner. This pond was subsequently taken out of service in 2008. Because there were no releases from the pond, it was not considered a source area.

Table 4-1 Potential Mesa Source Areas

Source No.	Description
MA-1	Closed Sanitary Landfill (WMU-1)
MA-2	Special Asbestos Waste Cell (WMU-2) (Actively Permitted)
MA-3	Disposal Area for Construction and Demolition Debris (WMU-3)
MA-4	Existing Class III (Industrial) Landfill (WMU-4) (Actively Permitted)
MA-5	Closed Ash Disposal Site (WMU-5)
MA-6	Evaporation Ponds (P1 - P5)
MA-7	Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
MA-8	Water Treatment Waste Disposal Area (WMU-9)
MA-9	Former Mesa Dredge Pond (WMU-10)
PA-4	Ash Structural Fill Under Landfill Haul Road (WMU-6)

Groundwater beneath the mesa generally flows in a radial pattern to the north, northwest, and northeast towards the Muddy River then deflects in an easterly direction paralleling the Muddy River as shown on the Shallow Groundwater Elevation Contour Map, Figure 2A in Appendix B. The depth to groundwater in this area is typically 100 feet or more below ground surface (bgs). Groundwater quality data is included in the figures in Appendix B from the *Fourth Quarter 2011 Groundwater Monitoring and Remediation Report* (Stanley Consultants, 2012). Table E-1 summarizes groundwater monitoring statistics for parameters in mesa source area wells for the period where data is available (August 1993 to December 2011).

4.1.1 MA-1 - Closed Sanitary Landfill

The following documents in Table 4-2 were referenced when researching the history and previous investigations of MA-1.

Table 4-2 MA-1 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
CH-008	Landfill Permit 1980	12/08/1980	CCHD
AOC-232	Empty Barrel Control 1-2-3-4 (Interoffice Memorandum)	2/25/1986	NPC
CH-006	Landfill Permits 1986	07/01/1988	CCHD
CH-003	Internal Memorandum for Sanitary Landfill Closure (Class III landfill)	09/21/1992	NPC
Storage-424920718	Sanitary Landfill	01/14/1993	NPC
AOC-88	Sanitary Landfill Closure Plan	5/12/1993	Kleinfelder
AOC-255, AOC-301	Landfill Closure Report	2/7/1994	NPC
CH-005	Solid Waste Landfill Closure Memorandum	02/16/1994	CCHD
AOC-22	Reid Gardner Bottom Ash (Interoffice Memorandum)	2/24/1994	NPC
AOC-24	Various Fly Ash MSDSs	4/6/1994	NPC
Storage-424920713	Notification of Non-Compliance/Groundwater Monitoring Waiver Request (Correspondence)	4/17/1997	NPC
NDEP-25	Phase I Environmental Site Assessment for Reid Gardner Station	10/1998	CH2MHill
AOC-50	Phase II Environmental Site Assessment	6/1999	Black & Veatch
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-91	Supplemental Phase II Environmental Site Assessment Task Report—Task 19—Solid Waste Landfill Groundwater Assessment	8/22/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

MA-1 was an unlined, permitted sanitary landfill located on the mesa near the southwestern corner of the Station property and is located within the footprint of MA-4 (discussed later in this report). The Clark County Health District (CCHD) first permitted MA-1 as a Modified Sanitary Waste Landfill on December 8, 1980 under permit number B0039 (CH-008). The permitted waste for this facility was debris from the construction of Unit 4; as well as trash and garbage (i.e. wood, paper, metal containers, office waste, etc.) generated by operating power generation Units 1-3. The wastes were periodically buried to reduce their scattering by wildlife and wind. Additionally, weekly inspections of the area were conducted to check for hazardous and regulated materials. It appears that the permit number for the sanitary landfill was changed to 04723-CMG-01 between June 30, 1987 and July 1, 1988. In order to comply with Class III (industrial waste) landfill regulations published in 1992, MA-1 was required to stop accepting waste or comply with the new regulations. In 1993, NVE stopped placing wastes in MA-1. NVE capped the landfill with fly ash and a revegetation layer of native soil

in 1994 in accordance with an approved closure plan. Per CCHD records, the sanitary landfill was "*closed in accordance with 40 CFR 258.60*" on February 16, 1994 (CH-005).

A Phase II ESA was performed by Black & Veatch at the Station in 1999 (AOC-50). As part of the ESA, three soil borings were advanced (RB-62, 63, and 64) in the area of MA-1 and soil vapor samples were collected. The report states, "*VOCs were detected at low levels in soil gas samples collected at the former Sanitary Landfill. The landfill has received closure by the Clark County Health District. The fly ash cap on the landfill was reported to be approximately 10 feet thick. The actual cap thickness encountered in the boreholes was approximately 40 feet. Groundwater samples should be collected from beneath the former Sanitary Landfill and analyzed for VOCs*" (AOC-50). Boring logs from these three borings indicate fly ash fill material with no indications of petroleum odors or soil staining. Solid waste (wood and plastic) was identified in only one boring; RB-62 from 35 feet to 40 feet bgs. No waste was identified in RB-63 or RB-64.

4.1.1.1 Site Related Chemicals

Based on historical operations in this area (permitted sanitary landfill with a fly ash cap), the SRC parameter categories that could be present are general chemistry, metals, PAHs, Polychlorinated Biphenyls (PCBs), Semi-Volatile Organic Compounds (SVOCs), TPH, and VOCs.

4.1.1.2 Sampling Results Summary

Soil vapor sampling was conducted in 1999 by Black & Veatch as part of a Phase II ESA. VOCs were detected in soil vapor collected from three borings in MA-1. Results from this sampling are included in Table E-2 and included primarily Freon 12, chloromethane, Freon 11, 1,1-dichloroethene, Freon 113, methylene chloride, 1,1-dichloroethane, 1,1,1,-trichloroethane, toluene, tetrachloroethene, acetone, and 2-butanone (MEK). No soil sampling data was identified in available documents relative to MA-1.

4.1.1.3 Conclusions and Recommendations for Further Investigation

- No further soil characterization is recommended at MA-1. The landfill was closed by the solid waste management authority in accordance with regulations in place at the time. MA-1 has since been included in the area covered by the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-1 will be included in Mesa Area groundwater characterization efforts and will include VOC sampling in selected wells.

4.1.2 MA-2 - Special Asbestos Waste Cell (Active Permit)

The following documents in Table 4-3 were referenced when researching the history and previous investigations of MA-2.

Table 4-3 MA-2 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
CH-002	Internal Memorandum Mentioning ACBM	09/04/1986	NPC
CH-006	Health Permit 04723-WMG-01	07/01/1988	CCHD
DP-1	Solid Waste Disposal Site Permit LF006-CMF-01	10/04/1994	Clark County Board of Health
NDEP-25	Phase I Environmental Site Assessment for Reid Gardner Station	10/1998	CH2MHill
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

MA-2 is an unlined, asbestos-containing building material (ACBM) disposal site located within the boundaries of the existing Class III landfill. MA-2 was first discussed with CCHD in 1986; and was permitted by CCHD under permit number 04723-WMG-01 issued on July 1, 1987 (AOC-96). It is important to note that before 1994, the ACBM disposal site was permitted separately from the other disposal sites. On October 4, 1994 MA-2 was re-permitted as a special asbestos waste cell under the existing Class III landfill permit number LF006-CMF-01 (DP-1). MA-2 has been permitted under the Class III landfill permit since that time.

Records dating back to its construction have been maintained in accordance with the Nevada Administrative Code (NAC). MA-2 periodically accepts de minimis quantities of ACBM waste (e.g., demolition debris that has positively tested for asbestos or is suspected to contain asbestos). Access to MA-2 is restricted by a fence when actively accepting ACBM waste. Generally, ACBM waste is disposed of by burial and encapsulation within ash placed as part of MA-4 (existing Class III landfill).

4.1.2.1 Site Related Chemicals

Based on operations conducted in this area (ACBM disposal, ash encapsulation), asbestos, formaldehyde, general chemistry and metals are the only SRC parameter expected to be present.

4.1.2.2 Sampling Results Summary

No soil sampling data was identified in available documents relative to MA-2.

4.1.2.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended specific to MA-2. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities.

- No groundwater characterization is recommended. Asbestos fibers are not water soluble and do not move through soil or groundwater to any appreciable extent. The depth to

groundwater in this area is typically 100 feet or more bgs. It is unlikely that asbestos fibers will migrate through soil to reach groundwater at this depth.

4.1.3 MA-3 – Existing Disposal Area for Construction and Demolition Debris

The following documents in Table 4-4 were referenced when researching the history and previous investigations of MA-3.

Table 4-4 MA-3 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-231	Disposal of Redwood from Reid Gardner Unit 1 Cooling Tower (Interoffice Memorandum)	2/14/1986	NPC
CH-004	Baghouse Replacement Letter	07/05/1988	NPC
Storage-424920713	August 11, 1994 Letter (Construction Demolition Debris Disposal)	08/19/1994	CCHD
AOC-258	Temporary Discharge Permit #TNEV96016	8/19/1996	NDEP
AOC-298	Seepage Observed in the Vicinity of Discharge Area: NPC Reid Gardner Station Temporary Permit Number TNEV96016	10/22/1996	NPC
Storage-424920713	Notification of Non-Compliance/Groundwater Monitoring Waiver Request (Correspondence)	4/17/1997	NPC
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

MA-3 is located within the bounds of MA-4 and was an unlined disposal site for construction and demolition (C&D) debris prior to 1994. It was first used in 1984 to accept debris from the demolition of the Unit 4 cooling tower (which suffered a structural failure) (AOC-96). MA-3 accepted various C&D wastes from Station construction and maintenance projects until 1994, at which time the disposal of C&D debris formally fell under newly established Class III landfill regulations (Storage-424920713, 1994).

In 1996, NDEP permitted disposal at MA-3 of pond solids removed from Ponds 4B-1, 4B-2, 4B-3, and G (AOC-258). An earthen embankment was constructed around MA-3 to contain the material. In October 1996, seepage was observed at the side of the fly ash haul road near the summit of the mesa, adjacent to MA-3. A containment berm was built around the seep area and a pump was used to return the discharge water to the ponds (AOC-298). MA-3 was covered with native material prior to 1997.

4.1.3.1 Site Related Chemicals

Based on operations conducted in this area (C&D waste and pond solids disposal), the SRC parameter categories that could be present are formaldehyde, general chemistry, and metals. These parameter categories were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and

the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively.

4.1.3.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-3.

4.1.3.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended at MA-3. Wastes were placed with regulatory coordination; and the actual wastes placed were consistent with the waste types permitted under both past and current permits. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-3 will be included in Mesa Area groundwater characterization efforts.

4.1.4 MA-4 - Class III (Industrial Waste) Landfill (Active Permit)

The following documents in Table 4-5 were referenced when researching the history and previous investigations of MA-4.

Table 4-5 MA-4 Related Documents

Encyclopedia Document No.	Title	Date	Author
CH-007	Landfill Permits 1986	07/01/1986	CCHD
Storage-424920718	Fly Ash Rehabilitation and Disposal	10/1/1986	Kleinfelder
NDEP-86	Moisture Content Evaluation of Subsurface Soils at the Mesa Fly Ash Storage Area Phase III	1/10/1992	Kleinfelder
AOC-141	Pond F Borings	3/2/1992	Kleinfelder
AOC-24	Various Fly Ash MSDSs	4/6/1994	NPC
NA	Permit to Operate a Solid Waste Management Facility (Permit Number LF006-CMF-01)	9/9/2011	Southern Nevada Health District
AOC-140	Temporary Discharge Permit Request—NPC Reid Gardner Station	10/14/1996	NPC
AOC-253	Review Comments to the Facility's Operating Plan for the Class III Disposal Site at Reid Gardner Power Generation Facility	9/22/1999	Clark County Health Department
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
DP-26	Request for Waiver, Nevada Power Company Reid Gardner Station Class III Landfill	2/16/2006	NPC

Table 4-5 MA-4 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP-73	Preliminary Landfill Expansion Design (10% Design)	2/27/2006	Kennedy/Jenks Consultants
NDEP-74	Lateral Expansion to Existing Landfill (65% Design)	12/18/2006	Kennedy/Jenks Consultants
DP-32	Memorandum #10-07—Application for approval for a lateral expansion to Nevada Power Company Class III Landfill	7/26/2007	Southern Nevada Health District
DP-33	Application for approval for a lateral expansion to Nevada Power Company Class III Landfill	8/3/2007	Southern Nevada Health District
NDEP-83	Environmental Assessment NV-2006-292 Reid Gardner Facility Pond and Landfill Expansion Project --Draft	8/2007	U.S. Dept. of Interior-Bureau of Land Management

MA-4 is an unlined Class III (industrial waste) landfill permitted by the SNHD under permit number LF006-CMF-01. The landfill is permitted to receive C&D debris and industrial solid waste from the generation of electric power. The accepted wastes listed in the permit include: fly ash, bottom ash, reactivator solids, pond solids, and C&D wastes. One cell of the landfill was lined with a single liner prior to receiving pond solids in 2010. Additionally, portions of the landfill are also permitted to accept ACBM (as described earlier). The waste is managed in accordance with permit requirements.

MA-4 was originally permitted by the CCHD (now the SNHD) under permit number B0038 on or before July 1, 1986. The landfill was re-permitted as permit number LF006-CMF-01 on October 4, 1994 to conform to regulatory requirements which became effective in 1994.

4.1.4.1 Site Related Chemicals

The SRC parameter categories at MA-4 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, landfill solids disposal, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, and metals.

4.1.4.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-4. Solids samples of the fly ash and bottom ash from Units 1, 2, 3, and 4 and reactivator solids were sampled in November and December 2011 and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals, VOCs, SVOCs, and pesticides; pH; radium-226; and radium-228. None of the analyses revealed an exceedance of a regulatory limit. Barium, chromium, and selenium were the only metals detected in the TCLP extract; the concentrations were all below their respective regulatory limits. No VOCs, SVOCs, or pesticides were detected in the TCLP extract. The pH in the samples

ranged from 9.79 to 12.20, within the regulatory limits of 2 - 12.5. Under the Bevill Amendment (RCRA §3001(b)(3)(A)(i-iii)), solids from NVE are exempt from regulation as hazardous waste under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The radium-226 and -228 concentrations ranged between 0.418 to 2.43 picocuries per gram (pCi/g). The solids sampling results are provided in Table 4-6.

Table 4-6 MA-4 Solids Sampling Results						
Parameter Name	**Fly Ash Units 1-3**	**Fly Ash Unit 4**	**Bottom Ash Units 1-3**	**Bottom Ash Unit 4**	**Reactivator Solids**	**Maximum Concentration of Contaminants for the Toxicity Characteristic[1]**
	11/14/2011	**11/14/2011**	**11/16/2011**	**12/14/2011**	**11/14/2011**	
TCLP Metals (mg/L)						
Arsenic	< 0.050	< 0.050	< 0.050	< 0.050	< 0.051	5
Barium	4.1	0.44	0.40	0.16	< 0.15	100
Cadmium	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	1
Chromium	0.26	1.1	< 0.050	< 0.050	< 0.050	5
Lead	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	5
Mercury	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.2
Selenium	< 0.050	0.19	< 0.050	< 0.050	< 0.050	1
Silver	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	5
General Chemistry (pH units)						
pH	12.20	12.13	9.79	10.10	11.96	<2.0 / >12.5
TCLP VOCs (mg/L)						
Benzene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5
Carbon Tetrachloride	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5
Chlorobenzene	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	100
Chloroform	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	6
1,4-Dichlorobenzene (p-DCB)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	7.5
1,2-Dichlorobenzene (1,2-DCA)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5
1,1-Dichlorobenzene (1,1-DCE)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.7
Methyl Ethyl Ketone (MEK)	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	200
Tetrachloroethlene (PCE)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.7
Trichloroethene (TCE)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.5
Vinyl Chloride	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	0.2

Table 4-6 MA-4 Solids Sampling Results						
Parameter Name	**Fly Ash Units 1-3**	**Fly Ash Unit 4**	**Bottom Ash Units 1-3**	**Bottom Ash Unit 4**	**Reactivator Solids**	**Maximum Concentration of Contaminants for the Toxicity Characteristic[1]**
	11/14/2011	**11/14/2011**	**11/16/2011**	**12/14/2011**	**11/14/2011**	
TCLP Semi VOCs (mg/L)						
m&p-Cresol (3&4-methylphenol)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	200
o-Cresol (2-methylphenol)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	200
Cresols (Total methylphenols)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	200
1,4-Dichlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	7.5
2,4--Dinitrotoluene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13
Hexachlorobenzene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.13
Hexachloro-1,3-butadiene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.5
Hexachloroethane	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	3
Nitrobenzene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2
Pyridine	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	5
Pentachlorophenol	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	100
2,4,5-Trichlorophenol	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	400
2,4,6-Trichlorophenol	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2
TCLP Chlorinated Herbicides (mg/L)						
2,4,5-TP (Silvex)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	1
2,4-D	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	10
TCLP Organochlorine Pesticides (mg/L)						
Chlordane	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.03
Endrin	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.02
Heptachlor	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.008
Lindane	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.4
Methoxychlor	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	10
Toxaphene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.5

Table 4-6 MA-4 Solids Sampling Results						
Parameter Name	**Fly Ash Units 1-3**	**Fly Ash Unit 4**	**Bottom Ash Units 1-3**	**Bottom Ash Unit 4**	**Reactivator Solids**	**Maximum Concentration of Contaminants for the Toxicity Characteristic[1]**
	11/14/2011	**11/14/2011**	**11/16/2011**	**12/14/2011**	**11/14/2011**	
Radiological (pCi/g)						
Radium 226	2.43	2.03	1.52	1.13	0.948	N/A
Radium 228	2.19	1.30	1.10	0.984	0.418*	N/A

[1] Regulatory Levels provided in 40CFR 261.24

*Analyte detected below the indicated normal Detection Limit (DL)

4.1.4.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended specific to MA-4. Wastes were placed with regulatory coordination; and the actual wastes placed were consistent with the waste types permitted under both past and current permits. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-4 will be included in Mesa Area groundwater characterization efforts.

4.1.5 MA-5 - Closed Ash Disposal Site

The following documents in Table 4-7 were referenced when researching the history and previous investigations of MA-5.

Table 4-7 MA-5 Related Documents

Encyclopedia Document No.	Title	Date	Author
Storage-424920718	Fly Ash Rehabilitation and Disposal Study	10/01/1986	J.H. Kleinfelder and Associates
AOC-22	Reid Gardner Bottom Ash (Interoffice Memorandum)	2/24/1994	NPC
AOC-24	Various Fly Ash MSDSs	4/6/1994	NPC
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

MA-5, located on the western side of the mesa, was an unlined disposal site used primarily for ash. It was established and used around the same time frame as MA-1. Wastes placed in MA-5 reportedly consisted almost entirely of fly ash, bottom ash, slag, and relatively minor amounts of reactivator solids produced during water treatment. NVE stopped using MA-5 on or before 1987. NVE closed MA-5 and installed an engineered soil cover on MA-5 on June 10, 1987.

4.1.5.1 Site Related Chemicals

The SRC parameter categories at MA-5 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, landfill solids disposal, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, and metals.

4.1.5.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-5.

4.1.5.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended. This area was closed and covered in accordance with good engineering practice; the actual wastes placed were consistent with the waste types permitted in the area under both past and current permits. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-5 will be included in Mesa Area groundwater characterization efforts.

4.1.6 MA-6 - Evaporation Ponds P1 – P5

The following documents in Table 4-8 were referenced when researching the history and previous investigations of MA-6.

Table 4-8 MA-6 Related Documents

Encyclopedia Document No.	Title	Date	Author
MHOE-020	Topographic Map of Reid Gardner	11/29/1972	American Aerial Surveys, Inc.
AOC-334	Final Environmental Impact Report Reid Gardner Generating Station Unit No. 4	2/1979	California Department of Water Resources
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-331	PSDC Soft Spot Borings	Undated	CH2MHill

Five former evaporation ponds (P1 – P5) previously existed within what is now the footprint of MA-4 (MHOE-020). The date of their first use is unknown although it has been assumed that it was 1965 when the Station became operational. Use of the ponds reportedly ceased in 1986, well before the start of permitted landfill operations in 1994. These ponds were constructed of earthen embankments from local soils and were reportedly used in the event of a water balance problem at the Station. Non-scrubber wastewater was directed to these ponds through a steel pipe and pump system. These ponds have been covered by soil and waste placed in the normal process of constructing MA-4.

4.1.6.1 Site Related Chemicals

The SRC parameter categories at MA-6 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs, and VOCs.

4.1.6.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-6.

4.1.6.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended. This area was covered by additional waste placed in accordance with regulatory requirements and is now managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-6 will be included in Mesa Area groundwater characterization efforts.

4.1.7 MA-7 – Landfill Used for Industrial and Non-Industrial Waste (WMU-7)

The following documents in Table 4-9 were referenced when researching the history and previous investigations of MA-7.

Table 4-9 MA-7 Related Documents

Encyclopedia Document No.	Title	Date	Author
*Section 6	Final Sampling and Analysis Report-Waste Management Unit 7	9/2011	Stanley Consultants

*Refer to Section 6 of this report

MA-7 (WMU-7) was the primary landfill for the Station wastes prior to 1985. Most non-hazardous solid wastes generated in the early history of the Station (possibly as early as 1963) were apparently disposed of in this landfill. The disposal area was reportedly constructed on the mesa above the Station by excavating several long trenches with materials placed in the trenches being periodically burned to reduce volume. From 1984 to 1985, MA-7 was covered with a thin layer of soil fill material mixed with some other debris.

4.1.7.1 Site Related Chemicals

Based on soil sampling conducted in this area in 2005 and 2009, the SRC parameter categories that are present are aldehydes and diols, dioxins and furans, general chemistry, metals, PAHs, PCBs, SVOCs, TPH, and VOCs.

4.1.7.2 Sampling Results Summary

Limited soil sampling and a ground penetrating radar (GPR) survey were conducted in the area of MA-7 in November 2005 by Converse Consultants. The GPR survey covered an approximate area of 200 feet by 300 feet and indicated that the upper three feet of the surveyed area generally consists of soil and scattered debris. Large magnetic anomalies, such as metal drums, were not interpreted to be present.

Also in November 2005, twelve soil borings were advanced by Converse Consultants in the area of MA-7. The borings were advanced to depths ranging from approximately 10 to 19 feet bgs and were terminated once undisturbed geology was encountered. Debris including rags, plastic, metal, glass, and paper items was encountered in nine of 12 borings from the ground surface to approximately 11 feet bgs.

Soil samples were collected for screening purposes from the cuttings from eight of the twelve soil borings and submitted to the laboratory to be analyzed for TPH, VOCs, SVOCs, PCBs, dioxins, and metals. TPH concentrations in soil samples collected from four borings were above the total TPH soil action level in effect at the time. Although dioxins were detected in all soil samples analyzed, none of the concentrations were in excess of the Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity Equivalent (TEQ). Several VOCs and SVOCs were detected in soil samples; however, the concentrations were below EPA screening levels in effect at the time. One soil sample had a PCB detection, but the concentration was below the EPA screening level in effect at the time. Barium, cadmium, chromium, lead, mercury, and selenium were all detected at concentrations below the EPA screening levels in effect at the time while only arsenic was detected above the EPA screening level.

Stanley Consultants conducted field activities in the MA-7 area on November 5-9, 2009. Field observations during the sampling event, including 61 exploratory borings, were used to determine the extent of buried debris. The apparent footprint of MA-7 can be seen in Figure A-4 in Appendix A. Twelve soil borings were advanced to depths ranging from five to 12 feet bgs to collect soil and fill material samples for laboratory analyses for asbestos, aldehydes and diols, dioxins and furans, general chemistry, metals, radionuclides, PAHs, PCBs, SVOCs, TPH, and VOCs. Formaldehyde, dioxins, several metal parameters, and some VOC parameters were detected at concentrations exceeding screening levels in effect at that time (Stanley Consultants, 2011).

Soil boring locations are shown on Figure A-4 in Appendix A. Available soil data in the vicinity of MA-7 collected in 2005 and 2009 is provided in Tables E-3 through E-6 in Appendix E and are summarized in Table 4-10. Based on the results of the November 2009 soil sampling conducted at MA-7, monitoring well KMW-12 (immediately down-gradient of MA-7) was sampled on November 18, 2010, to evaluate whether contaminants in the WMU-7 area that exceed the NDEP LBCL (DAF 20) have leached to groundwater at levels of concern. KMW-12 was sampled and analyzed for aluminum, antimony, copper, iron, PAHs, and VOCs. These results are summarized in Table 4-11. None of these parameters were detected in the groundwater at concentrations in excess of screening levels. Additionally, the VLEACH model was used to evaluate the potential impact to groundwater of trichloroethene and tetrachloroethene leaching from the WMU-7 soils within the apparent footprint of buried debris. This site-specific, VOC-specific unsaturated zone modeling was used to demonstrate that VOCs are not expected to leach to groundwater at levels of concern (Stanley Consultants, 2011). Mesa groundwater data is shown on Table E-1 in Appendix E.

Table 4-10 MA-7 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 20)**
Aldehydes and Diols (mg/kg)							
Ethylene Glycol	< 10.1	2.10	NA	15	1,200,000	100,000	NA
Formaldehyde	< 1.03	**2.78**	NA	1.5	120,000	41.6	NA
Asbestos	Asbestos was analyzed and not detected as shown on Tables E-3 through E-6 in Appendix E.						
Dioxins and Furans (ng/kg)	Dioxins and Furans that were analyzed and not detected are shown on Tables E-3 through E-6 in Appendix E.						
Total 2,3,7,8-TCDD Equivalence	0.00	**120**	NA	NA	50	NA	NA
2,3,7,8-TCDD	< 0.25	**5.10**	15	0.26	18	17.7	NA
Total TCDD	< 0.25	960	NA	NA	NA	NA	NA
General Chemistry (mg/kg)							
Ammonia	< 2.6	58.0	NA	NA	NA	100,000	NA
Chloride	5.70	1500	NA	NA	NA	NA	NA
Fluoride	4.30	37.0	93	41,000	41,000	41,000	NA
Nitrate	1.40	120	NA	NA	1,600,000	100,000	NA
Total Phosphorous	50.0	860	NA	NA	NA	NA	NA
Sulfate	180	20,000	NA	NA	NA	NA	NA
Metals (mg/kg)	Metals that were analyzed and not detected are shown on Tables E-3 through E-6 in Appendix E.						
Aluminum	**3700**	**12,000**	NA	23,000	990,000	100,000	1500
Antimony	< 2	**8.20**	0.27	0.27	410	454	6
Arsenic	< 5	**17.0**	0.29	0.0013	1.6	1.77	20
Barium	42.0	**240**	82	120	190,000	100,000	1640
Boron	12.0	**170**	NA	9.9	200,000	100,000	467
Cadmium	< 0.5	**5.00**	0.38	1.4	800	553	8
Calcium	22,000	130,000	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.16	**0.35**	NA	0.00059	5.6	1360	40
Chromium (total)	< 1.1	320	180,000	NA	NA	NA	NA
Cobalt	1.80	**6.80**	NA	0.21	300	337	660
Copper	3.20	**930**	46	22	41,000	42,200	704
Iron	**6400**	**75,000**	NA	270	720,000	100,000	151
Lead	< 5	**200**	14	NA	800	800	NA
Magnesium	**4100**	**33,000**	NA	NA	NA	100,000	13,000
Manganese	**90.0**	**660**	NA	21	23,000	100,000	65.2
Mercury	< 0.02	**0.65**	0.1	0.033	43	341	2.09
Molybdenum	< 1	**89.0**	NA	1.6	5100	5680	72.7
Nickel	3.10	**48.0**	NA	20	20,000	21,800	140
Potassium	< 110	4000	NA	NA	NA	NA	NA
Selenium	< 1	**6.80**	0.26	0.4	5100	5680	6
Silica	250	1400	NA	NA	18,000,000	NA	NA
Sodium	720	12,000	NA	NA	NA	NA	NA
Titanium	190	460	NA	NA	NA	100,000	3,000,000
Vanadium	16.0	72.0	NA	78	5200	5680	6000

Table 4-10 MA-7 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 20)**
Zinc	18.0	**880**	NA	290	310,000	100,000	12,400
PAHs (µg/kg)	PAHs that were analyzed and not detected are shown on Tables E-3 through E-6 in Appendix E.						
Anthracene	< 5.1	24.0	NA	42,000	170,000,000	9,920,000	11,800,000
Benzo(a)-anthracene	< 5.1	**110**	NA	10	2100	2340	1600
Benzo(a)-pyrene	< 5.1	**43.0**	240	3.5	210	234	8000
Benzo(b)-fluoranthene	< 5.1	**110.0**	NA	35	2100	2340	4000
Benzo(g,h,i)- perylene	< 5.1	33.0	NA	NA	NA	34,100,000	NA
Benzo(k)-fluoranthene	< 5.1	39.0	NA	350	21,000	23,400	4000
Biphenyl	< 5.1	**44.0**	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl) Phthalate	< 330	**800**	1400	17	120,000	137,000	3,600,000
Chrysene	< 5.1	140	NA	1100	210,000	234,000	160,000
Fluoranthene	< 5.1	200	NA	70,000	22,000,000	24,400,000	4,200,000
Indeno (1,2,3-cd) pyrene	< 5.1	30.0	NA	120	2100	2340	14,000
5-Methyl chrysene	< 5.1	21.0	NA	NA	NA	NA	NA
Phenanthrene	< 5.1	230	NA	NA	NA	24,500	NA
Pyrene	< 5.1	200	NA	9500	17,000,000	19,300,000	4,200,000
PCBs (µg/kg)	PCBs that were analyzed and not detected are shown on Tables E-3 through E-6 in Appendix E.						
Aroclor 1254	< 17	**240**	NA	8.8	740	826	NA
SVOCs (µg/kg)							
Bis (2-ethylhexyl) phthalate	< 330	**800**	1400	17	120,000	137,000	3,600,000
TPH (mg/kg)							
DRO	< 10	330	NA	NA	NA	NA	NA
ORO	< 10	600	NA	NA	NA	NA	NA
TPH	< 10	930	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs that were analyzed and not detected are shown on Tables E-3 through E-6 in Appendix E.						
Acetone	< 47	76.0	NA	2400	630,000,000	100,000,000	16,000
Chloroform	< 4.7	**12.0**	22	0.053	1500	1710	600
1,2-Dichloro-benzene	< 4.7	120	580	270	9,800,000	373,000	18,000
Dichloromethane	< 4.7	**9.60**	1.3	1.2	53,000	60,400	20
Naphthalene (VOC)	< 4.7	**240**	NA	0.47	18,000	17,400	80,000
Tetrachloroethene	< 4.7	**610**	2.3	0.033	2600	3280	60
Toluene	< 4.7	100	690	590	45,000,000	521,000	12,000
1,1,1-Trichloroethane	< 4.7	**880**	70	2600	38,000,000	1,390,000	2000
Trichloroethene	< 4.7	**4100**	1.8	0.16	6400	5490	60

Note: Bold indicates concentration in excess of a screening level.

Table 4-11 MA-7 Groundwater Data Summary					
Parameter Name	**Result**	**Federal/Nevada Primary MCL**	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Metals (mg/L)					
Aluminum, Dissolved	< 0.075	NA	0.2	36.5	16
Antimony, Dissolved	< 0.01	NA	NA	0.006	0.006
Copper, Dissolved	< 0.01	NA	NA	1.3	0.62
Iron, Dissolved	< 0.05	NA	0.6	25.6	11
PAH (µg/L)					
Acenaphthene	< 10	NA	400	6.24	NA
Anthracene	< 0.11	NA	NA	6.25	NA
Benzo(a)anthracene	< 0.11	NA	NA	0.0921	NA
Benzo(a)pyrene	< 0.11	NA	NA	0.2	NA
Benzo(b)fluoranthene	< 0.11	NA	NA	0.0921	NA
Benzo(g,h,i)perylene	< 0.11	NA	NA	1100	NA
Benzo(j)fluoranthene	< 0.11	NA	NA	NA	NA
Benzo(k)fluoroanthene	< 10	NA	NA	0.0921	NA
1,1-Biphenyl	< 0.11	NA	NA	1830	NA
Chrysene	< 0.11	NA	NA	9.21	NA
Fluoranthene	< 0.11	NA	NA	1460	NA
Indeno(1,2,3-cd)pyrene	< 0.11	NA	NA	0.0921	NA
Naphthalene (PAH)	< 0.11	NA	NA	0.143	NA
Phenanthrene	< 0.53	NA	NA	6.22	NA
Pyrene	< 0.11	NA	NA	6.22	NA
VOC (µg/L)					
Acetone	< 1	NA	NA	21,800	12,000
Benzene	< 1	5	NA	5	0.39
Bromobenzene	< 1	NA	NA	87.6	54
Bromodichloromethane	< 1	80	NA	0.117	0.12
Bromoform	< 1	80	NA	8.51	7.9
Bromomethane	< 1	NA	NA	8.66	7
2-Butanone	< 1	NA	NA	7060	4900
n-Butylbenzene	< 1	NA	NA	254	780
sec-Butylbenzene	< 2.5	NA	NA	254	NA
tert-Butylbenzene	< 1	NA	NA	254	NA
Carbon Disulfide	< 1	NA	NA	1040	720
Carbon tetrachloride	< 2.5	5	NA	5	0.39
Chlorobenzene	< 1	100	NA	100	72
Chloroethane	< 1	NA	NA	23.2	NA

Table 4-11 MA-7 Groundwater Data Summary					
Parameter Name	**Result**	**Federal/Nevada Primary MCL**	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Chloroform	< 1	NA	NA	0.193	0.19
Chloromethane	< 1	NA	NA	2.7	190
2-Chlorotoluene	< 1	NA	NA	91.25	180
4-Chlorotoluene	< 1	NA	NA	NA	190
1,2-Dibromo-3-chloropropane	< 1	0.2	NA	0.2	0.00032
Dibromochloromethane	< 1	80	NA	0.147	0.15
1,2-Dibromoethane	< 1	0.05	NA	0.05	0.0065
Dibromomethane	< 10	NA	NA	8.16	7.9
1,2-Dichlorobenzene	< 1	600	NA	600	280
1,3-Dichlorobenzene	< 1	NA	NA	86.7	NA
1,4-Dichlorobenzene	< 1	75	NA	75	0.42
Dichlorodifluoromethane	< 10	NA	NA	395	190
1,1-Dichloroethane	< 10	NA	NA	2.42	2.4
1,2-Dichloroethane	< 1	5	NA	5	0.15
1,1-Dichloroethene	< 1	7	NA	7	260
cis-1,2-Dichloroethene	< 1	70	NA	70	28
trans-1,2-Dichloroethene	< 1	100	NA	100	86
1,2-Dichloropropane	< 1	5	NA	5	0.38
1,3-Dichloropropane	< 5	NA	NA	8.25	290
2,2-Dichloropropane	< 1	NA	NA	NA	NA
1,1-Dichloropropene	< 1	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 1	NA	NA	NA	NA
Ethylbenzene	< 1	700	NA	700	1.3
Hexachlorobutadiene	< 1	NA	NA	0.862	0.26
Isopropylbenzene	< 1	NA	NA	679	390
4-Isopropyltoluene	< 1	NA	NA	834	NA
4-Methyl-2-Pentanone	< 1	NA	NA	1990	1000
Methylene chloride	< 1	5	NA	5	4.7
Methyl-tert-butyl ether	< 1	NA	NA	12.5	12
n-Propylbenzene	< 1	NA	NA	254	530
Styrene	< 1	100	NA	100	1100
1,1,1,2-Tetrachloroethane	< 1	NA	NA	0.524	0.5
1,1,2,2-Tetrachloroethane	< 1	NA	NA	0.0671	0.066
Tetrachloroethene	< 1	5	NA	5	0.072
Toluene	< 1	1000	NA	1000	860
1,2,3-Trichlorobenzene	< 1	NA	NA	NA	5.2
1,2,4-Trichlorobenzene	< 1	70	NA	70	0.99

Table 4-11 MA-7 Groundwater Data Summary					
Parameter Name	**Result**	**Federal/Nevada Primary MCL**	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
1,1,1-Trichloroethane	< 1	200	NA	200	7500
1,1,2-Trichloroethane	< 1	5	NA	5	0.24
Trichloroethene	< 1	5	NA	5	0.44
Trichlorofluoromethane	< 1	NA	NA	1290	1100
1,2,3-Trichloropropane	< 3	NA	NA	0.00224	0.00065
1,2,4-Trimethylbenzene	< 1	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 1	NA	NA	14.5	87
Vinyl chloride	< 1	2	NA	2	0.015
Total Xylenes	< 1	10,000	NA	10,000	190

Note: Bold indicates concentration in excess of a screening level.
Note: This analysis includes KMW-12 groundwater data that was collected on November 18, 2010.

4.1.7.3 Conclusions and Recommendations for Further Investigation

- No further soil characterization is recommended in this area.
- Further source-specific groundwater characterization is recommended in this area.
- MA-7 is being investigated under the AOC as a sub-area. The Final Sampling and Analysis Report-Waste Management Unit 7 (Stanley Consultants, 2011) includes the results of this investigation. NVE is currently evaluating remedial options for soil and groundwater at MA-7.

4.1.8 MA-8 - Disposal Area for Water Treatment Waste

The following documents in Table 4-12 were referenced when researching the history and previous investigations of MA-8.

Table 4-12 MA-8 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

MA-8 is unlined and located within the footprint of MA-4 and was used for disposal of water treatment wastes from the Station. MA-8 was used from approximately the mid-1990's until 2005. The wastes placed here consisted primarily of reactivator solids, vacuum truck solids, and asphalt concrete. This area has been covered by soil and waste placed during normal landfill operations.

4.1.8.1 Site Related Chemicals

Based on operations historically conducted in this area (water treatment waste and vacuum truck solids disposal), the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs and VOCs. These parameter categories were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively.

4.1.8.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-8.

4.1.8.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended. The wastes placed in the area were consistent with the waste types permitted under both past and current permits. This area was covered by additional waste placed in accordance with regulatory requirements and is now managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-8 will be included in Mesa Area groundwater characterization efforts.

4.1.9 MA-9 – Former Mesa Dredge Pond

The following documents in Table 4-13 were referenced when researching the history and previous investigations of MA-9.

Table 4-13 MA-9 Related Documents

Encyclopedia Document No.	Title	Date	Author
Storage - 424920718	Temporary Permit #TNEV99004 for the Reid Gardner Station Power Plant	2/23/1999	NDEP
Storage - 402738509-6	Existing Site Plan	7/13/1999	Kleinfelder
AOC-121	Temporary Discharge Permit #TNEV99004	7/22/1999	NPC
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-363	Landfill Q&A	4/25/2000	NPC
AOC-331	PSDC Soft Spot Borings	Undated	CH2MHill

MA-9 is located on the southern side of MA-4. This potential source area was a single 60-mil HDPE-lined cell (no leachate collection system) used for placing pond solids pumped from ponds F and G. Construction was completed in 1999 (AOC-121) and was apparently taken out of service in 2002 (AOC-109). Two lysimeters (LY-3 and LY-4) and one monitoring well (MW-2, presumed to be LMW-2) were required to be sampled in accordance with the 180-day temporary discharge permit number TNEV99004 issued by NDEP for wastewater discharge to this cell in 1999. The permit was issued to allow 180 days of discharge to occur in either a continuous or discontinuous manner over a period of several months or years.

4.1.9.1 Site Related Chemicals

Based on operations historically conducted in this area (pond solids disposal), the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs, and VOCs. These parameter categories were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively.

4.1.9.2 Sampling Results Summary

No soil sampling was identified in available documents relative to MA-9. LY-3 and LY-4 were abandoned in 2011.

4.1.9.3 Conclusions and Recommendations for Further Investigation

- No soil characterization is recommended. This area was taken out of service and covered in accordance with regulatory requirements and the actual wastes placed in the pond were consistent with the waste types permitted under both past and current permits. The area of MA-9 is currently managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater.

- Groundwater beneath MA-9 will be included in Mesa Areasite-wide groundwater characterization efforts.

4.1.10 PA-4 - Closed Fly Ash Fill Area Under Landfill Haul Road

The following documents in Table 4-14 were referenced when researching the history and previous investigations of PA-4.

Table 4-14 PA-4 Related Documents

Encyclopedia Document No.	Title	Date	Author
Storage-424920718	Fly Ash Rehabilitation and Disposal Study	10/01/1986	J.H. Kleinfelder and Associates
AOC-22	Reid Gardner Bottom Ash (Interoffice Memorandum)	2/24/1994	NPC

Table 4-14 PA-4 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-24	Various Fly Ash MSDSs	4/6/1994	NPC
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC

PA-4 is located on the western side of the former Pond D area and north of the mesa landfill under the road to the landfill. Construction of PA-4 occurred at approximately the same time as MA-1, as necessary structural fill during construction of the haul road leading to the mesa. NVE stopped constructing PA-4 on or before 1987 and installed an engineered soil cover in June of 1987.

4.1.10.1 Site Related Chemicals

Based on operations historically conducted in this area (fly ash fill), the SRC parameter categories that could be present are general chemistry and metals.

4.1.10.2 Sampling Results Summary

No soil sampling was identified in available documents relative to PA-4. Groundwater data in the vicinity of PA-4 is discussed in Section 4.2 of this report.

4.1.10.3 Conclusions and Recommendations for Further Investigation

- Additional soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern.
- Groundwater beneath PA-4 will be included in Ponds Area groundwater characterization efforts.

4.1.11 Potential Mesa Source Areas Summary and Recommendations

Ten potential source areas were evaluated in the mesa area. As shown on Table 4-15, no further soil characterization is recommended for all but one of the potential source areas. With the exception of MA-2 and PA-4, groundwater beneath these source areas will be included in Mesa Area groundwater characterization efforts. MA-7 is being addressed separately as a sub-area under the AOC.

Table 4-15 Potential Mesa Source Areas Summary and Recommendations		
Source No.	**Description**	**Recommendation**
MA-1	Closed Sanitary Landfill (WMU-1)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-2	Special Asbestos Waste Cell (WMU-2) (Actively Permitted)	- No further soil characterization.

Table 4-15 Potential Mesa Source Areas Summary and Recommendations		
Source No.	**Description**	**Recommendation**
		- No further groundwater characterization.
MA-3	Disposal Area for Construction and Demolition Debris (WMU-3)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-4	Class III (Industrial Waste) Landfill (WMU-4) (Active Permitted)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-5	Closed Ash Disposal Site (WMU-5)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-6	Evaporation Ponds P1 - P5	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-7	Landfill Used for Industrial and Non-Industrial Waste (WMU-7)	- No further soil characterization. - Groundwater beneath source area included in Site-Specific groundwater characterization. - Refer to September 2011 Final Sampling and Analysis Report—Waste Management Unit 7 (Stanley Consultants, 2011). NVE is currently evaluating remedial options for soil and groundwater at MA-7.
MA-8	Disposal Area for Water Treatment Waste (WMU-9)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
MA-9	Former Mesa Dredge Pond (WMU-10)	- No further soil characterization. - Groundwater beneath source area included in Mesa Area groundwater characterization.
PA-4	Closed Fly Ash Fill Area Under Landfill Haul Road (WMU-6)	- Further soil characterization. - Groundwater beneath source area included in Ponds Area groundwater characterization.

4.2 Potential Pond Source Areas

Evaporation ponds and ash settling ponds were constructed at the Station near the Muddy River. Four of these ponds are no longer in service. The potential pond source areas are shown on Figure A-5 and described in Table 4-16.

Table 4-16 Potential Pond Source Areas	
Source No.	**Description**
PA-1	Hogan Wash
PA-2	Ponds 4B and 4C (4B1-3, 4C-1, 4C-2)
PA-3	Former Pond 4A
PA-5	Former Pond D (West Pond)
PA-6	Ponds E (East Pond, Pond C, Pond D)
PA-7	Pond F and Former Pond G (Units 1,2,3 Laydown Ponds)
PA-8	Hydrogen Peroxide Tank Release

The depth to groundwater in the pond area has been observed to range between approximately five feet (ft) (P-20A, B) and 49 ft (P-11). Shallow groundwater flow in the pond area is generally to the northeast in the area of the 4B and 4C ponds and to the east and southeast in the area of the former Pond D and E ponds, as shown on Figure 2A, Shallow Groundwater Elevation Contour Map, in Appendix B. Because wastewater leaked from these originally unlined or partially lined ponds, groundwater has been impacted in the area of the ponds. There are currently 48 shallow groundwater monitoring wells in the pond area that are sampled regularly. Data from these wells is included in the figures in Appendix B from the Fourth Quarter 2011 Groundwater Monitoring and Remediation Report. Table E-7 summarizes groundwater monitoring statistics for parameters in wells in the area of the ponds for the period where data is available (March 1996 to December 2011).

4.2.1 PA-1 - Hogan Wash

The following documents in Table 4-17 were referenced when researching the history and previous investigations of PA-1.

Table 4-17 PA-1 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC- 61	Hydrogeologic Assessment	7/8/1998	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
AOC-116	Revised Hydrogeologic Characterization Report Response to NDEP comments letters dated August 11, 2003	5/21/2004	NPC

Hogan Wash is located upgradient and southwest of Pond 4B-3 in an intermittent wash. It has also been referred to in past reports as Area 3. There is little documented information available regarding Hogan Wash or past discharges that reportedly occurred in that area. Apparently, process water was previously discharged into an unlined excavation in this area during emergency events to prevent overflow of Ponds D and E. Additionally, it was reported that this practice has not occurred since "improvements to water management" were implemented in 1998 although the nature of these improvements to water management at the Station are unknown. The quantity and time frame of

process water releases is also not known (AOC-109, AOC-116). There is currently no visible evidence of wastewater disposal on the ground in the PA-1 area.

4.2.1.1 Site Related Chemicals

Based on existing site data and limited available information regarding this area, the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs and VOCs. These parameter categories were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively.

4.2.1.2 Sampling Results Summary

Monitoring wells KMW-1S, KMW-1M, and KMW-1D were installed in 1998 to evaluate groundwater conditions upgradient of the Station ponds. In general in the pond area, wells noted with an "S" refer to shallow wells (approximately 25 feet bgs); "M" refers to medium wells (approximately 50 feet bgs); and "D" refers to deep wells (approximately 75 feet bgs). KMW-1S was completed in the alluvial aquifer; however, KMW-1M and KMW-1D may be completed in the Muddy Creek formation. Initially, soil samples collected from KMW-1D were analyzed for sodium, pH, and sulfate to establish background soil conditions. Soil data is summarized in Table E-8. Kleinfelder reported that in KMW-1, the sodium, TDS, and sulfate concentrations in groundwater were at concentrations one order of magnitude higher compared to other groundwater monitoring data. Concentrations were also noted to decrease with depth. Additional monitoring wells have since been installed in the PA-1 area as shown in Figure A-5. Table E-9 summarizes groundwater monitoring statistics in the area of PA-1 for the timeframe where data is available (September 1996 – December 2011).

Soil and groundwater data are provided in Tables E-8 and E-9 in Appendix E and are summarized in Tables 4-18 and 4-19, respectively.

Table 4-18 PA-1 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)							
Sodium	2000	4400	NA	NA	NA	NA	NA
Sulfate	2700	10,000	NA	NA	NA	NA	NA
Metals (mg/kg)	Metals were identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were not identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)	TPH parameters were not identified as SRCs. No data is available.						
VOCs (µg/kg)	VOCs were not identified as SRCs. No data is available.						

Note: Soil data used in this analysis are: KMW-1D (5'), KMW-1D (10') and KMW-1D (15') from February 1998.

Table 4-19 PA-1 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Chloride	30	**5000**	NA	400	NA	NA
Fluoride	<0.5	**16**	4	2	4	0.62
Nitrogen, Nitrate (As N)	<0.022	4	10	NA	10	25
pH (S.U.)	6.8	8	NA	6.5 - 8.5	NA	NA
Phosphorus	<0.02	7.1	NA	NA	NA	NA
Sulfate	220	**57,000**	NA	500	NA	NA
Sulfide	<0.01	0.78	NA	NA	NA	NA
TDS (residue, filterable)	**1100**	**65,500**	NA	1000	NA	NA
Metals (mg/L)	Metals that were analyzed and not detected are shown on Table E-9 in Appendix E.					
Aluminum	<0.025	**2.4**	NA	0.2	36.5	16
Arsenic	< 0.001	**0.72**	0.01	NA	0.01	0.000045

Table 4-19 PA-1 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Barium	<0.0028	0.3	2	NA	2	2.9
Boron	<0.5	**82**	NA	NA	7.3	3.1
Calcium	100	590	NA	NA	NA	NA
Chromium (Total)	<0.00068	0.0066	0.1	NA	NA	NA
Iron	<0.0088	**4**	NA	0.6	25.6	11
Lead	<0.0021	0.015	0.015	NA	0.015	NA
Magnesium	85	**2700**	NA	150	207	NA
Manganese	<0.1	**4.3**	NA	0.1	5.11	0.32
Molybdenum	0.034	**25**	NA	NA	0.183	0.078
Nickel	<0.005	0.0970	NA	NA	0.73	0.3
Potassium	14.3	1700	NA	NA	NA	NA
Selenium	<0.0005	**0.19**	0.05	NA	0.05	0.078
Silica	10	23	NA	NA	NA	NA
Sodium	73	22,000	NA	NA	NA	NA
Strontium	6.45	14	NA	NA	NA	21.9
Titanium	<0.00065	0.1	NA	NA	146	NA
Vanadium	<0.0025	**0.24**	NA	NA	0.183	0.078
Zinc	<0.01	0.27	NA	5	11	4.7
PAHs (µg/L)	PAHs were not identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters were not identified as SRCs. No data is available.					
VOCs (µg/L)	VOCs were not identified as SRCs. No data is available.					

Note: Bold indicates concentration in excess of a screening level.

Note: Wells used in this analysis are: IMW-2D, IMW-2S, KMW-1D, KMW-1M, KMW-1S, KMW-19, KMW-20 for September 1996 through December 2011.

4.2.1.3 Conclusions and Recommendations for Further Investigation

- Soil characterization is recommended to evaluate the source of groundwater contamination in the area of PA-1.
- Further source-specific groundwater characterization is recommended to evaluate the nature and extent of groundwater contamination in the area of PA-1.

4.2.2 PA-2 - Ponds 4B and 4C

The following documents in Table 4-20 were referenced when researching the history and previous investigations of PA-2.

Table 4-20 PA-2 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-312	Unit 4 Ponds, A, B, C (Drawings)	2/15/1983	URS Company
NDEP-3	Draft Development of Permit Limitations	4/12/1985	JRB Associates
AOC-354	Aeration Feasibility Study for the Reid Gardner Unit No. 4 Evaporation Ponds	6/1985	James M. Montgomery Consulting Engineers
AOC-353	Preliminary Report on Sulfite Oxidation and Evaporation Pond System Odor Control Reid Gardner Unit No. 4	6/1987	James M. Montgomery Consulting Engineers
NDEP-98	Draft Environmental Action Plan	7/1/1991	The Mark Group
Storage-364690287	Final Environmental Action Plan	9/19/1991	The Mark Group
NDEP-16	Hydrogeological Study of Surface Impoundments	6/24/1992	Kleinfelder
AOC-299	Permit No. TNEV96016 Period and Provision Updates (Correspondence)	8/16/1996	NPC
AOC-307	Order No NV052797W1	5/28/1997	NDEP
AOC-150	Formal Enforcement Action For Reid-Gardner Water Pollution Violations (Correspondence)	8/31/1999	NDEP
NDEP-42	First Submittal--Contract Terms and Construction Specifications—Unit 4 Evaporation Ponds C2 & C3, Pipeline and Pump Station	7/13/2000	NPC
Storage-425008878	Evaporation Pond Analysis	8/22/2000	NPC
NDEP-48	75% Submittal--Contract Terms and Construction Specifications—Unit 4 Evaporation Ponds C2 & C3 Pipeline and Pump Station	9/18/2000	NPC
NDEP-49, Storage-424920716	95% Submittal--Unit Evaporation Ponds 4C2 and 4C3 Pipeline and Pump Station	11/6/2000	NPC
AOC-118	Supplemental Report, Pond 4C-2 Liner Tear, Discharge Permit #NEV91022 Reid Gardner Station	1/29/2001	NPC
AOC-149	Order No NV083199W1 (Correspondence)	7/10/2001	NPC
AOC-147	Unit 4 Evaporation Pond Relining Project - Compliance Status	7/31/2001	NDEP
DP-2	Damage to Pond 4C-2 Liner, Discharge Permit #NEV91022 Reid Gardner Station (Correspondence)	12/19/2001	NPC
NDEP-47	Geotechnical Investigation—Retrofit of 4B and 4C Ponds	2/20/2002	Converse Consultants
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-221	Authorization to Discharge (Permit)	4/22/2002	NDEP
AOC-149	Order No NV083199W1 (Correspondence)	4/29/2002	NPC

Table 4-20 PA-2 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-146	Order No NV083199W1	6/21/2002	NPC
AOC-148	Nevada Power Company-Reid Gardner Station Discharge Permit No. 91022 And Administrative Order No. NV083199Wl (Correspondence)	9/30/2002	NPC
AOC-138	Renewal of Authorization to Discharge Permit #NEV91022 and Request for Reduction of Monitoring Requirements for Reid Gardner Generating Station, Moapa, Nevada (Correspondence)	2/19/2004	NPC
AOC-285	As Built Drawing Ponds C-1 & C-2 (Correspondence)	5/26/2005	NPC
DP-15	Nevada Power Company Reid Gardner Station C1 and E1 Evaporation Pond Repair Plans Permit No. NEV91022	6/20/2005	NPC
DP-16	Report for "Geomembrane Leak Location Survey of Pond E Upper Side Slope and a limited area of Pond C-2 Located at the Reid Gardner Station Near Moapa, Nevada"; LLSI Project 668	7/6/2005	Leak Location Services, Inc.
AOC-112	Authorization to Discharge (Permit)	10/19/2005	NDEP
AOC-111	Pond B3 Progress Report	2/2006	Stanley Consultants
AOC-57	Approval of Plans and Specifications for Pond #B3 Double Liner System at Nevada Power Reid Gardner Station - #NEV91022 (Correspondence)	3/13/2006	NDEP
DP-28	NDEP Complaint/Spill Report Number is 060410-02 (Correspondence)	4/13/2006	NPC
AOC-26	Nevada Power Company, Reid Gardner Station Ponds Bl and B2 Construction Permit Application	12/21/2006	NPC
NDEP-80	Reid Gardner Station Evaporation Pond Relining Schedule - Permit #NEV91022 (Correspondence)	4/17/2007	NPC
AOC-DP35	September 20, 2007 Unauthorized Discharge to Muddy River—Permit #NEV91022 (Correspondence)	10/5/2007	NPC

The 4B and 4C ponds were built with Unit 4 in 1983 to evaporate Unit 4 wastewater. The 4B and 4C ponds were originally designed as two ponds and later divided into six ponds. They are now configured as five ponds as seen in Figure A-5 in Appendix A. The record drawings for Ponds 4B and 4C show that they were lined with clayey soil borrowed from the area of the ponds. The berms were built with clay cores and, in some cases, the clay cores were underlain with slurry walls that extended into underlying soils that were considered to be impervious (AOC-312). Until approximately 2001, Ponds D, E, F, and G received wastewater from Units 1, 2, and 3 while the 4B and 4C ponds received wastewater from Unit 4 (AOC-109). Since that time, the 4B and 4C ponds have received wastewater from all four generating units including scrubber/absorber effluent, cooling tower blowdown, storm water, coal conveyor belt washdown water, demineralizer wastewater, and decanted overflow from

the ash transport and dewatering system. Ponds 4B-1, 4B-2, and 4B-3 are currently active; Ponds 4C-1 and 4C-2 have not received wastewater since 2007 and 2008, respectively.

The process to obtain the first discharge permit for the Station began around the same time Unit 4 (including the 4B and 4C ponds) was built. Site dewatering was required during the construction of Unit 4 and, after construction was completed, it was necessary to continue dewatering because groundwater was within four feet of the ground surface. A dewatering well was installed in December 1982 that discharged to the Muddy River (NDEP-03). When NVE notified NDEP of this permanent dewatering system, NVE and NDEP began efforts to obtain the first discharge permit for the Station. When it was issued 17 years later, it included a requirement to reline or close the 4B and 4C ponds. In June 1983, NVE applied for NDEP authorization for the dewatering system discharge. In 1985, NDEP indicated that a draft discharge permit could not be issued until NVE submitted additional information, including upgradient monitoring well data and an action plan for repairing ponds that leak. On April 8, 1985, NVE submitted another application for a permit to discharge the dewatering well water to the river. A draft report dated April 12, 1985 was prepared for NDEP by JRB Associates to develop effluent limitations and monitoring requirements for the permit. On June 15, 1990, NDEP stated that a new application was required due to facility changes and requested a plan from NVE for bringing the evaporation ponds into compliance with zero discharge requirements (AOC-307).

On March 5, 1991, NDEP conducted an inspection of the Station to obtain information regarding the onsite ponds and the dewatering well discharge. The inspection noted the existence of two unlined ponds (assumed to be Ponds D and E) and two clay-lined ponds (assumed to be Ponds 4B and 4C) which received scrubber effluent. Ponds 4B and 4C were estimated to be leaking at a rate of approximately 50 acre feet/year. The Unit 4 dewatering system was also observed to be discharging directly into the Muddy River. NDEP reviewed monitoring data for the Muddy River and found the specific conductivity to be higher downstream of the discharge than it was upstream of the discharge (AOC-307).

Based on the March 5, 1991, inspection, NDEP issued a Finding of Violation and Order on April 1, 1991. The Order required a new permit application, a schedule for upgrading the ponds, and a schedule for eliminating the dewatering discharge. On April 19, 1991, NVE submitted another application for a permit to discharge the dewatering well water to the river and on July 15, 1991, NVE submitted an application to discharge scrubber wastewater into evaporation ponds.

NVE hired the Mark Group to assist them in obtaining a discharge permit. The Mark Group prepared an Environmental Action Plan for the Station dated September 20, 1991, that included the results of TCLP analyses conducted on one sample of the 4B pond solids. The results showed all parameters below regulatory limits except for selenium with a concentration of 1.31 mg/L in the TCLP extract, above the TCLP regulatory level of 1.0 mg/L. Additional testing was recommended to confirm this concentration (Storage-364690287). It is unknown if additional testing was conducted. [The final discharge permit issued by NDEP in 1999 indicated this TCLP result was not an issue because "*…wastes from power plants are excluded from RCRA…*" (AOC221).]

Monitoring results submitted to NDEP voluntarily by NVE indicated that groundwater in the area of Ponds 4B and 4C was impacted as shown in Table 4-21.

Table 4-21 Average Concentrations in Groundwater Upgradient and Downgradient of Ponds 4B and 4C (1993 - 1996)			
Parameter	**Upgradient (mg/L)**	**Downgradient (mg/L)**	**Percent Increase**
Sulfate	755.3[1]	14,400[2]	1906%
TDS	2136[1]	30,747[2]	1440%

Table obtained from AOC-307
[1] MW-6, Average value of 12 samples taken between 1993 and 1996.
[2] MW-3, Average value of 11 samples taken between 1993 and 1996.

In May 1997, NDEP issued an administrative order (NV052797W1) that required NVE to submit a plan and schedule to bring the ponds into compliance and to investigate soil and groundwater contamination (AOC-307).

In August 1999, NDEP issued another administrative order (NV083199W1) which detailed a schedule of compliance for lining or closing the Station evaporation ponds because of the documented groundwater contamination from the unlined ponds. NVE was ordered to reline or close Pond 4B-1 by April 30, 2007 and Ponds 4B-2/4B-3 by April 30, 2008. When NDEP issued discharge permit number NEV91022 on August 31, 1999, it included a schedule for relining or closing the ponds.

Ponds 4B-2, 4B-3, 4C-1, 4C-2, and 4C-3 were taken out of service in 2000. In July 2000, Ponds 4C-2 and 4C-3 were combined into one pond, 4C-2, which was relined in 2001 with a double HDPE liner system with leak detection and collection before it was placed back in service. Double HDPE lining of Pond 4C-1 along with installation of a leak detection and collection system was completed in May 2002 and the pond was returned to service. Solids were not removed from Ponds 4C-1 and 4C-2 before they were lined. In 2005, Pond 4B-1 was taken out of service. In 2007, an HDPE double liner system with leak detection and collection was installed in 4B-3 and it was placed back into service. In 2008, HDPE double liner systems with leak detection and collection were installed in Ponds 4B-1 and 4B-2 and the ponds were then placed back into service. Solids were removed from Ponds 4B-1, 4B-2, and 4B-3 and placed in the onsite mesa landfill before they were lined. At that time, NVE had achieved compliance with the NDEP administrative order to close or reline the ponds. Groundwater impacts are currently being addressed under the AOC.

4.2.2.1 Site Related Chemicals

The SRC parameter categories at PA-2 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, and metals.

4.2.2.2 Sampling Results Summary

No soil sampling was identified in available documents relative to PA-2.

4.2.2.3 Conclusions and Recommendations for Further Investigation

- As the ponds are taken out of service, the accumulated solids will be removed and disposed in the permitted mesa landfill. These solids will be sampled prior to removal and soils underlying the double liner systems will be sampled after solids removal.

- Groundwater beneath PA-2 will be included in Ponds Area groundwater characterization efforts.

4.2.3 PA-3 - Former Pond 4A

The following documents in Table 4-22 were referenced when researching the history and previous investigations of PA-3.

Table 4-22 PA-3 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-312	Unit 4 Ponds, A, B, C (Drawings)	2/15/1983	URS Company
NDEP-3	Draft Development of Permit Limitations	4/12/1985	JRB Associates
AOC-145	Chemical Storage Area—RG 1,2, 3 (Interoffice memorandum)	8/14/1986	NPC
AOC-236	Disposal of Control 778 at Reid Gardner (Interoffice memorandum)	6/19/1989	NPC
AOC-307	Order No NV052797W1	5/28/1997	NDEP
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-221	Authorization to Discharge (Permit)	4/22/2002	NDEP
AOC-138	Renewal of Authorization to Discharge Permit #NEV91022 and Request for Reduction of Monitoring Requirements for Reid Gardner Generating Station, Moapa, Nevada (Correspondence)	2/19/2004	NPC
AOC-110, AOC-293	Geotechnical and Dewatering Investigation—Pond 4A Closure	7/14/2004	Converse Consultants
NDEP-63	Groundwater Investigation Report—Pond 4A Closure	5/13/2005	Converse Consultants
DP-23	Corrective Action Plan for Pond 4A	9/9/2005	NPC
NDEP-66	Response to Corrective Action Plan	10/5/2005	NDEP
DP-25	A Pond Remediation	1/13/2006	NPC
DP-12	Hydrogeology Investigation Summary—Nevada Power Reid Gardner Pond 4A (powerpoint presentation)	3/21/2006	Converse Consultants
DP-31	Laboratory Results	12/27/2006	Silver State Analytical Laboratories
NDEP-78	Temporary Permit TNEV2007411	2/7/2007	NDEP

Pond 4A was initially permitted by the CCHD as a solid waste site for ash/scrubber solids (CCHD, 1980) and was subsequently constructed with Unit 4 in 1983 to manage Unit 4 solid wastes. Prior to

construction, the Pond 4A site was locally swampy and groundwater levels were between one and four feet bgs. The record drawings for Pond 4A show that it was lined with clayey soil borrowed from the area of the Unit 4 ponds and the berms were built with clay cores. The liner and berms consisted of compacted native clay soils having a permeability of about $1x10^{-7}$ centimeters per second (cm/sec). While in service, Pond 4A primarily received bottom ash, fly ash, scrubber effluent, ash water, and reactivator solids (NDEP-03). In 1986, petroleum-contaminated soil was removed from the Central Receiving Storage Area and disposal in Pond 4A was considered (AOC-145); however, no records were found indicating that this occurred.

In 1989, four 55-gallon drums of Betz COR-TROL 778, a water treatment chemical, may have been disposed in the pond (AOC-236). Betz Cor-Trol 778P contains between one and five percent hydroquinone. It is normally used as a dissolved oxygen scavenger/metal passivator. No further information is available on this chemical or its use at the Station. However, it could have ultimately ended up in the pond. Based on the large pond capacity, it seems unlikely that concentrations of this chemical would have approached the aquatic toxicology LC_{50} of 8.2 mg/L provided in the MSDS for fathead minnows. There are no Nevada-approved analytical methods for hydroquinone (NVE, 2009). NVE submitted a letter to NDEP on August 27, 2009 requesting that hydroquinone (among other parameters) be excluded from AOC sampling activities at the Station. This request was approved by the NDEP on October 13, 2009 (NVE, 2009, NDEP, 2009a).

Pond 4A was removed from service in 1999 and a temporary dust cover was installed (AOC-109, AOC-312, DP-23).

As described in Section 4.2.2, the process to obtain the first discharge permit for the Station began around the same time Unit 4 (including Pond 4A) was built. On March 5, 1991, NDEP conducted an inspection of the Station to obtain information regarding the onsite ponds and the dewatering well discharge. The inspection noted the existence of one lined pond which received ash sludge (assumed to be Pond 4A). Pond 4A was full and suspected to be a potential source of recharge to the Muddy River. Based on the March 5, 1991, inspection (also discussed in Section 4.2.2), NDEP issued a Finding of Violation and Order on April 1, 1991. The Order required a new permit application, a schedule for upgrading the ponds, and a schedule for eliminating the dewatering discharge. On April 19, 1991, NVE submitted another application for a permit to discharge the dewatering well water to the river and on July 15, 1991, NVE submitted an application to discharge scrubber wastewater into evaporation ponds. Additionally, as a result of this inspection, monitoring results submitted to NDEP voluntarily by NVE indicated that groundwater in the area of Pond 4A was impacted as shown in Table 4-23 (AOC-307):

Table 4-23

Average Sulfate Concentrations in Groundwater Upgradient and Downgradient of Pond 4A

Parameter	Upgradient (mg/L)	Downgradient (mg/L)	Percent Increase
Sulfate	1,641.8[1]	9,168[2]	558%
TDS	3,793[1]	24,548[2]	647%

Table obtained from AOC-307

[1] MW-8, Average value of 12 samples taken between 1993 and 1996

[2] MW-1, Average value of 12 samples taken between 1993 and 1996

In May 1997, NDEP issued an administrative order (NV052797W1) that required NVE to submit a plan and schedule to bring the ponds into compliance and to investigate soil and groundwater contamination (AOC-307).

In August 1999, NDEP issued another administrative order (NV083199W1) which detailed a schedule of compliance for lining or closing the Station evaporation ponds because of the documented groundwater contamination from the unlined ponds. When NDEP issued discharge permit number NEV91022 on August 31, 1999, it required that Pond 4A be closed or relined by April 1, 2003 (AOC-221).

Pond 4A was permanently removed from service in 1999 and covered with six inches of topsoil (AOC-109).

A conceptual closure and groundwater mitigation plan for Pond 4A was prepared by Kennedy Jenks and Converse Consultants and presented to NDEP and CCHD by NVE. The plan was conditionally approved by NDEP and CCHD on September 3, 2003, pending the completion of further geologic, groundwater, and subsurface investigations. Converse Consultants conducted a geotechnical and dewatering investigation in 2004 (AOC-110, AOC-293). In 2005, Converse Consultants conducted additional investigations including installation of soil borings and monitoring wells (NDEP-63). Seven soil borings were installed in and around the perimeter of Pond 4A to depths of 35 – 45 feet bgs. Three borings (CMW-3, CMW-5, and CMW-6) were located inside the pond footprint and four borings (CMW-1, CMW-2, CMW-4, and CMW-7) were located just outside of the pond footprint; these locations are shown on Figure A-5 in Appendix A. The borings inside the pond footprint indicated approximately one foot of fill material at the surface followed by approximately 14 feet of fly ash. At each of the soil boring locations, both shallow and deep monitoring wells were installed. Shallow monitoring wells were installed to total depths of 10 – 25 feet bgs and screened in the shallow saturated clay material beneath the fly ash remaining in Pond 4A. The deep monitoring wells were installed to total depths of 35 – 45 feet bgs and screened in the predominantly silt and sand-like material with non-continuous clay lenses beneath the shallow saturated clay material. Permeability testing of soils from all of the soil borings indicated permeabilities ranged from 2.95×10^{-3} cm/sec to 9.26×10^{-8} cm/sec. No soil samples were collected for chemical analyses. TDS concentrations in the groundwater samples ranged from 1,500 – 51,000 milligrams per liter (mg/L) with the lower concentrations generally present in the deep wells (NDEP-63). The TDS data are presented in Table E-10.

Based on these groundwater investigations and information from previous investigations, Converse Consultants recommended a groundwater interceptor trench adjacent to Pond 4A and a deeper pumping well within the pond footprint. The purpose of the proposed trench was to capture groundwater with elevated TDS concentrations within the shallow clays beneath the pond while the purpose of the pumping well within the pond was to remove groundwater containing elevated TDS in the deeper silty sand material below the clay. A groundwater model was used to determine the general location, length, and depth of the interceptor trench and the anticipated performance and impact of a pumping well within the pond. Based on the trench simulations, Converse Consultants estimated it could take up to 15 years for most of the groundwater with elevated TDS to reach the proposed interceptor trench (NDEP-63). It was anticipated that the well would produce 25 gpm and the trench would initially produce 120 gpm. A Corrective Action Plan (CAP) was submitted to NDEP on September 9, 2005 to address groundwater contamination in the area of Pond 4A (DP-23).

In 2006, the groundwater recovery trench was installed in the Pond 4A area. Pump testing of the trench after installation reportedly yielded flows of approximately 250 gpm. A groundwater sample collected from the trench effluent during pump testing had a TDS concentration of 5,520 mg/L (DP-25). This trench is not currently active and the deep pumping well has not been installed.

4.2.3.1 Site Related Chemicals

Based on operations historically conducted in this area (disposal of bottom ash, fly ash, scrubber effluent, ash water, reactivator solids, possible petroleum-contaminated soils, and minor amounts of water treatment chemicals), the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs, SVOCs, TPH, and VOCs. These parameter categories were selected based on a review of historical documents regarding onsite chemical usage and process water discharges to onsite evaporation and settling ponds.

4.2.3.2 Sampling Results Summary

No soil sampling was identified in available documents relative to PA-3.

4.2.3.3 Conclusions and Recommendations for Further Investigation

- The accumulated solids will be removed and disposed in the permitted mesa landfill. These solids will be sampled prior to removal and soils underlying PA-3 will be sampled after solids removal.
- Groundwater beneath PA-3 will be included in Ponds Area groundwater characterization efforts.
- Reevaluate the potential effectiveness of the existing interceptor trench and proposed deep pumping well in the Pond 4A area.

4.2.4 PA-5 – Former Pond D

The following documents in Table 4-24 were referenced when researching the history and previous investigations of PA-5.

Table 4-24 PA-5 Related Documents

Encyclopedia Document No.	Title	Date	Author
NDEP-110	Report on Leakage Monitoring Units 1 & 2 Effluent Evaporation Ponds	10/20/1975	AIM, Inc.
AOC-345	Interim Report No. 1—Geotechnical Evaluation of Existing Evaporation Ponds	7/2/1982	Converse Consultants
AOC-136	Unit Nos. 1, 2 and 3 Report of Investigations and Recommendations for Refurbishment of Existing Evaporation Ponds	9/3/1982	URS Company
AOC-333	Findings and Conclusions Seepage, Erosion and Stability Evaporation Ponds RG 1, 2, & 3	5/12/1983	Converse Consultants
Storage-425008843-1	Units 1, 2, & 3 Evaporation Pond Upgrade (Drawing)	9/14/1983	URS Company
Storage-364690282	Geotechnical Investigation –Seepage Cut-Off Wall for RG-1, -2, -3 Evaporation Ponds	10/14/1988	Converse Consultants

Table 4-24 PA-5 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-317	Evaporation Ponds—Seepage Cut-Off Wall (Drawings)	2/23/1989	Converse Consultants
AOC-347	Pond Life (Interoffice Memorandum)	11/29/1990	NPC
AOC-156	Various documents regarding violations related to ponds	1991	Various
Storage-364690282	Construction Documentation—Seepage Cut-Off Walls, Reid Gardner Evaporation Ponds D and E	4/23/1991	Converse Consultants
NDEP-16	Hydrogeological Study of Surface Impoundments	6/24/1992	Kleinfelder
AOC-351	Geotechnical Investigation- Evaporation Ponds D and E	6/6/1996	Kleinfelder
Storage-425008878	Evaporation Pond Analysis (Lab Reports)	1/1/1997-12/29/2000	NPC
AOC-307	Order No NV052797W1	5/28/1997	NDEP
AOC-221	Permit No. NEV91022-Authorization to Discharge	8/31/1999	NDEP
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-311	Reconstruction of Ponds D and E—Issued for Construction (Drawings)	4/30/2002	Kennedy/Jenks Consultants
AOC-291	Geotechnical Investigation –Retrofit of Ponds D & E	5/17/2002	Converse Consultants
AOC-148	Nevada Power Company-Reid Gardner Station Discharge Permit No. 91022 And Administrative Order No. NV083199Wl (Correspondence)	9/30/2002	NPC
NDEP-51	95% Bid Specification-Units 1-3 Evaporation Ponds D & E	10/2/2002	Generation Engineering
Storage-436372616-2	Ponds D and E Storm Water Retention Analysis	10/11/2002	Kennedy/Jenks Consultants
NDEP-52	Corrective Action Plan for Ponds D and E	11/11/2002	NPC
AOC-310	Corrective Action Plan for Ponds D and E	12/16/2002	NDEP
AOC-316	Reid Gardner Station Revised Hydrogeologic Characterization Report (dated February 20, 2002)	8/11/2003	NDEP
AOC-217	Reid Gardner Station - Corrective Action Plan for Ponds D and E, Response to NDEP Comments Letter dated December 16,2002, and As-Built Drawings	9/3/2003	NPC
AOC-20	Final Grading and Quality Control/Quality Assurance Report	12/24/2003	Converse Consultants
AOC-138	Renewal of Authorization to Discharge Permit #NEV91022 and Request for Reduction of Monitoring Requirements for Reid Gardner Generating Station, Moapa, Nevada (Correspondence)	2/19/2004	NPC
Storage-424920713	Ponds D and E	9/21/2004	NDEP
AOC-309	Geotechnical Evaluation—Pond D	10/28/2008	Converse Consultants
AOC-318	Geotechnical Evaluation Report—Pond D	1/27/2009	Converse Consultants

Table 4-24 PA-5 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
*Section 6	Proposed Ponds D and G Soil Sampling Approaches (Memorandum)	10/9/2009	Stanley Consultants
*Section 6	Solids Removal Work Plan--Pond D Administrative Order on Consent Activities	12/2009	Stanley Consultants
*Section 6	Ponds D and G Solids Sampling Results and Proposed Soil Sampling Analytical Parameters	4/29/2010	NV Energy

*Refer to Section 6 of this report

The former Pond D was constructed in 1974 to receive process water from Units 1, 2 and 3 and covered an area of approximately 15 acres. Based on aerial photographs and later geotechnical reports, it was reportedly created by building dikes on the native ground surface out of material from inside the pond perimeter. The former Pond D received scrubber effluent from Units 1, 2, and 3, which were fitted with mechanical fly ash dust collection systems, wet bottom ash systems, and wet scrubbers for sulfur removal (AOC-109).

In 1975, AIM Inc. determined "…*effluent from the Reid Gardner Station's Units 1 and 2 scrubbers has been entering the evaporation ponds intermittently for a period of one year. An evaluation of all available data, including analytical data from nineteen monitoring piezometers, indicates that no significant or measurable leakage of effluent from the ponds has occurred*" (NDEP-110).

Converse Consultants conducted a geotechnical evaluation of the existing evaporation ponds in 1982. Subsurface soil conditions along the south berm of Pond D were explored by installing five soil borings to log stratigraphy and obtain samples of the berm and foundation soils. Three of these borings were drilled through the existing berms to depths of 30.5 to 36.5 feet. Two borings were hand-augered to depths of approximately four feet in the foundation soils downstream of the existing south berm. Based on these investigations, Converse Consultants discussed evidence of leakage and the risk of future leakage of Pond D. They noted *"…[S]ignificant concentrations of sodium sulfate brine were detected in samples obtained from monitor wells P-8 and P-9 and from runoff and crust samples obtained downstream of the south dike of the west pond[Pond D]"*. Moderate to severe erosion of the berms and along the ash haul road which formed the west berm of Pond D were also noted (AOC-345).

Also in 1982, a URS/Converse Consultants investigation determined that a segment of the south berm approximately 1,200 feet in length required slurry trench rehabilitation to control seepage. Flattening and armoring of the side slopes to enhance stability and provide erosion protection was also required (AOC-136). In an effort to reduce this seepage, clay slurry walls were installed in the mid-to-late 1980s through the center of the berms, extending up to 30 feet below the berm surface and into the underlying native clay layers. Several feet of low permeability soils were also placed on top of the dikes to increase their height. In addition, between 1992 and 1997, steel sheet piles were installed to a depth of 20 feet bgs along the southern and northern berms (AOC-109 and AOC-291).

As described in Section 4.2.2, the process to obtain the first discharge permit for the Station began in 1983. On March 5, 1991, NDEP conducted an inspection of the Station to obtain information regarding the onsite ponds. The inspection noted the existence of two unlined ponds (assumed to be Ponds D and E) which received scrubber effluent. Based on the March 5, 1991, inspection (also

discussed in Section 4.2.2), NDEP issued a Finding of Violation and Order on April 1, 1991. The Order required a new permit application and a schedule for upgrading the ponds. On July 15, 1991, NVE submitted an application to discharge scrubber wastewater into evaporation ponds (AOC-307). In May 1997, NDEP issued an administrative order (NV052797W1) that required NVE to submit a plan and schedule to bring the ponds into compliance and to investigate soil and groundwater contamination (AOC-307). In August 1999, NDEP issued another administrative order (NV083199W1) which detailed a schedule of compliance for lining or closing the Station evaporation ponds because of the documented groundwater contamination from the unlined ponds. When NDEP issued discharge permit number NEV91022 on August 31, 1999, it required that Pond D be closed or relined by April 1, 2002 (AOC-221).

Pond D was removed from service in the summer of 2001 and the solids dried. In 2002, Converse Consultants conducted a geotechnical investigation to evaluate the suitability of Pond D to be capped with a single HDPE liner system and closed with a portion converted to a storm water detention basin (AOC-291).

On November 11, 2002, NVE proposed a CAP to the NDEP Bureau of Corrective Actions (BCA) for Pond D. An HDPE geo-grid subgrade would be placed over the existing pond surface, a layer of fly ash would be placed on the geo-grid, and the surface would then be graded to form a storm water detention basin in the southwest corner. To prevent downward percolation of storm water runon or direct precipitation, the graded surface would be covered first with a 40-mil HDPE liner overlain by an 18-inch-thick soil cover. Gravel would be placed on top of the soil to prevent wind and water erosion (NDEP-52).

Although solids removal was not proposed for the pond, the base of the salt/sediments were thought to be about three to eight feet above the water table and no long-term interaction with groundwater was expected that would leach salts into the groundwater. However, to help remove residual impacted groundwater within the pond footprint and minimize potential future impacts that could occur from vadose zone leaching, a groundwater drain was proposed. The drain was to consist of a 6-inch diameter, perforated polyvinyl chloride (PVC) drain pipe located just below the measured water table elevation. Collected groundwater would flow by gravity into a collection sump located in the perimeter berm near the southeast corner of Pond D. A pump would be used to empty the sump and transfer the contaminated groundwater into Pond E for evaporation (NDEP-52).

In a letter dated December 16, 2002, NDEP concurred with the proposed remedial approach detailed in the CAP submitted by NVE with the following exceptions, changes, and/or conditions:

- The drain piping should be placed approximately two feet below the historical low groundwater elevation measured from the perimeter wells. In addition, continual pumping should be used to promote flow through the system; the drain system should not rely on gravity flow.

- Adequate pond capacity should be made available by including any additional inflow generated by the drain system into the water balance for plant operations.

- Sampling of the sumps should be conducted on a quarterly schedule to monitor system effectiveness (AOC-310).

In late 2002, the remediation trench was constructed as proposed in the November 2002 CAP (prior to receiving NDEP comments). In 2003, Pond D was capped with ash fill material and then covered with an HDPE liner and 18 inches of soil. Gravel was typically placed on the soil cover to reduce wind and water erosion. The southwest corner of the Pond D area was graded and lined to serve as a storm water detention basin. The solids that had accumulated in Pond D were not removed prior to capping. Additionally, the slurry wall and sheet piles were not removed and are believed to still be in place at the site, but their condition is not known (AOC-138).

NDEP reviewed the Quarterly Groundwater and Remediation Report dated August 10, 2004 in conjunction with the as-built drawings for the Pond D remediation trench (dated September 3, 2003). Because the remedial system was constructed as proposed prior to receiving the written concurrence of the NDEP, the drainpipe was not two feet below the groundwater table. In addition, the groundwater elevations surrounding Pond D were lower than portions of the drainpipe system; therefore, the system was not considered by NDEP to be fully effective. Therefore, the remediation system constructed for Pond D was considered an interim remedial measure. NDEP requested a revised CAP for a long-term remedial system for the Pond D area. The revised CAP was to address the conditions outlined in the December 12, 2002, concurrence letter and focus on full capture and treatment of impacted groundwater in the vicinity of Pond D (Storage-424920713). After the AOC was signed, it was agreed that groundwater in the area of Pond D would be addressed under the AOC.

The Pond D remediation trench has been recovering some shallow groundwater since installation in 2002. The quantity of recovered groundwater has been reported quarterly to NDEP. As of the fourth quarter 2011; 2,363,749 gallons of groundwater have been recovered from the Pond D remediation trench and discharged into Pond E1 for evaporation. During solids removal in the former Pond D area in 2010, a portion of the remediation trench associated with Pond D was permanently removed.

To evaluate the general extent of the pond solids present in the Pond D area in preparation for their removal, Converse Consultants conducted a site investigation on September 16 – 18, 2008, that included 15 exploratory borings and one test pit. In addition, they conducted four test pits to identify the location and elevation of the edge of the pond liner. The subsurface conditions encountered during the field investigation consisted primarily of silty sands and lean clays at the base of the Pond D area, overlain by pond solids, covered by an HPDE liner, and finally covered with a layer of silty sand with gravel.

In November 2009, NVE submitted a Solids Removal Work Plan to the NDEP to address removal of pond solids from the Pond D area as part of the AOC. This report was approved by the NDEP on November 30, 2009 and errata sheets were subsequently prepared and submitted to NDEP per their request in December 2009. The proposed actions included removal of the existing soil cover, the HDPE liner cap, and pond solids (including the material beneath the HDPE liner). Because pond solids were present around the groundwater recovery trench along the south side of the Pond D area, portions of this trench were removed during this action (Stanley Consultants, 2009b). Converse Consultants evaluated the geotechnical properties of the solids to be removed and concluded that they were suitable for removal and disposal in the existing mesa landfill at the Station. During the 2010 excavation of the pond solids in the former Pond D area, approximately 289,000 cubic yards of excavated material were disposed of in a lined cell in the existing Mesa Landfill at the Station, in accordance with the landfill permit issued by the SNHD.

4.2.4.1 Site Related Chemicals

Solids samples collected in 2009 from the former Pond D area were analyzed for all SRCs where Nevada-certified laboratories were available. Based on the analytical results of the solids sampling; formaldehyde, metals and general chemistry parameters were identified as SRCs. Section 4.2.4.2 discusses this data in detail.

4.2.4.2 Sampling Results Summary

Prior to removal, samples of pond ash and salt were collected at nine locations in the former Pond D area using a split-spoon sampler. One Pond D solids composite sample was analyzed for all SRCs, except VOCs and formaldehyde, where Nevada-certified laboratories were available. Asbestos, PCBs, PAHs, dioxins, TPH, ammonia and nitrate were not detected in this sample. Of the 28 metals for which solids were analyzed, 22 were detected. Additionally, nine discrete solids samples ranging from two to eight feet bgs were analyzed for VOCs and formaldehyde. VOCs were not detected in any of the samples, while formaldehyde was. Results of Pond D solids sampling are included in Tables E-11, E-12, and E-13. These results were previously submitted to NDEP in a letter report entitled "*NVE, Ponds D and G Solids Sampling Results and Proposed Soil Sampling Analytical Parameters*" and dated April 29, 2010 (Stanley Consultants, 2010c).

The excavation of pond solids occurred between March 25 and August 4, 2010. As pond solids were excavated and removed, underlying soil was sampled between April 26 and July 13, 2010. Results of this soil sampling from below the former Pond D area are in Table E-14. Eight discrete soil samples were analyzed for aluminum, arsenic, barium, boron, calcium, chloride, chromium (total), formaldehyde, iron, magnesium, manganese, molybdenum, nickel, phosphorus (total), potassium, selenium, sodium, sulfate, and pH. Molybdenum and selenium were not detected in any of the samples. The soil results are summarized in Table 4-25. Soil boring locations are shown in Figure A-6.

Table 4-25 PA-5 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Ethylene glycol was not identified as an SRC. No data is available.						
Formaldehyde	0.527	**4.98**	NA	0.62	120,000	41.6	NA
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)							
Chloride	2600	5300	NA	NA	NA	NA	NA
Total Phosphorous	180	440	NA	NA	NA	NA	NA
Sulfate	35,000	63,000	NA	NA	NA	NA	NA
Metals (mg/kg)	Metals that were analyzed and not detected are shown on Table E-14 in Appendix E.						
Aluminum	**6300**	**24,000**	NA	23,000	990,000	100,000	75
Arsenic	**7.8**	**21**	0.29	.0013	1.6	1.77	1
Barium	52	**110**	82	120	190,000	100,000	82

Table 4-25 PA-5 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Boron	**330**	**960**	NA	9.9	200,000	100,000	23.4
Calcium	52,000	96,000	NA	NA	NA	NA	NA
Chromium (total)	7.1	21	180,000	NA	NA	NA	NA
Iron	**5700**	**14,000**	NA	270	720,000	100,000	7.56
Magnesium	**6600**	**25,000**	NA	NA	NA	100,000	649
Manganese	**150**	**330**	NA	21	23,000	10,000	3.26
Nickel	4.9	**13**	NA	20	20,000	21,800	7
Potassium	4,000	10,000	NA	NA	NA	NA	NA
Sodium	14,000	34,000	NA	NA	NA	NA	NA
PAHs (µg/kg)	PAHs were not identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)	TPH parameters were not identified as SRCs. No data is available.						
VOCs (µg/kg)	VOCs were not identified as SRCs. No data is available.						

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: PD-Soil-1 (0-1'), PD-Soil-3 (0-1'), PD-Soil-5 (0-1'), PD-Soil-6 (0-1'), PD-Soil-7 (0-1'), PD-Soil-8 (0-1'), PD-Soil-9 (0-1'), and PD-Soil-10 (0-1') from April 2010 through July 2010.

4.2.4.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended.
- Groundwater beneath PA-5 will be included in Ponds Area groundwater characterization efforts.

4.2.5 PA-6 – Pond E

The following documents in Table 4-26 were referenced when researching the history and previous investigations of PA-6.

Table 4-26 PA-6 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP-97	Geologic Field Report of the Proposed Evaporative Ponds	6/14/1973	Robert J. Sulenski
NDEP-110	Report on Leakage Monitoring Units 1 & 2 Effluent Evaporation Ponds	10/20/1975	AIM, Inc.
AOC-345	Interim Report No. 1—Geotechnical Evaluation of Existing Evaporation Ponds	7/2/1982	Converse Consultants
AOC-136	Unit Nos. 1, 2 and 3 Report of Investigations and Recommendations for Refurbishment of Existing Evaporation Ponds	9/3/1982	URS Company
AOC-333	Findings and Conclusions Seepage, Erosion and	5/12/1983	Converse

Table 4-26 PA-6 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
	Stability Evaporation Ponds R. G. 1, 2, & 3		Consultants
Storage-425008843-1	Units 1, 2, & 3 Evaporation Pond Upgrade (Drawing)	9/14/1983	URS Company
AOC-135	Conclusions Regarding Seepage, RG 1, 2 and 3 Evaporation Ponds	11/28/1983	Converse Consultants
NDEP-03	Draft Development of Permit Limitations	4/12/1985	NDEP
Storage-364690282	Geotechnical Investigation –Seepage Cut-Off Wall for RG-1, -2, -3 Evaporation Ponds	10/14/1988	Converse Consultants
AOC-317	Evaporation Ponds—Seepage Cut-Off Wall (Drawings)	2/23/1989	Converse Consultants
AOC-151	Reid Gardner Unit 1-2-3 East Pond	3/2/1990	NPC
AOC-152	Geotechnical Investigation Seepage Condition Evaporation Pond E	7/6/1990	Converse Consultants
AOC-347	Pond Life (Interoffice Memorandum)	11/29/1990	NPC
AOC-156	Various documents regarding violations related to ponds	1991	Various
Storage-364690282	Construction Documentation—Seepage Cut-Off Walls, Reid Gardner Evaporation Ponds D and E	4/23/1991	Converse Consultants
NDEP-16	Hydrogeological Study of Surface Impoundments	6/24/1992	Kleinfelder
AOC-351	Geotechnical Investigation- Evaporation Ponds D and E	6/6/1996	Kleinfelder
Storage-425008878	Evaporation Pond Analysis (Lab Reports)	1/1/1997-12/29/2000	NPC
AOC-212	NDEP/Dairy/NVE Pond Walk (Interoffice Memorandum	5/6/1997	NPC
AOC-307	Order No NV052797W1	5/28/1997	NDEP
AOC-296	Draft Odor Control System	5/24/1999	Kleinfelder
AOC-221	Permit No. NEV91022-Authorization to Discharge	8/31/1999	NDEP
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-311	Reconstruction of Ponds D and E—Issued for Construction (Drawings)	4/30/2002	Kennedy/Jenks Consultants
AOC-291	Geotechnical Investigation –Retrofit of Ponds D & E	5/17/2002	Converse Consultants
AOC-148	Nevada Power Company-Reid Gardner Station Discharge Permit No. 91022 And Administrative Order No. NV083199Wl (Correspondence)	9/30/2002	NPC
NDEP-51	95% Bid Specification-Units 1-3 Evaporation Ponds D & E	10/2/2002	Generation Engineering
Storage-436372616-2	Ponds D and E Storm Water Retention Analysis	10/11/2002	Kennedy/Jenks Consultants
NDEP-52	Corrective Action Plan for Ponds D and E	11/11/2002	NPC
AOC-310	Corrective Action Plan for Ponds D and E	12/16/2002	NDEP

Table 4-26 PA-6 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-316	Reid Gardner Station Revised Hydrogeologic Characterization Report (dated February 20, 2002)	8/11/2003	NDEP
AOC-217	Reid Gardner Station - Corrective Action Plan for Ponds D and E, Response to NDEP Comments Letter dated December 16,2002, and As-Built Drawings	9/3/2003	NPC
AOC-20	Final Grading and Quality Control/Quality Assurance Report	12/24/2003	Converse Consultants
AOC-138	Renewal of Authorization to Discharge Permit #NEV91022 and Request for Reduction of Monitoring Requirements for Reid Gardner Generating Station, Moapa, Nevada (Correspondence)	2/19/2004	NPC
Storage-424920713	Ponds D and E	9/21/2004	NDEP
DP-16	Report for Geomembrane Leak Location Survey of Pond E Upper Side Slope and a limited area of Pond C-2	7/6/2005	Leak Location Services
DP-22	E2 Evaporation Pond Repair Plan Permit No. NEV91022	9/9/2005	NPC

Pond E replaced the original Ponds C and D (and covered a larger footprint) when it was built with Pond D in 1974 (AOC-109). The exact construction date of the original Ponds C and D is unknown; however, it is presumed to have occurred between 1969 and 1973/1974, after Pond B (ash settling pond, ASP-2) was constructed and before Pond E was built.

Based on aerial photographs and later geotechnical reports, Pond E was reportedly created by building dikes on the native ground surface out of imported, low permeability fill (AOC-109). Vegetation was not likely removed from the pond bottom and only minimal compaction of site soils was performed prior to introduction of fly ash and process water. Pond E received scrubber effluent from Units 1, 2, and 3, which were fitted with mechanical fly ash dust collection systems, wet bottom ash systems, and wet scrubbers for sulfur removal. A clay slurry wall was constructed with the original pond and went through the berm centerline to a depth of 11 to 13 feet into the native soils below the base of the berm. The slurry wall was designed to penetrate underlying clay layers and form a seal.

As described in Section 4.2.2, the process to obtain the first discharge permit for the Station began in 1983. On March 5, 1991, NDEP conducted an inspection of the Station to obtain information regarding the onsite ponds. The inspection noted the existence of two unlined ponds (assumed to be Ponds D and E) which received scrubber effluent. Based on the March 5, 1991, inspection (also discussed in Section 4.2.2), NDEP issued a Finding of Violation and Order on April 1, 1991. The Order required a new permit application and a schedule for upgrading the ponds. On July 15, 1991, NVE submitted an application to discharge scrubber wastewater into evaporation ponds (AOC-307). In May 1997, NDEP issued an administrative order (NV052797W1) that required NVE to submit a plan and schedule to bring the ponds into compliance and to investigate soil and groundwater contamination (AOC-307). In August 1999, NDEP issued another administrative order (NV083199W1) which detailed a schedule of compliance for lining or closing the Station evaporation

ponds because of the documented groundwater contamination from the unlined ponds. When NDEP issued discharge permit number NEV91022 on August 31, 1999, it required that Pond E be closed or relined by April 1, 2002 (AOC-221).

In 1983, Converse Consultants investigated leakage from Pond E. Converse determined that, although leakage was observed along the 300 to 500-foot reach of the east berm of Pond E, the quantity of seepage (i.e., estimated at two to five gpm or less) was small and should satisfy the State of Nevada's permeability requirements. This opinion was based on their observations during a site visit, review of the most recent set of readings from existing monitor wells around the ponds, and observations that the seepage and associated salt deposits were confined laterally to a few feet beyond the toe of the slope. Their conclusion was that the minor quantity of seepage did not justify design and construction of a remedial seepage cut-off system at that time. Rather, the pond's performance should continue to be monitored (AOC-135). A system of 19 monitoring wells was used to evaluate the status of pond leakage (NDEP-03).

The south, east, and north Pond E exterior embankments were upgraded between November 1983 and January 1984. The upgrade consisted primarily of flattening both the interior and exterior embankment slopes. A soil-cement erosion protection layer was installed in 1987 along the north side, the east side, and a portion of the south side of Pond E. This work was done in conjunction with the construction of two new ponds (Ponds F and G) immediately east of the existing evaporation ponds (Storage-364690282).

In 1988, Converse Consultants conducted a geotechnical investigation to evaluate the performance of the existing clay slurry wall. The purposes of the investigation were to review the current monitoring well data and previous investigations, perform additional subsurface investigations/laboratory testing and, where necessary, provide design and construction recommendations for a new seepage cutoff wall. It was the opinion of Converse that the evaporation ponds were leaking at an average rate somewhat greater than the Nevada allowable seepage rate of 0.02 ft/day (7.05×10^{-6} cm/sec). The primary reasons for this leakage rate were the absence of a true continuous clay slurry cut-off wall beneath the embankment and either the presence of high permeability soils in the embankment or below the embankment, or both. Converse's investigation indicated the presence of silty sand layers immediately below the embankment at several locations. Soil borings also indicated the presence of silty sand pockets and possibly silty sand layers in the constructed embankments. In order to correct this condition and bring Ponds D and E into compliance with the accepted standard for leakage at the time, Converse recommended that a soil-bentonite slurry wall or similar barrier be installed in sections along the south side, east side, and a portion of the west side of Ponds D and E. The slurry walls extended through the center of the existing embankment and into the existing clay layer which was encountered at depths ranging from 10 to 30 feet bgs (AOC-317).

Leakage through and under the dikes of Ponds D and E (particularly on the south side and southeast corner) occurred at various times over the lifetime of these unlined ponds. NVE engaged in remedial activities to reduce seepage through the berms which included:

- Addition of several feet of low permeability soils to the top of the dikes to increase their height.
- Installation of clay slurry walls in the dikes in the mid-1980's that extended to a lower clay layer located at depths of up to 30 feet bgs.

- Installation of a series of perimeter monitoring wells.
- Installation of steel sheet piles from 1992 until 1997, to a depth of 20 feet along the axis of the southern and northern dikes (AOC-109).

NVE took Pond E out of service in 2001, but did not finalize long-term plans for the pond until April 2002 when it was determined that Pond E would be double-lined. Prior to lining Pond E, accumulated salt and fly ash were removed. It is unknown if this excavation extended to the water table. During site excavation, NVE investigated various options for collecting shallow impacted groundwater under the pond footprint (AOC-217). Information pertaining to these options is not available.

In 2002, NVE proposed a CAP to NDEP. Pond E was proposed to be divided into two smaller ponds, E-l and E-2, for better process water management and lined with a double HDPE liner system with leak detection and collection. A groundwater trench was to be installed along the south side of both ponds and along the east/southeast side of Pond E-2. The proposed drain would consist of 6-inch diameter perforated PVC drain pipe located just below the anticipated water table elevation. Collected groundwater would flow by gravity from both drain lines to a collection sump located in the perimeter berm on the southeast corner of the pond. A sump pump would be used to transfer the contaminated groundwater into Pond E-1 for evaporation (NDEP-52).

In a letter dated December 16, 2002, NDEP concurred with the proposed remedial approach detailed in the CAP submitted by NVE with the following exceptions, changes, and/or conditions:

- The drain piping should be placed approximately two feet below the historic low groundwater elevation measured from the perimeter wells. In addition, continual pumping should be used to promote flow through the system; the drain system should not rely on gravity flow.

- Adequate pond capacity should be made available by including any additional inflow generated by the drain system into the water balance for plant operations.

- Sampling of the sumps should be conducted on a quarterly schedule to monitor system effectiveness (AOC-310).

In late 2002, the remediation trench was installed as proposed in the 2002 CAP (prior to receiving NDEP comments). Pond E was split into Ponds E-1 and E-2 and a double HDPE liner system with leak detection and collection was installed before the ponds were placed back into service in 2003. NDEP reviewed the Quarterly Groundwater and Remediation Report dated August 10, 2004 in conjunction with the as-built drawings for the Pond E remediation trench (dated September 3, 2003). Because the remedial system was constructed as proposed prior to receiving the written concurrence of the NDEP, the drainpipe was not two feet below the groundwater elevation. In addition, the groundwater elevations surrounding Pond E were lower than portions of the drainpipe system; therefore, the system was not considered by NDEP to be fully effective. Therefore, the remediation system constructed for Pond E was considered an interim remedial measure. NDEP requested a revised CAP for a long-term remedial system for the Pond E area. The revised CAP was to address the conditions outlined in the December 16, 2002, concurrence letter and focus on full capture and treatment of impacted groundwater in the vicinity of Pond E (Storage-424920713). After the AOC was signed, it was agreed that groundwater in the area of Pond E would be addressed under the AOC.

The Pond E remediation trench has been recovering some shallow groundwater since installation in 2002. The quantity and quality of recovered groundwater has been reported quarterly to NDEP. As of the fourth quarter 2011; 461,306 gallons of groundwater have been recovered from the Pond E remediation trench and discharged into Pond E-1 for evaporation.

4.2.5.1 Site Related Chemicals

The SRC parameter categories at PA-6 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, and metals.

4.2.5.2 Sampling Results Summary

No soil sampling was identified in available documents relative to PA-6.

4.2.5.3 Conclusions and Recommendations for Further Investigation

- When accumulated solids are removed from Pond E they will be disposed in the permitted Mesa Landfill. These solids will be sampled prior to removal and soils underlying the double liner system will be sampled after solids removal.
- Groundwater beneath PA-6 will be included in Ponds Area groundwater characterization efforts.
- Reevaluate the effectiveness of the existing Pond E remediation trench.

4.2.6 PA-7 – Pond F and Former Pond G

The following documents in Table 4-27 were referenced when researching the history and previous investigations of PA-7.

Table 4-27 PA-7 Related Documents

Encyclopedia Document No.	Title	Date	Author
NDEP-100	Drainage Study for Proposed Laydown Area Ponds	7/1986	URS Corporation
AOC-352	Borrow Source Study—Laydown Evaporation Pond Area	8/11/1986	Converse Consultants
NDEP-106	Geotechnical Investigation—Laydown Area Evaporation & Storage Ponds	9/2/1986	Converse Consultants
AOC-322	Laydown Area Evaporation & Storage Ponds (As-Built Drawings)	12/12/1986	URS Corporation
AOC-165	Laydown Area Evaporation Ponds Leakage (Correspondence)	8/23/1988	NPC
NDEP-107	Recommended Remedial Measures--Laydown Area Ponds Distress	9/2/1988	Converse Consultants
Storage-364690287	Environmental Action Plan, Final Report	9/20/1991	The Mark Group

Table 4-27 PA-7 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP-16	Hydrogeological Study of Surface Impoundments	6/24/1992	Kleinfelder
AOC-137	Hydrogen Sulfide Incident of June 12, 1992 Ponds F&G (Interoffice Memorandum)	7/20/1992	NPC
AOC-225	Report of circumstances surrounding a release from Nevada Power Company's (NPC) Reid Gardner Station (RGS) Pond F (Correspondence)	12/18/1995	NPC
AOC-299	Permit No. TNEV96016 Period and Provision Updates	8/16/1996	NPC
Storage-425008878	Evaporation Pond Analysis (Lab Reports)	1/1/1997-12/29/2000	NPC
AOC-212	NDEP/Dairy/NPC Pond Walk (Interoffice Memorandum)	5/6/1997	NPC
AOC-307	Order No NV052797W1	5/28/1997	NDEP
AOC-297	Design Basis Report and 10% Design Drawings, Wastewater Pump Station	5/26/1999	Kleinfelder
AOC-150	Formal Enforcement Action For Reid-Gardner Water Pollution Violations	8/31/1999	NDEP
AOC-221	Permit No. NEV91022-Authorization to Discharge	8/31/1999	NDEP
AOC-109	Reid Gardner Station Revised Hydrogeologic Characterization Report Volumes 1 and 2	2/20/2002	NPC
AOC-316	Reid Gardner Station Revised Hydrogeologic Characterization Report (dated February 20, 2002)	8/11/2003	NDEP
AOC-116	Revised Hydrogeologic Characterization Report--Response to NDEP Comments Letter dated August 11, 2003, and CAP/Additional Assessment Schedule (Correspondence)	5/21/2004	NPC
AOC-211	Corrective Action Plan for Ponds F and G	9/10/2004	NPC
NDEP-120	Corrective Action Plan for Ponds F and G (Correspondence)	9/21/2004	NDEP
DP-13	Conceptual Planning Documents, Ponds F and G (Correspondence)	4/29/2005	NPC
DP-19	Ponds F and G Liner Design Schedule (Correspondence)	9/1/2005	NPC
AOC-286	Construction Permit Application Wastewater Settling Ponds F&G	10/2005	Stanley Consultants
AOC-112	Permit No. NEV91 022—Authorization to Discharge	10/19/2005	NDEP
AOC-237	Laboratory Reports for waster, ash, and sludge	12/7/2006	Veritas Laboratories
NDEP-80	Evaporation Pond Relining Schedule - Permit #NEV91022 (Correspondence)	4/17/2007	NPC
*Section 6	Proposed Ponds D and G Soil Sampling Approaches (Memorandum)	10/9/2009	Stanley Consultants
*Section 6	Solids Removal Work Plan--Pond G Administrative Order on Consent Activities	12/2009	Stanley Consultants
*Section 6	Ponds D and G Solids Sampling Results and Proposed Soil Sampling Analytical Parameters	4/29/2010	NV Energy

*Refer to Section 6 of this report

In 1986, Converse Consultants conducted a geotechnical investigation of the proposed location of Ponds F and G. Converse concluded that seepage through the embankments should be restrained with a clay core overlying a soil-bentonite slurry cut-off wall penetrating the lower impermeable silty clay soils. A coefficient of permeability of less than $1x10^{-7}$ cm/sec was expected to be attained during construction. According to slurry wall permeability testing conducted during construction, the permeability is in the range of 5-8 x $10E^{-8}$ cm/sec (AOC-165). Slope erosion protection was planned to be provided by gravel on the interior slope and soil-cement on the exterior slope. Embankment fill materials could be obtained within the Station property from designated borrow sources (NDEP-106).

Ponds F and G were constructed in 1986 for settling fly ash from the Units 1, 2 and 3 scrubber blowdown. These units originally used mechanical separators for particulate control and fly ash would carry over into the scrubbers (and ultimately its blowdown). Effluent from Ponds F and G discharged to on-site evaporation ponds. Ponds F and G were constructed by building berms on the ground surface with a clay core. This core was tied to a clay slurry wall below grade. The slurry wall is approximately 10 to 15 feet deep and was constructed at least two feet into a naturally occurring clay layer. The outer berm slopes were covered with soil-cement for erosion protection (AOC-322).

In June 1988, apparent areas of leakage were noted at the northeastern area of Pond F. Converse Consultants determined the leakage was occurring through a sandy zone in the embankment core at an approximate depth of 10 feet below the top of the embankment. The area of saturation extended along the toe of the embankment for a distance of approximately 180 feet (AOC-165). Converse recommended that the seepage could be reduced to, or below, design levels through the use of a combination of core rework and a geomembrane barrier (NDEP-107).

On December 18, 1995, NVE reported to NDEP that a release occurred two days prior. At that time, Pond F normally discharged by gravity to Pond E. As the head difference between Ponds F and E equilibrated, the Pond F water level increased and caused a discharge through a utility access culvert which then flowed to the Muddy River (AOC-225).

On April 31, 1997; NDEP, the owners and operators of the Hidden Valley Dairy (immediately downstream of the Station), and NVE personnel conducted a site visit in the vicinity of Pond E. The site visit was requested and guided by the dairy operator, who alleged to NDEP that Station activities had adversely impacted the water supply for their livestock. During the site visit, the dairy operator directed the group's attention to seeps along the southern edge of Pond G. The operator had collected samples for analysis. Analytical results (later confirmed by NVE) indicated elevated concentrations of sulfate, chlorides, and TDS (AOC-212).

In May 1997, NDEP issued an order (NV052797W1) to NVE to cease and desist from discharging pollutants into waters of the state, required NVE to develop a plan to bring the ponds into compliance with state requirements, and required NVE to develop plans and schedules to investigate contamination and eliminate migration of contamination (AOC-307).

In August 1999, NDEP issued another administrative order (NV083199W1) which detailed a schedule of compliance for lining or closing the Station ponds. NVE was ordered to reline or close Ponds F and G by April 30, 2010, because groundwater monitoring results indicated the unlined ponds had leaked and contaminated groundwater in the area (AOC-150).

In September 2004, NVE submitted the requested CAP for Ponds F and G to NDEP. In the CAP, NVE proposed to line Ponds F and G with double HDPE liner systems. In addition to lining the ponds, NVE proposed installation of groundwater interception trenches to be located between the northeast sides of Ponds F and G and the Muddy River (AOC-211).

NDEP responded to the CAP in a letter dated September 21, 2004. The NDEP concurred with the proposed remedial approach detailed in the CAP for Ponds F and G with the following exceptions, changes, and/or conditions:

- The drain piping should be placed approximately two feet below the historic low groundwater elevation measured from the perimeter wells. In addition, continual pumping should be used to promote flow through the system; the drain system should not rely on gravity flow.
- Adequate pond capacity should be made available by including any additional inflow generated by the drain system into the water balance for plant operations.
- Sampling of the sumps should be conducted on a quarterly schedule to monitor system effectiveness (NDEP-120).

The CAP was only partially implemented through installation of the liner system at Pond F. NVE requested to discontinue the implementation of the remaining work proposed in the CAP and address the additional characterization and remediation work associated with Ponds F and G as part of the AOC implementation. On December 5, 2008 NDEP approved this request.

Solids were removed from Pond G in the summer of 2004 and it was put back into service in October 2004. It was permanently taken out of service in September 2008 by disconnecting and capping all piping to the pond. Pond F was last taken out of service in 2005 before it was lined and put back into service in 2007. In December 2011, Pond F was taken out of active service by discontinuing the discharge of station effluents to the pond, re-routing the discharges to other station ponds, and pumping the existing water out of the pond to nearly empty. On January 14, 2013, the NDEP Bureau of Water Pollution Control (BWPC) granted closure for Pond F with respect to NVE's NDEP-BWPC Discharge Permit No. NEV91022.

In 2009, NVE submitted a work plan to remove solids from Pond G which was approved by NDEP on November 30, 2009 (Stanley Consultants, 2009c). Approximately 113,000 cubic yards of pond solids were removed from the Pond G area in 2010 and disposed in a lined cell in the mesa landfill in accordance with the existing SNHD landfill permit. Once pond solids excavation and soil sampling were complete, the excavation was filled with natural fill materials.

A Pond F Solids Removal Work Plan was submitted to the NDEP in November 2012 and was approved on December 12, 2012. On January 8, 2013, NVE proposed to sample underlying soils following the pond solids removal at four discrete locations for selected parameters. NDEP approved the proposed sampling on January 17, 2013. Solids removal and sampling activities that took place in December 2012 and January 2013 will be described in a Pond F Solids Removal Completion Report to be submitted to the NDEP.

4.2.6.1 Site Related Chemicals

Solids samples collected in 2009 from the former Pond G area were analyzed for all SRCs where Nevada-certified laboratories were available. Based on the analytical results of the solids sampling, formaldehyde, metals and general chemistry parameters were identified as SRCs. Section 4.2.6.2 discusses this data in detail.

4.2.6.2 Sampling Results Summary

Prior to removal, samples of pond ash and salt were collected at four locations in the former Pond G area using a split-spoon sampler. One Pond G solids composite sample was analyzed for all SRCs, except VOCs and formaldehyde, where Nevada-certified laboratories were available. Asbestos, PCBs, PAHs, dioxins, TPH, ammonia and nitrate were not detected in this sample. Of the 28 metals for which solids were analyzed, 20 were detected. Additionally, four discrete solids samples were analyzed for VOCs and formaldehyde. VOCs were not detected in any of the samples, while formaldehyde was. Analytical results for the former Pond G solids composite sample are in Tables E-15, E-16, and E-17. These results were previously submitted to NDEP in a letter report entitled "*NVE, Ponds D and G Solids Sampling Results and Proposed Soil Sampling Analytical Parameters*" and dated April 29, 2010 (Stanley Consultants, 2010c).

The excavation of Pond G solids occurred between March 16 and September 14, 2010. NVE collected grab samples of the underlying soils on September 7, 2010 at the locations shown on Figure A-7 and the results are presented in Table E-18 (Stanley Consultants, 2010c), and summarized in Table 4-28.

Table 4-28 PA-7 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Ethylene glycol was not identified as an SRC. No data is available.						
Formaldehyde	0.301	**1.82**	NA	0.62	120,000	41.6	NA
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available..						
General Chemistry (mg/kg)							
Chloride	460	780	NA	NA	NA	NA	NA
Total Phosphorous	370	790	NA	NA	NA	NA	NA
Sulfate	22,000	36,000	NA	NA	NA	NA	NA
Metals (mg/kg)	Metals analyzed and not detected are shown on Table E-18 in Appendix E.						
Aluminum	**12,000**	**18,000**	NA	23,000	990,000	100,000	75
Arsenic	**9.7**	**26**	0.29	0.0013	1.6	1.77	1
Barium	**91**	**130**	82	120	190,000	100,000	82
Boron	**49**	**190**	NA	9.9	200,000	100,000	23.4
Calcium	8600	99,000	NA	NA	NA	NA	NA
Chromium (total)	13	15	180,000	NA	NA	NA	NA
Iron	**9400**	**16,000**	NA	270	720,000	100,000	7.56
Magnesium	**17,000**	**22,000**	NA	NA	NA	100,000	649

Table 4-28 PA-7 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Manganese	**190**	**330**	NA	21	23,000	100,000	3.26
Nickel	**8.5**	**12**	NA	20	20,000	21,800	7
Potassium	6000	9300	NA	NA	NA	NA	NA
Sodium	6500	13,000	NA	NA	NA	NA	NA
PAHs (µg/kg)	PAHs were not identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)	TPH parameters were not identified as SRCs. No data is available.						
VOCs (µg/kg)	VOCs were not identified as SRCs. No data is available.						

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: PG-Soil-1 (0-1'), PG-Soil-2 (0-1'), PG-Soil-3 (0-1'), and PG-Soil-4 (0-1') from September 2010.

4.2.6.3 Conclusions and Recommendations for Further Investigation

- Soils remaining in the Pond F area following solids removal in 2013 were characterized and the results will be provided to NDEP in a Pond F Solids Removal Completion Report. Further soil characterization is recommended in the former Pond F and G areas.
- Groundwater beneath PA-7 will be included in Ponds Area groundwater characterization efforts.

4.2.7 PA-8 - Hydrogen Peroxide Tank Release

The following documents in Table 4-29 were referenced when researching the history and previous investigations of PA-8.

Table 4-29 PA-8 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-360	Follow-up Report for Spill 091022-04	10/29/2009	NV Energy
AOC-361	Analytical Results—Muddy River Samples (Laboratory Reports)	10/29/2009	Advanced Technological Laboratories
AOC-362	Nevada Division of Environmental Protection Response (NDEP) to: *Follow-up Report for Spill 091022-04*	11/13/2009	NDEP

On Thursday, October 22, 2009, two adjacent hydrogen peroxide tanks at the northeast corner of Pond 4B-1 (which are connected by piping) released their contents. A short one-inch diameter horizontal pipe leading from one of the tanks was originally designed as part of a sight glass assembly and had a cap installed prior to 2006. In the early morning hours of October 22, 2009, this cap came off of the pipe and released approximately 3,200 gallons of 50% hydrogen peroxide solution (AOC-360). Upon discovery of the release, the valve between the two hydrogen peroxide tanks was closed in an attempt to limit the amount of product released from the tanks and a bermed area was created to contain the hydrogen peroxide. Per the recommendation of the MSDS, over 11,000 gallons of untreated water that had not yet been used on-site was applied around the containment area and in the bermed soil area to dilute the hydrogen peroxide and help with fire control efforts. Within 24 hours, nearly all signs of reaction with surface organic material were gone over the entire affected area. The hydrogen peroxide tanks were removed from service until they could be evaluated for future use. Samples were collected from the Muddy River upstream and downstream from the release (AOC-360). No impacts to the river were identified.

NVE verbally reported the release to NDEP on October 22, 2009. A follow-up report describing the events and NVE's response efforts was submitted on October 29, 2009 (AOC-360). NDEP found the response acceptable and requested that the release be included in the potential source areas addressed under the AOC.

4.2.7.1 Site Related Chemicals

Due to the nature of this release, SRC parameters are not expected to be present.

4.2.7.2 Sampling Results Summary

No soil sampling was completed, nor was it required relative to PA-8.

4.2.7.3 Conclusions and Recommendations for Further Investigation

- No further soil characterization is recommended. Hydrogen peroxide consists only of hydrogen and oxygen which would not cause contamination.
- No further groundwater characterization is recommended. There are no indications that groundwater was impacted by the release.

4.2.8 Potential Pond Source Areas Summary and Recommendations

Six potential pond source areas were evaluated. Recommendations pertaining to these potential source areas are provided below in Table 4-30.

Table 4-30 Potential Pond Source Areas Summary and Recommendations		
Source No.	**Description**	**Recommendation**
PA-1	Hogan Wash	- Soil characterization is recommended to evaluate the source of groundwater contamination. - Further source-specific groundwater characterization is recommended.
PA-2	Ponds 4B and 4C (4B-1, 4B-2, 4B-3, 4C-1, 4C-2)	- Sample solids and underlying soils during removal activities. - Groundwater beneath source area included in Ponds Area groundwater characterization.
PA-3	Former Pond 4A	- Sample solids and underlying soils during removal activities. - Groundwater beneath source area included in Ponds Area groundwater characterization. - Reevaluate effectiveness of existing interceptor trench and proposed deep pumping well in former Pond 4A area.
PA-5	Former Pond D (West Pond)	- Further soil characterization. - Groundwater beneath source area included in Ponds Area groundwater characterization.
PA-6	Pond E (East Pond, Pond C, Pond D)	- Sample solids and underlying soils during removal activities. - Groundwater beneath source area included in Ponds Area groundwater characterization. - Reevaluate effectiveness of existing Pond E remediation trench.
PA-7	Former Ponds F and G (Units 1,2,3 Laydown Ponds)	- Pond F area soils were characterized in 2013 and the results will be provided to NDEP in a Pond F Solids Removal Completion Report. - Further soil characterization in former Ponds F and G areas. - Groundwater beneath source area included in Ponds Area groundwater characterization.
PA-8	Hydrogen Peroxide Tank Release	- No further soil characterization. - No further groundwater characterization.

4.3 Potential Petroleum Source Areas

The potential petroleum source areas are locations where a documented or suspected release of a petroleum-based product (diesel, gasoline, fuel oil, lubricating oil, grease) has occurred. The potential petroleum sources are generally located on the northern portion of the Station near the warehouses, maintenance shops, and petroleum storage tanks. The potential petroleum source areas are listed in Table 4-31 and shown on Figure A-8.

Table 4-31 Potential Petroleum Source Areas	
Source No.	**Description**
SA-9	Units 1 and 2 Emergency Diesel Generator
SA-10	Former Units 1,2,3 Lube Oil Rack
SA-11	Former Gasoline Underground Storage Tank (UST) (1000-gallon) and Warehouse 1
SA-12	Former Diesel Aboveground Storage Tank (AST) (850,000-gallon)
SA-13	Former Diesel Fuel Unloading Area
SA-14	Former Underground Product Piping to USTs

Table 4-31 Potential Petroleum Source Areas	
Source No.	**Description**
	Diesel AST (10,000-gallon)
	Former Diesel UST (500-gallon)
	Former Diesel UST (1000-gallon) and Unloading Area
SA-15	Free Product Recovery System
SA-16	Vehicle Maintenance Area

4.3.1 SA-9 - Units 1 and 2 Emergency Diesel Generator

The following documents in Table 4-32 were referenced when researching the history and previous investigations of SA-9.

Table 4-32 SA-9 Related Previous Investigations			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
NDEP-039	Supplemental Phase II Environmental Site Assessment - Task Reports - Task 16 - Emergency Generator	6/5/2000	Kleinfelder

The Units 1 and 2 emergency diesel generator was installed prior to 1998 and is located north of the Units 1,2,3 Turbine Building and west of the coal lab. A 200-gallon aboveground diesel fuel tank is connected to the generator that supplies emergency power to Units 1 and 2. The fuel tank has secondary containment but the generator does not.

The Phase II ESA completed by Kleinfelder in 2000 included five hand-augered borings in a stained area adjacent to the Units 1 and 2 emergency diesel generator. Of these five samples, two exceeded the NDEP action level at the time of 100 mg/kg TPH. Sample results are shown on Figure A-9. Kleinfelder estimated that the volume of TPH-impacted soil was no more than three cubic yards, and recommended that NVE "*…remove the TPH-impacted soil, document its removal and submit a letter containing the pertinent removal information to NDEP to close this matter*" (NDEP-039). According to NVE personnel, improvements were made to the generator in early 2000. Secondary containment was added to the diesel tank, contaminated soil near the generator was removed and properly disposed, and a concrete pad was constructed beneath the generator.

4.3.1.1 Site Related Chemicals

Based on historical operations in this area (diesel generator) the SRC parameter categories that could be present are PAHs, TPH, and VOCs.

4.3.1.2 Sampling Results Summary

Five soil borings were advanced by Kleinfelder to a depth of 0.5 feet in 2000 (NDEP-39). Soil sample results ranged from 43 mg/kg TPH to 290 mg/kg TPH, with two samples exceeding the action level at the time of 100 mg/kg TPH. Sampling results are shown on Figure A-9 and summarized in Table 4-33.

No groundwater sampling was conducted specific to SA-9.

Table 4-33 SA-9 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were not identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
TPH	43	290	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs were identified as SRCs. No data is available.						

Note: Soil borings used in this analysis are: RB-80A (0.5'), RB-80B (0.5'), RB-80C (0.5'), RB-80D (0.5'), and RB-80=E (0.5') from April 2000.

4.3.1.3 Conclusions and Recommendations for Further Investigation

- Additional soil characterization is recommended to confirm that contaminated soils have been removed from the Units 1 and 2 Emergency Diesel Generator area. The potential primary source of contamination has been controlled with secondary containment and contaminated surface soil was removed prior to installation of a concrete pad beneath the generator.

- No further groundwater characterization is recommended. Because of the limited extent of soil contamination, it is unlikely to have caused groundwater contamination at concentrations of concern.

4.3.2 SA–10 – Former Units 1,2,3 Lube Oil Rack

The following documents in Table 4-34 were referenced when researching the history and previous investigations of SA-10.

Table 4-34 SA-10 Related Documents

Encyclopedia Document No.	Title	Date	Author
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-50	Phase II Environmental Assessment Report	6/1/1999	Black and Veatch
NDEP-045	Supplemental Phase II Environmental Site Assessment - Task Reports- Tasks 7-9	8/28/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
AOC-316	Revised Hydrogeologic Characterization Report Response	8/11/2003	NDEP
AOC-116	Revised Hydrogeologic Characterization Report Response to NDEP comments letters dated August 11, 2003	5/21/2004	NPC
DP-09	Revised Limited Site Characterization Workplan, Area of Total Dissolved Solids Near HM-27 (Area 6)	11/18/2004	NPC
AOC-103	Limited Site Characterization, Dissolved Chlorinated Solvents, Area 6, to NDEP	3/22/2005	NPC
AOC-104	Dissolved Chlorinated Solvents Area Response Letter	4/7/2005	NDEP

The lube oil rack was a metal frame rack that could hold up to 35 55-gallon drums. The drums stored in this outside area generally contained oils, greases, and cleaning solvents. Below where the rack sat is a concrete pad with grated drainage curbs leading to a closed sump. The rack was located just north of the Units 1,2,3 cooling tower blowdown (CTBD) tank which is an approximately 35,000-gallon tank used to collect blow-down water from the Units 1, 2, 3 cooling towers. SA-10 has also been referred to as the "Solvent Area" and associated with "Area 6" in prior documents (AOC- 316). The rack was removed in 2010 and drums are no longer stored in this area.

The Phase I ESA completed in 1998 stated "*The storage area for Units 1 and 2 had secondary containment and a spill kit visible…There was no visual evidence of hazardous material or petroleum product releases in or immediately adjacent to these areas observed during the site reconnaissance"* (NDEP 25). According to NVE personnel, in the late 1990's or early 2000's, the area was improved with the addition of a new concrete sump. Contaminated surface soil was removed and properly disposed. Prior to the improvements, spills were collected in buckets placed below the lube oil rack.

Phase II ESA reports in 1999 and 2000 identified petroleum and solvent contaminants in both soil and groundwater samples collected from soil borings in the area of SA-10 (AOC 50). In 2003, NDEP required additional groundwater investigation of the "*…small area of dissolved chlorinated solvents to define the extent*" (AOC-316). Monitoring wells HM-48, HM-50, and HM-51 were installed and sampled, along with sampling existing monitoring well HM-8, in 2005. Analytical results identified petroleum products in all four wells, and trichloroethene (TCE) and vinyl chloride in HM-50 (AOC-103). In response, NDEP requested quarterly monitoring of these four wells (AOC-104).

4.3.2.1 Site Related Chemicals

Based on operations in this area (storage of oils, greases, and solvents), the SRC parameter categories that could be present are metals, PAHs, TPH, and VOCs.

4.3.2.2 Sampling Results Summary

For the 1999 Black and Veatch Phase II ESA, four soil borings were advanced in this area (RB-17, RB-18, RB-42, and RB-55) to depths ranging from 10 feet to 15.5 feet bgs. Acetone was detected in the five foot sample from RB-17 at 96 micrograms per kilogram (µg/kg) and TPH was detected at 40 mg/kg. Groundwater samples were collected from soil borings RB-17, RB-18, and RB-55. TPH was detected in all three groundwater samples at concentrations ranging from 21 to 320 mg/L. In RB-17, TCE (64 micrograms per liter [µg/L]) and three other VOCs were detected above the action levels applicable at the time of sampling (AOC-50). Sampling results are summarized in Tables 4-35 and 4-36. The soil data is tabulated in Appendix E Table E-19 and shown on Figures A-10 and A-11. Groundwater data collected from the soil borings is tabulated in Appendix E Table E-20.

Additional investigation was completed in the SA-10 area in 2000 by Kleinfelder. Three soil borings were advanced (RB-70, RB-71, and RB-72) to a depth of 15 feet bgs. TPH was identified in all three borings at the surface (0.5 feet bgs) ranging from 24 mg/kg to 11,000 mg/kg. TPH was also detected in RB-71, five feet bgs at 23,000 mg/kg. Several VOCs were detected in RB-72 at 0.5 feet bgs, and p-isopropyltoluene (4-Isopropyltoluene) was detected in RB-70 and RB-71, at concentrations below the action levels at the time of sampling. Groundwater samples collected from these borings detected TPH, VOCs, and metals. Concentrations of 1,1-dichloroethane, cis-1,2-dichloroethene, and TCE exceeded the action levels applicable at the time of sampling in RB-71; vinyl chloride and TCE exceeded action levels in RB-72 (NDEP-045).

Because of the detection of chlorinated solvents, NDEP required additional groundwater investigation (AOC-316). Monitoring wells HM-48, HM-50, and HM-51 were installed and sampled in February 2005, in addition to sampling existing well HM-8 (AOC 103). The groundwater monitoring results for HM-8, HM-48, HM-50, and HM-51 are included in Appendix E Tables E-21, E-22, E-23, and E-24, respectively. Fourteen VOCs were detected in HM-50, with two VOC concentrations exceeding action levels applicable at the time of sampling; TCE (29 µg/L) and vinyl chloride (430 µg/L). The groundwater samples collected from HM-8, HM-48, and HM-51 did not identify any VOCs during this first sampling event.

In 2005, NDEP reviewed the groundwater sampling results and requested quarterly monitoring of the four monitoring wells. HM-50 was sampled quarterly from June 2005 until June 2009 when it was paved over. TCE was detected in HM-50 during the first two quarters of groundwater monitoring in 2005, but was not detected after that. Vinyl chloride was detected in HM-50 during 11 of the 17 quarterly sampling events. It was last detected in the June 2009 sampling event at a concentration of 54 µg/L. Several other VOCs were detected in HM-50 during the last sampling event in 2009 and before the well was destroyed. This well was subsequently replaced by HM-50R in 2011 which is now routinely sampled.

Monitoring well HM-51 was sampled quarterly from 2005 to 2007, when it was destroyed during construction of the Unit 1 Baghouse. TCE was detected in HM-51 during the first five of the eleven quarterly monitoring events. Vinyl chloride was detected in HM-51 during the first

quarterly monitoring event in 2005, but was not detected in the following ten quarterly sampling events. Metals and general chemistry parameters have exceeded BCLs in several monitoring events in all four monitoring wells. HM-8 and HM-48 are still routinely sampled.

Table 4-35 SA-10 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Only TCLP data collected, see Table E-19 in Appendix E.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	<20	2400	NA	NA	NA	NA	NA
TPH	<20	23,000	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-19 in Appendix E.						
Acetone	<25	96	NA	2400	630,000,000	100,000,000	800
sec-Butylbenzene	<5	140	NA	NA	NA	223,000	NA
p-Isopropyltoluene	<5	**1,500,000**	NA	NA	NA	647,000	NA
n-Propylbenzene	<5	120	NA	990	21,000,000	237,000	NA
1,2,4-Trimethylbenzene	<5	**580**	NA	21	671,000	224,000	NA
1,3,5-Trimethylbenzene	<5	**250**	NA	120	10,000,000	254,000	NA

Note: Bold indicates concentration in excess of a screening level.

Note: Soil borings used in this analysis are: RB-17 (0.5'), RB-17 (5'), RB-17 (10'), RB-18 (0.5'), RB-18 (5'), RB-18 (10'), RB-42 (5'), RB-42 (10'), RB-55 (5'), RB-55 (10'), RB-70 (0.5'), RB-70 (5'), RB-71 (0.5'), RB-71 (5'), RB-72 (0.5'), RB-72 (5') from December 1998 and April 2000.

Table 4-36 SA-10 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal / Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Chloride	62	**870**	NA	400	NA	NA
Nitrogen, Nitrate (As N)	< 0.1	4.6	10	NA	10	58
Sulfate	120	**1400**	NA	500	NA	NA
TDS (residue, filterable)	210	**4000**	NA	1000	NA	NA
Metals (mg/L)	Metals analyzed and not detected are shown on Table E-20 through E-24 in Appendix E.					
Arsenic, Dissolved	< 0.001	**0.13**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.017	0.27	2	NA	2	2.9
Boron, Dissolved	< 0.25	**8.9**	NA	NA	7.3	3.1
Calcium, Dissolved	< 2.5	110	NA	NA	NA	NA
Chromium, Dissolved	< 0.003	0.04	0.1	NA	NA	NA
Magnesium, Dissolved	< 1	140	NA	150	207	NA
Manganese, Dissolved	< 0.05	**1.6**	NA	0.1	0.511	0.32
Molybdenum, Dissolved	0.0085	0.16	NA	NA	0.183	0.078
Nickel, Dissolved	<0.005	0.038	NA	NA	0.73	0.3
Phosphorus (total)	0.02	3.1	NA	NA	NA	NA
Potassium, Dissolved	20	20	NA	NA	NA	NA
Selenium, Dissolved	0.0011	0.048	0.05	NA	0.05	0.078
Sodium, Dissolved	190	1600	NA	NA	NA	NA
Vanadium, Dissolved	< 0.003	**1.3**	NA	NA	0.183	0.078
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs and were not analyzed					
SVOCs (µg/L)	SVOCs were not identified as SRCs and were not analyzed					
TPH (mg/L)						
DRO (C10-C22)	< 0.05	570	NA	NA	NA	NA
ORO (C22-C32)	< 0.1	8.6	NA	NA	NA	NA
TPH	< 0.4	480	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	< 0.05	5.2	NA	NA	NA	NA
VOCs (µg/L)	VOCs analyzed and not detected are shown on Table E-20 through E-24 in Appendix E.					
Benzene	< 0.5	**1.2**	5	NA	5	0.39
Bromomethane	< 0.5	1.5	NA	NA	8.66	7
n-Butylbenzene	< 0.5	26	NA	NA	254	780
sec-Butylbenzene	< 0.5	50	NA	NA	254	NA
tert-Butylbenzene	< 0.5	8.7	NA	NA	254	NA
Chloroethane	< 0.5	4.7	NA	NA	23.2	NA
1,2-Dichlorobenzene	< 0.5	13	600	NA	600	280
1,1-Dichloroethane	< 0.5	**10**	NA	NA	2.42	2.4

Table 4-36 SA-10 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal / Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
cis-1,2-Dichloroethene	< 0.5	5.2	70	NA	70	28
trans-1,2-Dichloroethene	< 0.5	16	100	NA	100	86
Ethylbenzene	< 0.5	**5.2**	700	NA	700	1.3
Ethylene	< 1	40	NA	NA	NA	NA
Isopropylbenzene	< 0.5	9.5	NA	NA	679	390
4-Isopropyltoluene (p-Isopropyltoluene)	< 0.5	110	NA	NA	834	NA
m,p-Xylene	< 1	16	10,000	NA	10,000	190
Naphthalene	< 0.5	**5.4**	NA	NA	0.143	0.14
n-Propylbenzene	< 0.5	12	NA	NA	254	530
o-Xylene	< 0.5	18	NA	NA	10,000	190
Toluene	< 0.5	5.8	1,000	NA	1,000	860
Trichloroethene	< 0.5	**64**	5	NA	5	0.44
1,2,4-Trimethylbenzene	< 0.5	**140**	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 0.5	**72**	NA	NA	14.5	87
Vinyl Chloride	< 0.5	**210**	2	2	2	0.015

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis are: RB-17, RB-18, RB-55, RB-70, RB-71, RB-72, HM-8, HM-48, HM-50, HM-50R, and HM-51 from December 1998 to December 2011.

4.3.2.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended. The source of contamination is historic spills from drums, and the primary source is no longer present. Any surface drainage/infiltration is further controlled by the concrete sump. The depth to groundwater in this area ranges from approximately 5.5 to 12 feet bgs. Due to the shallow groundwater table, contaminants in the soil would likely leach to groundwater.

- Further source-specific groundwater characterization is recommended to determine the current concentrations of chlorinated solvents.

4.3.3 SA-11 - Former Gasoline UST and Warehouse 1

The following documents in Table 4-37 were referenced when researching the history and previous investigations of SA-11.

Table 4-37 SA-11 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-166	Environmental Assessment	4/25/1986	Intellus Corporation
AOC- 274	Underground Storage Tank	1987-1999	Various
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC- 50	Phase II Environmental Assessment Report	6/1/1999	Black and Veatch
NDEP-045	Supplemental Phase II Environmental Site Assessment - Task Reports- Tasks 7-9	8/28/2000	Kleinfelder

For the purpose of this report, Warehouse 1 and the former gasoline UST that was adjacent to the warehouse are combined as SA-11. The 1998 Phase I ESA by CH2M Hill stated that *"…a 1,000-gallon gasoline [UST] was removed from east of the warehouse behind Unit 1…the closure status…is unknown"* (NDEP-25). The UST was reportedly removed prior to 1991 and only limited information on the UST could be located. According to internal NVE documents, discussions on removing the UST in 1986 state that the UST was 10 to 12 years old at that time and there was cathodic protection, but the protection may not have been adequate to comply with future regulations (AOC-274). According to the Phase I ESA, there was no visual evidence of a release in the area of the warehouse; therefore, Warehouse 1 was not identified as a recognized environmental condition (REC).

In 1999, Black and Veatch conducted Phase II ESAs at the Station that included an investigation of the area identified as the warehouse for Units 1, 2, and 3. Soil sampling resulted in one soil sample (RB-41) exceeding the TPH action level applicable at the time. TPH was also detected in one groundwater sample (RB-40) below the applicable action level (AOC-50). Black and Veatch recommended additional soil sampling and continuation of groundwater remediation associated with the diesel free product plume (SA-14). In 2000, Kleinfelder conducted soil and groundwater sampling in the Units 1,2,3 Warehouse area. TPH and VOCs were detected and, in their opinion, were related to the historic diesel fuel release. Vinyl chloride and TCE were identified in groundwater samples collected from soil borings. Kleinfelder recommended no further action other than incorporating the information into the diesel remediation effort (NDEP-045).

4.3.3.1 Site Related Chemicals

Based on historical operations in this area (gasoline UST) the SRC parameter categories that could be present are metals, PAHs, TPH, and VOCs.

4.3.3.2 Sampling Results Summary

The depth to groundwater in this area ranges from approximately 5.5 to 12 feet bgs; therefore, soil samples collected more than 5.5 feet bgs are considered a groundwater issue.

For the 1999 Black and Veatch Phase II ESA, four borings were advanced (RB-16, RB-40, RB-41, RB-50) to depths ranging from 10 feet to 15 feet bgs. TPH Diesel Range Organics (DRO) exceeded the action level applicable at the time of 100 mg/kg in one soil sample, RB-41, at five feet bgs (1,800 mg/kg). VOCs were only analyzed in RB-16; at five feet bgs,

acetone was detected but was below the applicable action level at the time of sampling. Groundwater samples were collected from three soil borings (RB-16, RB-40, RB-50). TPH was detected in the sample collected from RB-40 (0.5 mg/L). VOCs were detected in RB-16 (cis-1,2, dichloroethene at 200 µg/L and TCE at 110 µg/L). The Phase II ESA report states that the VOCs did not exceed action levels applicable at the time of sampling; however, TCE did exceed the reported action level of 5 µg/L (AOC-50).

In 2000, Kleinfelder drilled seven boreholes in the Units 1,2,3 warehouse area (RB-70, RB-71, RB-72, RB-73, RB-74, RB-75, and RB-79), to depths ranging from 15 feet to 20 feet bgs, with samples collected at 0.5 feet, 5 feet and 10 feet bgs. Contaminants were detected in both soil and groundwater; however, in their opinion, the detected concentrations were related to the historic diesel fuel release (SA-14). Vinyl chloride was detected in the groundwater sample collected from soil boring RB-75 at a concentration exceeding action levels applicable at the time of sampling. Kleinfelder recommended no further action other than incorporating the information into the ongoing diesel remediation effort (NDEP-045). For the purpose of this report, RB-73 and RB-75 are considered to be associated with SA-11. Sampling results are summarized in Tables 4-38 and 4-39. The soil data is tabulated in Appendix E in Tables E-25 and E-26 and shown on Figures A-12 and A-13.

Table 4-38 SA-11 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Only TCLP data collected, see Table E-25 in Appendix E.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	<20	1,800	NA	NA	NA	NA	NA
TPH	<20	430	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-25 in Appendix E.						
Acetone	<25	31	NA	2400	630,000,000	100,000,000	800

Note: Soil borings used in this analysis are: RB-16 (0.5'), RB-16 (5'), RB-16 (10'), RB-40 (0.5'), RB-40 (5'), RB-41 (0.5'), RB-41 (5'), RB-50 (5'), RB-50 (10'), RB-73 (0.5'), RB-73 (5'), RB-75 (5'), RB-75 (10').

Table 4-39 SA-11 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal / Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)	General chemistry parameters were not identified as SRCs. No data is available. .					
Metals (mg/L)						
Aluminum, Dissolved	< 0.05	0.14	NA	0.2	36.5	16
Arsenic, Dissolved	< 0.005	**0.046**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.012	0.014	2	NA	2	2.9
Boron, Dissolved	0.82	**3.9**	NA	NA	7.3	3.1
Calcium, Dissolved	4.7	42	NA	NA	NA	NA
Chromium, Dissolved	< 0.011	0.035	0.1	NA	NA	NA
Magnesium, Dissolved	13	24	NA	150	207	NA
Molybdenum, Dissolved	0.066	**0.12**	NA	NA	0.183	0.078
Potassium, Dissolved	19	20	NA	NA	NA	NA
Selenium, Dissolved	< 0.008	0.028	0.05	NA	0.05	0.078
Sodium, Dissolved	330	770	NA	NA	NA	NA
Vanadium, Dissolved	< 0.005	0.027	NA	NA	0.183	0.078
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)						
TPH – extractable	< 0.5	340	NA	NA	NA	NA
VOCs (µg/L)						
sec-Butylbenzene	< 1.0	2.2	NA	NA	254	NA
1,1-Dichloroethane	< 1.0	1.3	NA	NA	2.42	2.4
cis-1,2-Dichloroethene	1.4	**200**	70	NA	70	28
trans-1,2-Dichloroethene	< 1.0	1.6	100	NA	100	86
Naphthalene	< 2.0	**3.5**	NA	NA	0.143	0.14
Trichloroethene	< 1.0	**110**	5	NA	5	0.44
1,2,4-Trimethylbenzene	< 1.0	4.2	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 1.0	1.1	NA	NA	14.5	87
Vinyl Chloride	< 20	**3.7**	2	2	2	0.015

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis are: RB-16, RB-40, RB-50, RB-73, and RB-75 from December 1998 through April 2000.

4.3.3.3 Conclusions and Recommendations for Further Investigation

- Further characterization of soil is recommended.
- Although groundwater beneath SA-11 will be included in Petroleum Area groundwater characterization efforts, SA-11 was not a source of this groundwater contamination.

4.3.4 SA-12 - Former 850,000-gallon Diesel AST

The following documents in Table 4-40 were referenced when researching the history and previous investigations of SA-12.

Table 4-40 SA-12 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-305	Reid Gardner Diesel Fuel History	Unknown	Unknown
AOC-145	Oil and Chemical Spill Study 1986	1986	Various
NDEP-04	Environmental Characterization of the Chemical Storage Area at Reid Gardner Power Plant	7/1/1986	Intellus Corporation
AOC-204	Diesel Recovery Upgrade 1993	1992-1993	Various
AOC-58	Testing of Above Ground Diesel Fuel Storage Tank	4/13/1993	NPC
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-114	Environmental Services - Above Ground Storage Tank	12/19/2005	Converse
*Section 6	Sampling and Analysis Report for Diesel Impact to Soil in the Vicinity of the Former Aboveground 850,000-gallon Tank	October 2010	Stanley Consultants

*Refer to Section 6 of this report

According to historic documents (AOC-305) and NVE correspondence (Stanley Consultants, 2010d), the former 850,000-gallon diesel fuel AST was installed inside an earthen containment berm as part of the original Station construction in 1964. The fuel distribution system was expanded as power generation units were added. The fuel was originally used for startup, shutdown and flame stabilization of the coal-fired generation units. Historically, the AST was also used to provide diesel fuel to tanks in the coal yard through underground piping.

An environmental investigation was conducted in April 1986 to obtain information on the quality of groundwater underlying the former chemical storage area (east of the former 850,000 gallon AST) hereinafter referred to as the Vehicle Maintenance Area (SA-16). The study was part of an investigation to *"…compare the regional groundwater chemistry with that of water contained in the effluent storage ponds"* (NDEP-04). During this investigation, approximately ten feet of diesel free product were discovered in one of the monitoring wells near the Vehicle Maintenance Area. Subsequent investigations suggested that approximately 400,000 gallons of fuel were released. The source of diesel fuel was suspected to be the underground piping, but it was unknown if the AST also

leaked and contributed to the release. MQS Inspection, Inc. completed an integrity test on the AST in 1992 (AOC-58). Results suggested the tank had not leaked.

By the second quarter 2008, igniters for the generation units were converted to natural gas and the AST was no longer needed. In December 2009, the AST was demolished. During the tank demolition, there were no indications that the tank bottom had been compromised. There was no visual evidence of petroleum contamination in the ring wall foundation of the removed AST. Lead paint on the exterior of the AST chipped and broke off in large pieces as the AST was demolished. After the AST was removed, paint chips and surface soils were removed with a shop vacuum and shovels, and placed into 55-gallon containers. Plastic gloves and protective suits worn during the activities were also placed into the containers. A total of eleven 55-gallon containers of lead paint and soil were collected. All of the containers were delivered to U.S. Ecology on February 5, 2010. On February 18, 2010, U.S. Ecology reported that the material had been properly disposed (Stanley Consultants, 2010d).

4.3.4.1 Site Related Chemicals

Based on historical operations in this area (diesel AST) the SRC parameter categories that could be present are PAHs, TPH, and VOCs.

4.3.4.2 Sampling Results Summary

Four soil borings were advanced in 2009 in preparation for AST demolition activities (D-P1 through D-P4) to depths ranging from 11 feet to 13 feet bgs. Soil boring D-P4 was advanced through the berm, while the remaining soil borings were advanced inside the berm. TPH was not detected in D-P3 or D-P4. DRO and oil range organics (ORO) exceeding the previous NDEP action level of 100 mg/kg were detected in samples D-P1 and D-P2. VOCs were also detected in D-P2. The TPH identified in D-P1 and D-P2 is likely the result of historical surface releases from the diesel free product recovery system, which are discussed in Section 4.3.7 of this report (SA-15). After the AST was removed, a surface soil sample was collected from within the AST ring wall foundation (Diesel-AST). TPH (ORO) was identified at 17 mg/kg, which may be due to oiling of the sand beneath the AST prior to construction to protect the tank bottom from corrosion. The low TPH value in the soil analyzed within the AST ring wall foundation is a strong indication that the bottom of the former AST was structurally sound. Sampling results are summarized in Table 4-41. The soil data is tabulated in Appendix E Table E-27 and shown on Figure A-14.

Groundwater below the AST will be discussed as part of the former product lines source, SA-14.

Table 4-41 SA-12 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were not identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	<1.0	4,800	NA	NA	NA	NA	NA
GRO	<0.86	6.7	NA	NA	NA	NA	NA
ORO	<10	800	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-27 in Appendix E.						
Isopropyl benzene	12	12	NA	640	11,000,000	647,000	NA
Naphthalene	**2400**	**2400**	NA	0.47	18,000	17,400	4000
1,2,4-Trimethylbenzene	**340**	**340**	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	8.6	8.6	NA	120	10,000,000	78,300	NA

Note: Bold indicates concentration in excess of a screening level.

Note: Soil borings used in this analysis are: Diesel-AST (0-0.5'), Diesel-P1 (9'), Diesel-P2 (4'), Diesel-P3 (8.5') and Diesel-P4 (5') from November 2009 and March 2010.

4.3.4.3 Conclusions and Recommendations for Further Investigation

- No further characterization of soil is recommended. The 850,000-gallon AST demolition is complete and no evidence was found to indicate the AST had leaked and caused soil contamination. The lead paint on the exterior of the AST was properly collected and disposed off-site.

- No further characterization of groundwater is recommended. No evidence was found to indicate the AST leaked and caused groundwater contamination.

4.3.5 SA-13 - Former Diesel Fuel Unloading Area

The following documents in Table 4-42 were referenced when researching the history and previous investigations of SA-13.

Table 4-42 SA-13 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-209	Diesel Recovery 1988-1989	1988-1989	Various
AOC-83	Diesel recovery correspondence	1/18/1990 - 1/27/1994	Various
AOC-264	Spill 10-2-92	10/6/1992 - 8/19/1993	Various
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-239	Diesel Fuel Release	5/7/1999	Various
AOC-50	Phase II Environmental Assessment Report	6/1/1999	Black and Veatch
NDEP-37	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 5- Diesel Unloading Area	6/5/2000	Kleinfelder

The former diesel fuel unloading and fuel transfer pumping area is located approximately 75 feet west of the former 850,000-gallon AST, outside of the bermed containment area. The fuel unloading and transfer pumping area was constructed during the original Station construction in 1964 and removed in 2009. Aboveground fuel piping connected the AST to the unloading and transfer station. From the transfer station, the piping continued above ground to several generating units and below ground to refueling areas (SA-14).

Three diesel releases are associated with the former unloading and transfer area. On November 10, 1988, a leak in an aboveground diesel fuel transfer line "*…resulted in a release of approximately 500 to 1,000 gallons of #2 diesel fuel. The release was contained in an area approximately 20 feet by 50 feet. The oil was discharged onto the soil. Additional dirt was added …after which the oil soaked dirt was excavated and placed in NPC's landfill at Reid Gardner. [NDEP] approved of this disposal practice and said it was in accordance with state regulation*" (AOC-209).

On October 2, 1992, "*An estimated 100 gallons of number 2 fuel oil (diesel) was discharged from a temporary holding tank which is located inside the containment area for the [former 850,0000-gallon diesel AST]"* (AOC-264). In preparation for an inspection of the AST, diesel fuel was being moved to the temporary tank when a mechanical failure resulted in the release. Reportedly, the diesel stained the surface soils in an area approximately 8 feet by 10 feet located northwest of the AST. Stained soil was excavated during two efforts, resulting in a total of 24 cubic yards of soil removed to a total depth of five feet bgs. NDEP approved closure of this release *"…considering the fact that [NVE] is planning to update the remediation system for the 1986 fuel oil release"*. (AOC-264)

The 1998 Phase I ESA by CH2MHill stated that "*The [former] diesel unloading area reportedly underwent cleanup and repair in 1991. Leaks were repaired, visibly contaminated soil was excavated (no samples were taken), and a concrete containment was constructed"*. They considered this an area of potential concern (NDEP-25).

In December 1998, Black and Veatch drilled fourteen soil borings in the SA-13 area for a Phase II ESA. TPH exceeded the previous NDEP action level in six soil samples and four groundwater samples. Black and Veatch recommended additional investigation (AOC-50).

On May 7, 1999, site personnel "…*discovered a release of diesel fuel from a fuel line located in a covered concrete trench to the west of the fuel pumping station. An estimated 300 to 500 gallons [of diesel fuel] were released. A small area of soil adjacent to the trench (approximately 5 feet by 10 feet) was impacted. Immediately after discovery the line was valved off and the remaining diesel was pumped out of the trench. [The adjacent soil was excavated and] during excavation a large quantity of historic diesel contamination was discovered below the surface. It was determined that this contamination was the result of historic leakage through cracks in the secondary containment for the fuel pumps and valves at the pumping station. Some of the contamination may also have been from buried underground fuel lines, which were abandoned in the 1980s"* (AOC-239). A total of approximately 1950 cubic yards of soil were excavated and replaced with pea gravel. NVE reported the release to NDEP and requested closure of the project. NDEP's response to the closure request is unknown.

In 2000, Kleinfelder reviewed the previous reports, including the Phase II ESA completed by Black and Veatch in 1999 and the soil excavation information collected in June 1999. Kleinfelder recommended no further action for the unloading area because the TPH contamination left in place was within the area of active diesel remediation (SA-14) (NDEP-37).

4.3.5.1 Site Related Chemicals

Based on historical operations in this area (diesel fuel transfer) the SRC parameter categories that could be present are PAHs, TPH, and VOCs.

4.3.5.2 Sampling Results Summary

The depth to groundwater in this area ranges from approximately 5.5 to 16 feet bgs; therefore, soil samples collected more than 5.5 feet bgs are considered a groundwater issue. In June 1999, a Phase II ESA was completed by Black and Veatch (soil borings and groundwater samples were collected in December 1998). Fourteen soil borings (RB-12 to RB-14, RB-37 to RB-39, RB-43 to RB-49, and RB-51) were drilled to a maximum depth of 15 feet bgs to assess the former diesel fueling unloading area. TPH exceeded the previous action level of 100 mg/kg in six samples: RB-12 at five feet bgs (23,000 mg/kg) and 10 feet bgs (1,600 mg/kg), RB-13 at 0.5 feet bgs (3,000 mg/kg) and five feet bgs (1,800 mg/kg), RB-37 at five feet bgs (9,800 mg/kg), and RB-38 at 10 feet bgs (240 mg/kg). Soil samples from RB-14 were the only soil samples analyzed for VOCs. With the exception of acetone (attributed to laboratory contamination), VOCs were not detected. Groundwater samples were collected from eight soil borings (RB-13, RB-38, RB-39, RB-44, RB-45, RB-47, RB-48, RB-51). TPH was detected in samples collected from RB-13, RB-38, RB-39, and RB-51 with concentrations up to 1,000 mg/L. In addition, the groundwater sample collected from RB-51 was analyzed for VOCs. VOCs were not detected above action levels applicable at that time. Black and Veatch recommended additional investigation. Sampling results are summarized in Tables 4-43 and 4-44. The soil data is tabulated in Appendix E Tables E-28 and E-29 and shown on Figures A-15 and A-16.

During product removal in the trench and product line replacement in 1999, soils west of the unloading area were excavated to 14 feet bgs. Five samples were collected at the base of the excavation for TPH analysis. Three of these samples contained TPH concentrations below the action level in effect at that time. Two samples (RGRFSE and RGRFSW) contained TPH concentrations of 9,500 mg/kg and 190 mg/kg, respectively. Groundwater in this area (HM-8) ranges from approximately 12.3 feet to 18.3 feet bgs; therefore, soil at the base of the excavation was within the historic groundwater table. The excavation sample locations are identified on Figure A-8.

Monitoring well HM-8 was installed in 1986 as part of the diesel free product investigation (SA-14). It is located downgradient of SA-13 and has been sampled routinely since 2005. Metals and general chemistry parameters were detected in HM-8 during the Fourth Quarter 2011 groundwater sampling event. VOCs have not been detected since 2008. Monitoring well HM-48 was installed in February 2005 and is also located downgradient of SA-13. Groundwater monitoring results for HM-8 and HM-48 are summarized in Tables E-21 and E-22, respectively.

Table 4-43 SA-13 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Metals analyzed and not detected are shown on Table E-28 in Appendix E.						
Barium	46	**94**	82	120	190,000	100,000	82
Chromium (total)	3.6	5.0	180,000	NA	NA	NA	NA
Lead	3.1	4.7	14	NA	800	800	NA
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	<20	23,000	NA	NA	NA	NA	NA
TPH	<20	23,000	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-28 in Appendix E.						
Acetone	<25	96	NA	2400	630,000,000	100,000,000	800

Note: Bold indicates concentration in excess of a screening level.

Note: Soil borings used in this analysis are: RB-12 (0.5'), RB-12 (5'), RB-12 (10'), RB-13 (0.5'), RB-13 (5'), RB-14 (0.5'), RB-14 (5'), RB-14 (10'), RB-37 (5'), RB-38 (5'), RB-38 (10'), RB-39 (5'), RB-43 (5'), RB-44 (5'), RB-45 (5'), RB-46 (5'), RB-47 (5'), RB-48 (5'), RB-49 (5'), RB-51 (5'), RGRFCNTR (14'), RGRFNE (14'), RGRFNW (14'), RGRFSE (14'), and RGRFSW (14') from December 1998 and June 1999.

Table 4-44 SA-13 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal / Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)	General chemistry parameters were not identified as SRCs. No data is available.					
Metals (mg/L)	Metals were not identified as SRCs. No data is available.					
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)						
Total (C10-C32)	< 0.5	1000	NA	NA	NA	NA
VOCs (µg/L)						
1,3,5-Trimethylbenzene	7	7	592	NA	14.6	15
Ethylbenzene	**3**	**3**	700	NA	700	1.3
Naphthalene	**14**	**14**	4	NA	0.143	0.14
o-Xylene	4	4	10,000	NA	10,000	190
m,p-Xylene	3	3	10,000	NA	10,000	190

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis are: RB-13, RB-38, RB-39, RB-44, RB-45, RB-47, RB-48, and RB-51 from December 1998.

4.3.5.3 Conclusions and Recommendations for Further Investigation

- No further characterization of soil is recommended. The soil excavation to 14 feet bgs was completed west of the unloading area in 1999. Although TPH was detected at elevated levels in the base of the excavation, at this depth it is within the saturated zone and will be addressed as a groundwater issue.

- Groundwater beneath SA-13 will be included in Petroleum Area groundwater characterization efforts. Metals and general chemistry concentrations may be addressed as a different source-specific groundwater area.

4.3.6 SA-14 - Former Underground Product Piping, Petroleum Tanks

The following documents listed in Table 4-45 were referenced when researching the history and previous investigations of SA-14.

Table 4-45 SA-14 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-305	Reid Gardner Diesel Fuel History	Unknown	Unknown
NDEP-04	Environmental Characterization of the Chemical Storage Area at Reid Gardner Power Plant	7/1/1986	Intellus Corporation
NDEP-07	Plume Characterization at the Reid Gardner Plant	9/1/1986	Intellus Corporation
AOC-82	Product Recovery Testing at the Reid Gardner Power Plant	11/1/1986	Intellus Corporation
AOC-145	Oil and Chemical Spill Study 1986	1986	Various
NDEP-11	Product Recovery and Investigation of a Weathered Diesel Plume Adjacent to the Reid Gardner Station	4/1/1987	Intellus Corporation
AOC-274	Underground Storage Tank	1987-1999	Various
AOC-49	Notification for Underground Storage Tanks to NDEP	7/8/1991	NPC
AOC-46	Diesel Plume Regulatory Correspondence	1987-1993	Various
AOC-214	Diesel Plume Lab Analysis	1987-1997	Nevada Environmental Laboratory
NDEP-15	Reid-Gardner Station Diesel Fuel Recovery System Operations, Maintenance and Monitoring Manual Draft	3/7/1988	The Mark Group
AOC-209	Diesel Recovery 1988-1989	1988-1989	Various
AOC-83	Diesel recovery correspondence	1/18/1990 - 1/27/1994	Various
AOC-300	Schedule of Tasks for Evaluation of Diesel Plume and Remediation System	10/7/1993	NDEP
AOC-304	Free Product Transport Modeling Report	11/1/1993	Converse
AOC-45	Summary of November 1993 NPC/NDEP Diesel Fuel Recovery Meeting	11/10/1993	NDEP
AOC-44	Modification of Task Schedule for Reid Gardner Station Diesel Remediation	12/22/1993	NDEP
AOC-39	Interoffice Memo for Project Justification	2/18/1994	NPC
AOC-47	Comprehensive Site Assessment Report (Volume 1 and 2)	2/7/1995	Converse
NDEP-17	Hydrogeologic Assessment Report	5/16/1995	Converse
AOC-306	Diesel recovery correspondence	7/17/1995 - 10/21/1998	Various
AOC-36	Reid Gardner Diesel Recovery System - NPC Reid Gardner Station to Nevada	6/3/1996	NPC
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-239	Diesel Fuel Release	5/7/1999	Various

Table 4-45 SA-14 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-50	Phase II Environmental Site Assessment	6/1999	Black & Veatch
NDEP-46	Supplemental Phase II Environmental Site Assessment - Task Reports- Task	9/11/2000	Kleinfelder
NDEP-37	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 5- Diesel Unloading Area	6/5/2000	Kleinfelder
AOC-89	Supplemental Phase II Environmental Site Assessment - Task 13 Report - Vehicle Maintenance Area	6/5/2000	Kleinfelder
NDEP-45	Supplemental Phase II Environmental Site Assessment - Task Reports- Tasks 7-9	8/28/2000	Kleinfelder
AOC-92	Supplemental Phase II Environmental Site Assessment - Task 25 Report - Waste Management Unit Assessment	10/17/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
NDEP-53	Diesel Recovery System. Result of Phase II Environmental Site Assessments and Dual Phase Extraction Pilot Test	2/11/2003	NPC
NDEP-79	Spill Cleanup	3/9/2007	NPC
AOC-359	Diesel Remediation Product Tank Release	3/28/2007	NPC
*Section 6	Fourth Quarter 2011 Groundwater Monitoring and Remediation Report	February, 2012	NVE

*Refer to Section 6 of this report

An environmental investigation was conducted in April 1986 to obtain information on the quality of groundwater underlying the Vehicle Maintenance Area (SA-16). The study was part of an investigation to *"…compare the regional groundwater chemistry with that of water contained in the effluent storage ponds"* (NDEP-04). During this investigation, approximately ten feet of diesel free product were discovered in one of the monitoring wells. Subsequent investigations suggested that approximately 400,000 gallons of fuel were released from leaking underground product piping associated with the 850,000-gallon diesel fuel AST. For the purpose of this report, the former underground product piping and associated former USTs are considered the sources of the diesel free product and the soil and groundwater contamination near source areas SA-12 through SA-16. Figure A-17 in Appendix A shows the underground product piping and USTs.

According to historic documents (AOC-305), when the Station was built in 1964 an aboveground pipeline ran from the 850,000-gallon AST to the diesel fill station to the west. Underground piping then continued south along the east side of the road to the south side of the east/west road to the coal yard. It then followed east along the south side of the road to the vicinity of the carpenter shop, where it turned to the southeast to the Shaker House. At that time the coal yard fill station was fed directly by the product piping. In 1970, the portion of the underground pipeline from the Carpenter Shop area to the Shaker House was abandoned and a new underground pipeline from the Carpenter Shop to the new fill station north of the Shaker House was installed (to be used only as a backup).

One tar-coated steel UST (size unknown) was installed north of the Shaker House and was filled by tank trucks at that location. In approximately 1978, the underground product piping was valved at both ends and, in 1980, the UST was moved south of the Shaker House. In addition, a second tar-coated steel UST was installed (size unknown) south of the Shaker House. The tanks were at this time filled exclusively by tank trucks. In approximately 1984, both USTs were moved to a new location across the road from the southeast corner of the main fuel oil tank berm (near the current 10,000-gallon diesel AST). According to UST records (AOC- 274), two 1,000-gallon diesel USTs were removed from the coal yard in December 1987. Although the records are unclear, it is assumed that these two tanks are the same tanks that were once located near the Shaker House, and then moved to a location south of the 850,000-gallon AST berm.

The Units 1,2,3 igniters were connected to the 850,000-gallon AST by a product line. It appears that portions of these lines were both underground and aboveground. During an unloading area excavation in 1999 (AOC- 239), four unknown abandoned underground fuel lines were uncovered west of the unloading area and north of the concrete trench. The lines were cut and capped before the excavation was backfilled.

In addition, the Phase I ESA in 1998 reported that a 500-gallon diesel tank was removed from the coal unloading area prior to 1991(NDEP-25). No other information was found on this tank.

During the 1986 field investigation conducted by Intellus Corporation that discovered the diesel free product, soil and groundwater sampling was conducted at three locations (IMW-CS1, IMW-CS2 and IMW-CS3). Diesel free product more than 10 feet thick was discovered in IMW-CS2. Laboratory analysis determined that the product was 99% diesel distillate. According to this report, diesel contamination was not found in soil samples collected from depths above the saturated zone (NDEP-04). Field investigations were conducted by the Intellus Corporation in 1986 to delineate the diesel free product plume. During the investigation, 27 soil borings were completed, 18 of which were completed as 2-inch diameter monitoring wells. The results of the plume characterization study were submitted to NDEP and, on October 6, 1986, the NDEP issued a Finding of Violation for the unauthorized release of pollutants in the groundwater. NDEP required that NVE develop a diesel recovery system and define the extent of diesel free product. Since this time, NVE's efforts have been focused on free product recovery.

Remediation activities began with installation of submersible pumps in three recovery wells. Later, five free product recovery trenches were constructed and backfilled with gravel. In 2000, additional free product was identified to the north of the previously defined plume boundary in the area of RB-5. A free product recovery well with a submersible pump was subsequently installed (HM-39). In 2002, NVE installed nine additional recovery wells along the north-south trending free product plume.

A Dual Phase Extraction (DPE) system was installed by NVE in October 2003 and began operation in November 2003. The DPE remediation system currently consists of the following components:

- Eight vertical DPE wells with underground collection piping. Includes five original wells (HM-5A, HM-38, HM-39, HM-42, and HM-45), wells HM-7 and HM-44 connected in June 2004, and well HM-47 connected in December 2005.
- Dekker Vacuum Technologies, Inc. monoblock vacuum pump.

- 50 gpm HydroFlo oil/water separator and associated tanks.
- Additional operational diesel recovery components include:
    - Total Fluids pumps in wells HR-4, HM-12, and T4S (presently not in operation).
    - Total Fluids pump was installed in well HM-46 and activated in July 2007.
    - Total Fluids pumps were installed in wells HM-55 and HM-56 and activated in February 2010 as part of a dewatering system.
    - Passive diesel recovery devices were installed in wells HR-2 and HM-20.

According to the Fourth Quarter 2011 Groundwater Monitoring and Remediation Report, approximately 272,000 gallons of free product have been recovered to date (Stanley Consultants, 2012).

4.3.6.1 Site Related Chemicals

Based on historical operations in this area (petroleum transfer and storage) the SRC parameter categories that could be present are PAHs, TPH, and VOCs.

4.3.6.2 Sampling Results Summary

Free product has been measured since 1986 both on-site and off-site to the east. Figure A-17 shows the remediation system and the historic extent of measured diesel free product. Table E-30 summarizes the historic free product maximum thicknesses. The maximum free product thicknesses were measured between 1987 and 2011. In 2011, all monitoring wells with the exception of HM-50R, showed a decrease in free product from the maximum thickness measured. The maximum product thickness measured in any monitoring well was 16.42 feet in HM-42 (June 2003). During the last six quarterly monitoring events, less than three feet of free product was measured in HM-42. Monitoring well HM-47 had a maximum free product thickness of 6.69 feet in 2006, and had less than two feet of free product during the eight quarterly monitoring events in 2010 and 2011. According to the Fourth Quarter 2011 Groundwater Monitoring and Remediation Report, the maximum product thickness observed in any monitoring well was 5.2 feet in HM-38. The maximum free product thickness ever measured in HM-38 was 7.85 in 2003. During the 2011 quarterly monitoring events HM-38 consistently had approximately five feet of product.

Because much of the effort has been focused on free product removal, limited recent soil and groundwater data is available. Approximately 100 soil borings were completed between 1986 and 2009 in the diesel impacted area. These borings were completed for reasons including diesel plume characterization, free product removal evaluation, Phase II ESAs, diesel releases related to other source areas, and tank closure. Soil samples collected from approximately 70 of these borings were analyzed for TPH. Many of the soil samples collected were within the saturated soil zone, were analyzed by inconsistent methods, and were mostly reported as TPH, which no longer has an NDEP action level. Although this information is helpful to evaluate the extent of soil contamination, further investigation of the diesel impact to vadose zone soils is recommended to evaluate current conditions.

On November 19, 2010, groundwater samples from 13 monitoring wells surrounding the free product plume were collected by Ninyo and Moore. Groundwater samples were analyzed for diesel-related chemicals from the SRC list, including the VOCs benzene, toluene, ethylbenzene and xylenes (BTEX), methyl tert-butyl ether (MTBE), and PAHs. Benzene and ethylbenzene concentrations exceeded current screening levels in one monitoring well (HM-30). Naphthalene concentrations exceeding current screening levels were detected in five monitoring wells. Figure A-18 shows the sampling locations, and the analytical results are summarized in Table E-31. Sampling results are summarized in Table 4-46.

Table 4-46 SA-14 Groundwater Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels			
			Federal / Nevada Primary MCL	Nevada Secondary MCL	NDEP BCL - Residential Water	EPA Tap Water
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)	General chemistry parameters were not identified as SRCs. No data is available.					
Metals (mg/L)	Metals were not identified as SRCs. No data is available.					
PAHs (µg/L)	PAHs analyzed and not detected are shown on Table E-31 in Appendix E.					
Acenaphthene	< 0.1	2.2	NA	NA	6.24	400
Anthracene	< 0.1	0.23	NA	NA	6.25	1300
Naphthalene	< 0.1	**29.2**	NA	NA	0.143	0.14
Phenanthrene	< 0.5	6.0	NA	NA	6.22	NA
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters were identified as SRCs. No data is available.					
VOCs (µg/L)	VOCs analyzed and not detected are shown on Table E-31 in Appendix E.					
Benzene	< 1	**3.7**	5	NA	5	0.39
Ethylbenzene	< 1	**11.50**	700	NA	700	1.3
Total Xylenes	< 3	6.00	10,000	NA	10,000	190

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis include: HM-2, HM-15, HM-19, HM-28, HM-29, HM-30, HM-31R, HM-32, HM-33, HM-34, HM-36, HM-43, and HM-48, from November 2010.

4.3.6.3 Conclusions and Recommendations for Further Investigation

- Further characterization of soil is recommended to evaluate concentrations of petroleum contaminants in vadose zone soils. There are likely multiple sources of contamination.
- Further characterization of groundwater in the Petroleum Area is recommended. There are likely multiple sources of contamination.
- Remediation of the diesel fuel plume should continue.

4.3.7 SA-15 - Free Product Recovery System

The following documents listed in Table 4-47 were referenced when researching the history and previous investigations of SA-15.

Table 4-47 SA-15 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC- 46	Diesel Plume Regulatory Correspondence	1987-1993	Various
AOC-83	Diesel recovery correspondence	1/18/1990 - 1/27/1994	Various
AOC-262	Diesel Fuel Release on February 15th, 1993 Closure Request	3/15/1993	NPC to NDEP
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
NDEP-53	Wildlife and Botanical Resources Report	4/16/1999	Converse
NDEP-79	Spill Cleanup	3/9/2007	NPC
AOC-359	Diesel Remediation Product Tank Release	3/28/2007	NPC

As discussed in Section 4.3.6, NVE installed a diesel recovery system in 1986. Since that time, NVE has focused their efforts on the recovery of free product on the groundwater surface. The remediation system also has the potential to be a source of contamination and is included as a separate potential source area. The recovery system is located just east of the former 850,000-gallon AST, with the surge tank and oil/water separator located on top of the berm wall and the recovered product tanks and the recovered water tank located within its earthen containment berm. After removal of the AST, some of the berm walls have been removed, so the berm will no longer contain releases. Three diesel releases have been associated with the free product recovery system.

On January 9, 1992, during the transfer of recovered diesel product between tanks, "*…the final product-only tank was overfilled and the excess fuel exited the top of the tank. Since it had recently rained, the surface area surrounding the final product-only tank was covered by standing water. [NVE] personnel pumped all the standing water back into the first stage separator… The residual product on isolated puddles was absorbed using hydrocarbon-specific pads. Once the free product had been completely recovered, the area was allowed to dry and on January 14, 1992, soil exhibiting staining was removed and replaced with clean soil. Based on the amount of product recovered, [an estimated] 50 gallons of diesel fuel was released*" (AOC-46). No samples were collected, as they

considered the area part of an ongoing remediation project. According to internal documents, it appears that the release was reported to NDEP; however, the response from NDEP is not known.

On February 15, 1993, approximately 750 gallons of diesel fuel were released from the diesel recovery system. The release was the result of overfilling the recovered oil storage tank. The release was contained within the AST earthen containment berm. In a February 16, 1993 report NVE stated "*…personnel recovered approximately 700 gallons [of fuel] by creating a sump (small depression in the soil) then pumping [the recovered diesel] to the oil/water separator tank. On February 17, 1993…[NVE] personnel excavated impacted soil then placed it into an Environmental Technologies (ET) bin located on-site. Approximately 30 tons of soil was excavated. The excavated area was backfilled with clean Type 2 gravel. On March 9, 1993, ET transported the impacted soil for treatment to their bioremediation facility in east Las Vegas, Nevada*" (AOC- 262).

On February 3-4, 2007, a sight glass on a recovered oil storage tank broke, resulting in a release of diesel fuel to surface soils within the earthen containment berm. Because the two recovered oil storage tanks were connected by piping, the contents of both tanks was lost. The release was discovered by an NVE employee on February 7 during the weekly inspection of the diesel recovery system. The release was reported to NDEP and the National Response Center on February 8. On February 12, NDEP visited the site and viewed the area of the release. An area of soil approximately 60 feet long by 14 feet wide by 3 feet deep was excavated and the soil was disposed offsite. NDEP "*…determined that the contents of the subject spill were sufficiently removed and that the residual [contamination] was from previous industrial activity"* and would be addressed at a later time (AOC-359).

4.3.7.1 Site Related Chemicals

Based on historical operations in this area (diesel-contaminated groundwater recovery and treatment) the SRC parameter categories that could be present are PAHs, TPH, and VOCs.

4.3.7.2 Sampling Results Summary

In 2007, three post-excavation soil samples were collected (DieselComp-1through DieselComp-3), and the TPH results ranged from non-detect to 6,087 mg/kg. The exact locations of these samples are unknown. A soil sample collected in 2009 associated with AST demolition activities (Diesel-P2) had a strong odor from approximately 3 feet to 8 feet bgs. Laboratory results identified 5,246.7 mg/kg TPH in this sample as well as 1, 2, 4-trimethylbenzene; 1, 3, 5-trimethylbenzene; isopropyl benzene; and naphthalene at concentrations below the NDEP BCLs. Laboratory results are included in Table E-32 in Appendix E and shown on Figure A-19. Sampling results are summarized in Table 4-48.

Table 4-48 SA-15 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were not identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	< 11	6040	NA	NA	NA	NA	NA
GRO	< 0.88	6.7	NA	NA	NA	NA	NA
ORO	< 11	440	NA	NA	NA	NA	NA
TPH	<23	6087	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-32 in Appendix E.						
Isopropyl benzene	12	12	NA	640	11,000,000	647,000	NA
Naphthalene	**2400**	**2400**	NA	0.47	18,000	17,400	4000
1,2,4-Trimethylbenzene	**340**	**340**	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	8.6	8.6	NA	120	10,000,000	78,300	NA

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: DieselComp-1 (0-1'), DieselComp-2 (0-1'), DieselComp-3 (0-1'), Diesel-P2 (4') and Diesel-P3 (8.5') from March 2007 and November 2009.

4.3.7.3 Conclusions and Recommendations for Further Investigation

- Further characterization of soil contamination is recommended to evaluate whether petroleum contaminants remain in vadose zone soils at concentrations exceeding screening levels. Although soil excavations were completed after the reported historic releases, TPH was detected at elevated levels in the area in 2009.

- Groundwater beneath SA-15 will be included in Petroleum Area groundwater characterization efforts.

- Remediation of the diesel fuel plume should continue.

4.3.8 SA-16 - Vehicle Maintenance Area

The following documents listed in Table 4-49 were referenced when researching the history and previous investigations of SA-16.

Table 4-49 SA-16 Related Documents

Encyclopedia Document No.	Title	Date	Author
NDEP-04	Environmental Characterization of the Chemical Storage Area at Reid Gardner Power Plant	7/1/1986	Intellus Corporation
AOC-229	CERCLA Audit	11/15/1992-1/9/1995	Various
NDEP-025	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-50	Phase II Environmental Assessment Report	6/1/1999	Black and Veatch
NDEP-35	Laboratory Data Package	5/9/2000	Alpha Analytical
AOC-89	Supplemental Phase II Environmental Site Assessment - Task 13 Report - Vehicle Maintenance Area	6/5/2000	Kleinfelder

The Vehicle Maintenance Area consists of the Vehicle Maintenance Building, a maintenance area for light work and vehicle washing, and an outdoor storage area for oils, hydraulic fluid, degreasers, engine cleaners, and detergents, that began at the Station in approximately 1973. An environmental investigation was conducted in April 1986 to obtain information on the quality of groundwater underlying the Vehicle Maintenance Area. The study was part of an investigation to compare the regional groundwater chemistry with the water in the effluent storage ponds. Methylene chloride (dichloromethane) was found in soil and groundwater samples collected near the outdoor chemical storage area. Free product was identified in one of the borings, which was the initial discovery of the diesel fuel release previously discussed as SA-14 (NDEP-04).

During a preliminary assessment conducted by NDEP at the Station in 1992, a NDEP representative observed mud from the vehicle wash area overtopping monitoring wells. It was speculated that the vehicle wash runoff was the source of methylene chloride contamination detected in the previous environmental study mentioned above (AOC-229). As a result of the preliminary assessment, NDEP requested that NVE submit available soil and groundwater monitoring information for NDEP review.

NVE had conducted soil and groundwater sampling in association with the diesel product release, and submitted that information to NDEP in 1994. In correspondence to NDEP, NVE stated that laboratory analyses from 1992 to 1994 did not reveal the presence of chlorinated solvents in groundwater or soil samples. NVE agreed to include additional monitoring wells as part of the ongoing quarterly groundwater monitoring at the Station.

During a Phase I ESA completed in 1998, surface staining from minor spills was observed on the north side of the Vehicle Maintenance Building and on the east side of the Vehicle Maintenance Building outside a concrete containment area storing drums. The stained areas were considered areas of potential concern (NDEP-025).

Phase II ESA sampling in 1999 included soil and groundwater samples collected from soil borings; VOCs were not detected (AOC-50). Kleinfelder completed a supplemental Phase II ESA in 2000. Contamination in the soil and groundwater in the Vehicle Maintenance Area was attributed to the diesel product release (SA-14). Kleinfelder recommended no further action in the Vehicle Maintenance Area, other than incorporating the information into the diesel remediation effort (AOC-89).

4.3.8.1 Site Related Chemicals

Based on historical operations in this area (vehicle maintenance; storage of oils, hydraulic fluid, degreasers, engine cleaners, and detergents) the SRC parameter categories that could be present are metals, PAHs, TPH, and VOCs.

4.3.8.2 Sampling Results Summary

The groundwater elevation in this area ranges from approximately seven feet to 17.5 feet bgs; therefore, soil samples collected below seven feet bgs are considered a groundwater issue.

An investigation conducted by Intellus Corporation in 1986 included three soil borings and monitoring wells (IMW-CS1, IMW-CS2, IMW-CS3) completed to depths ranging from 25 feet to 35 feet bgs. Methylene chloride (dichloromethane) was detected above leaching-based screening levels at five feet bgs in all three borings; however, it was not detected in groundwater at IMW-CS1 or IMW-CS2 and was detected below screening levels in IMW-CS3. Although methylene chloride is a common laboratory contaminant, the report suggests that this contamination was not from the laboratory. Free product was identified in one of the borings, which was the discovery of the diesel fuel release (NDEP-04). Contamination from the diesel fuel release is addressed as SA-14.

In 1998, four borings (RB-9, RB-10, RB-10A, and RB-11) were advanced near the Vehicle Maintenance Building to 15 feet bgs. TPH exceeded the action levels applicable at the time of sampling in RB-9 and RB-10 at 0.5 feet bgs and in RB-11 at 5 feet bgs. Methylene chloride was below detection limits at 0.5 and 5 feet bgs in each of the borings, with the exception of RB-10, where it was detected at 0.5 feet bgs at 11 µg/kg. Additional VOCs were also detected in the soil as shown in Figures A-20 and A-21 in Appendix A and Table E-33 in Appendix E. No VOCs or TPH were detected in a groundwater sample collected from soil boring RB-10A as shown in Table E-34 in Appendix E. Black and Veatch recommended additional sampling (AOC- 50).

Additional investigation was completed in 2000 by Kleinfelder. Four borings were advanced (RB-65, RB-66, RB-67, and RB-68) to depths ranging from 25 feet to 30 feet bgs. The surface samples collected at 0.5 feet bgs indicated TPH levels ranging from 55 mg/kg (RB-67), to 9,800 mg/kg (RB-68). VOCs were also detected in the samples and were attributed to the diesel fuel release undergoing remediation (SA-14). Groundwater samples collected from the borings detected metals in all four samples, VOCs in the groundwater from RB-66 and RB-68, and TPH in the groundwater from RB-68. Concentrations of TPH; 1,2-dichloroethane; benzene; 1,3,5-trimethylbenzene; 1,2,4-trimethylbenzene; and naphthalene exceeded action levels at that time in RB-68.

Groundwater in this area is within the historic extent of the free product plume; therefore, routine groundwater monitoring for dissolved constituents has not been conducted in this area. The wells in this area are measured for free product and several are part of the diesel remediation system.

Sampling results are summarized in Tables 4-50 and 4-51. The soil and groundwater data is tabulated in Appendix E Tables E-33 and E-34 and shown on Figures A-20 and A-21.

Table 4-50 SA-16 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were not identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were identified as SRCs. No data is available						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
DRO	<5	8700	NA	NA	NA	NA	NA
ORO	<10	8600	NA	NA	NA	NA	NA
TPH	<20	9800	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs analyzed and not detected are shown on Table E-33 in Appendix E.						
Acetone	36	320	NA	2400	630,000,000	100,000,000	800
2-Butanone	<25	150	NA	1000	20,000,000	34,100,000	NA
sec-Butylbenzene	<5	1400	NA	NA	NA	223,000	NA
n-Butylbenzene	<5	2300	NA	2500	51,000,000	237,000	NA
Dichloromethane	<5	**180**	1.3	1.2	53,000	60,400	1
trans-1,3-	<5	240	NA	NA	NA	NA	NA

Table 4-50 SA-16 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Dichloropropene							
Ethylbenzene	<5	**410**	780	1.5	27,000	21,000	700
Iodomethane	<5	390	NA	NA	NA	NA	NA
Isopropyl benzene	<5	480	NA	640	11,000,000	647,000	NA
Naphthalene	<10	**4300**	NA	0.47	18,000	17,400	4000
n-Propylbenzene	<5	800	NA	990	21,000,000	237,000	NA
Toluene	<5	270	690	590	45,000,000	521,000	600
1,2,3-Trichloropropane	< 5	**5100**	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 5	**3900**	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 5	**1200**	NA	120	10,000,000	78,300	NA
Vinyl Chloride	<2.5	**1500**	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 5	**2300**	9800	200	2,700,000	214,000	10,000
o-xylene	< 5	**2280**	9800	200	2,700,000	214,000	10,000

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: IMW-CS1 (5'), IMW-CS1 (10'), IMW-CS1 (15'), IMW-CS2 (5'), IMW-CS2 (10'), IMW-CS2 (15'), IMW-CS3 (5'), IMW-CS3 (10'), IMW-CS3 (15'), IMW-CS3 (20'), RB-9 (0.5'), RB-9 (5'), RB-9 (10'), RB-10 (0.5'), RB-10 (5'), RB-10 (10'), RB-10A (15'), RB-11 (0.5'), RB-11 (5'), RB-11 (10'), RB-65 (0.5'), RB-65 (5'), RB-65 (7'), RB-65 (10'), RB-65 (15'), RB-65 (20'), RB-65 (25'), RB-66 (0.5'), RB-66 (5'), RB-66 (10'), RB-66 (15'), RB-66 (20'), RB-67 (0.5'), RB-67 (5'), RB-67 (10'), RB-67 (15'), RB-68 (0.5'), RB-68 (5'), RB-68 (10'), RB-68 (20'), and RB-84 (5') from May 1986, December 1998, and April 2000.

Table 4-51 SA-16 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)	General chemistry parameters were not identified as SRCs. No data is available.					
Metals (mg/L)	Metals analyzed and not detected are shown on Table E-34 in Appendix E.					
Aluminum	< 0.05	0.14	NA	0.2	36.5	16
Arsenic	< 0.005	**0.02**	0.01	NA	0.01	0.000045
Barium	0.011	0.029	2	NA	2	2.9
Boron	1.1	1.8	NA	NA	7.3	3.1
Calcium	210	240	NA	NA	NA	NA
Chromium (Total)	< 0.005	0.008	0.1	NA	NA	NA
Magnesium	130	140	NA	150	207	NA

Table 4-51 SA-16 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Manganese	0.059	**0.45**	NA	0.1	5.11	0.32
Mercury	< 0.0005	0.0006	0.002	NA	0.002	0.00063
Molybdenum	0.024	0.061	NA	NA	0.183	0.078
Potassium	26	45	NA	NA	NA	NA
Selenium	< 0.005	0.016	0.05	NA	0.05	0.078
Sodium	350	620	NA	NA	NA	NA
Vanadium	< 0.005	0.006	NA	NA	0.183	0.078
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters analyzed and not detected are shown on Table E-34 in Appendix E.					
TPH-Diesel	< 4.0	986,000	NA	NA	NA	NA
TPH-extractable	< 0.5	110	NA	NA	NA	NA
VOCs (µg/L)	VOCs analyzed and not detected are shown on Table E-34 in Appendix E.					
1,1,1-Trichloroethane	< 0.005	0.2	200	NA	200	7500
Dichloromethane	< 0.005	1.1	5	NA	5	4.7
1,2,4 - Trimethylbenzene	< 2	**120**	NA	NA	14.6	15
1,2 - Dichloroethane	< 0.05	**5**	5	NA	5	0.15
1,3,5 - Trimethylbenzene	< 2.0	**26**	NA	NA	14.5	87
4 - Isopropyltoluene (p-Isopropyltoluene)	< 1.0	5.8	NA	NA	834	NA
Benzene	< 1.0	**69**	5	NA	5	0.39
n-Butylbenzene	< 1.0	22	NA	NA	254	780
sec - Butylbenzene	< 1.0	6	NA	NA	254	NA
Ethylbenzene	< 1.0	**14**	700	NA	700	1.3
Isopropylbenzene	< 1.0	8.8	NA	NA	679	390
Naphthalene	< 4.0	**120**	NA	NA	0.143	0.14
n-Propylbenzene	< 1.0	13	NA	NA	254	530
Toluene	< 2.0	35	1000	NA	1000	860
Total Xylenes	< 2.0	157	NA	10,000	10,000	190

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis are: IMW-CS1, IMW-CS2, IMW-CS3, RB-10A, RB-65, RB-66, RB-67, and RB-68, from May 1986 through April 2000.

4.3.8.3 Conclusions and Recommendations for Further Investigation

- Further characterization of soil contamination is recommended to evaluate whether petroleum contaminants remain in vadose zone soils at levels of concern.
- Further source-specific characterization of groundwater is recommended.

4.3.9 Potential Petroleum Source Areas Summary and Recommendations

Eight potential petroleum source areas were evaluated and are summarized in Table 4-52. No further investigation is recommended for three of the eight potential source areas. Additional data collection is recommended at source areas SA-9, SA-10, SA-14, SA-15 and SA-16.

Table 4-52 Potential Petroleum Source Areas Summary and Recommendations

Source No.	Description	Recommendation
SA-9	Units 1 and 2 Emergency Diesel Generator	- Further soil characterization. - No further groundwater characterization.
SA-10	Former Units 1,2,3 Lube Oil Rack	- Further soil characterization. - Further source-specific groundwater characterization.
SA-11	Former Gasoline UST (1,000-gallon) and Warehouse 1	- Further soil characterization. - Groundwater beneath source area included in Petroleum Area groundwater characterization.
SA-12	Former Diesel AST (850,000-gallon)	- No further soil characterization. - No further groundwater characterization.
SA-13	Former Diesel Fuel Unloading Area	- No further soil characterization. - Groundwater beneath source area will be included in Petroleum Area groundwater characterization efforts. Metals and general chemistry concentrations may be addressed in a different source-grouped or source-specific groundwater area.
SA-14	Former Underground Product Piping, Petroleum Tanks	- Further soil characterization. - Groundwater beneath source area included in Petroleum Area groundwater characterization. - Continue free product remediation.

Table 4-52 Potential Petroleum Source Areas Summary and Recommendations		
Source No.	**Description**	**Recommendation**
SA-15	Free Product Recovery System	- Further soil characterization. - Groundwater beneath source area included in Petroleum Area groundwater characterization. - Continue free product remediation.
SA-16	Vehicle Maintenance Area	- Further soil characterization. - Further source-specific groundwater characterization.

4.4 Potential Station Source Areas

The potential station source areas are generally located on the plant site. These potential source areas are locations where something other than a petroleum-based product (diesel, gasoline, fuel oil, lubricating oil, grease) is a potential source of soil and/or groundwater contamination. The potential station source areas are listed in Table 4-53 and can be seen on Figure A-22.

Table 4-53 Potential Station Source Areas	
Source No.	**Description**
SA-1	Unit 4 Treated Water Pond
SA-2	Unit 4 Cooling Tower
SA-3	Unit 4 Cooling Tower Catch Basin
SA-4	Units 1, 2, 3 Coal Pile
	Unit 4 Coal Pile
	Fly Ash Under Unit 4 Coal Pile (WMU-12)
SA-5 and SA-6	Area of Previous Fly Ash Fill (WMU-13 and WMU-14)
SA-7	Unit 4 Settling Pond (Foster Wheeler Pond)
SA-8	Units 1, 2, 3 Catch Basin
SA-17	Reported Previous Waste Disposal Area (WMU-8)
SA-19	Unit 4 Absorber
	Units 1, 2, 3 Scrubbers

4.4.1 SA-1 Unit 4 Treated Water Pond

The following documents in Table 4-54 were referenced when researching the history and previous investigations of SA-1.

Table 4-54 SA-1 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-314	Unit No. 1 Plans	11/2/1965	Stearns-Roger
AOC-315	Unit No. 3 Plans	9/25/1976	Stearns-Roger
NDEP-03	Draft Development of Permit Limitations	4/12/1985	JRB Associates
NDEP-16	Hydrogeological Study of Surface Impoundments, Volume 1 and 2	6/1/1992	Kleinfelder
AOC-342	Slope Stability Analysis Treated Water Pond	1/7/1997	Kleinfelder
AOC-85	Supplemental Phase II Environmental Site Assessment – Task Reports – Tasks1A-1E	6/21/2000	Kleinfelder

The Unit 4 Treated Water Pond was built in 1983 and currently holds approximately four million gallons of treated water from the lime soda softening system. Initially, water from the raw water ponds was softened and stored in the Treated Water Pond for use as cooling tower make-up for Unit 4. Since about 1988, raw water has been used without softening in the cooling towers and the blowdown from the cooling towers is now softened and stored in the Treated Water Pond for use in the Units 1, 2, 3, scrubbers and Unit 4 absorbers. The inside and top of the earthen berms are lined with an asphaltic concrete material (AOC-342). The area where the Unit 4 Treated Water Pond is located was formerly occupied by two water reservoirs built in 1965 and 1973 (AOC-314, AOC-315). The west reservoir was converted to the Unit 4 Treated Water Pond while the east reservoir was cut-off from it with sheet piling and backfilled when Unit 4 was built (NDEP-03).

According to a 1997 pond slope stability analysis "*Water was noticed seeping from the outside slope toe area of the north portion of the west-facing slope of the pond, early to mid-1996…Water contained in the pond is apparently leaking through cracks in the asphalt lining of the pond, and is seeping through the berm and exiting near the toe of the outside slope*" (AOC-342). One water sample was taken from the pond during a Phase II ESA conducted in the area by Kleinfelder in 2000, and is discussed in Section 4.4.1.1.

The Unit 4 Treated Water Pond was lined with a single HDPE liner between 1997 and 2000.

4.4.1.1 Site Related Chemicals

Based on operations in this area (treated water pond) the SRC parameter categories that could be present are general chemistry and metals.

4.4.1.2 Sampling Results Summary

There are no soil data available for the area around the Unit 4 Treated Water Pond. Table E-35 summarizes data from a single pond water sample (P-3) taken during a Phase II ESA conducted in the area by Kleinfelder in 2000. These data do not show parameters present at levels of concern other than arsenic slightly above the primary MCL and TDS above the secondary MCL, both of which may be attributable to natural background conditions. Kleinfelder recommended no further action.

4.4.1.3 Conclusions and Recommendations for Further Investigation

- The potential for soil contamination has been greatly decreased since the pond was lined with HPDE over ten years ago. Because it would be difficult to sample underlying soils while the pond is still in service, the need for soil sampling will be re-evaluated in the future when this pond is taken out of service.

- Source-specific groundwater characterization is recommended. The potential for groundwater contamination has been greatly decreased since the pond was lined with HPDE over ten years ago. Available pond water data for metals only show arsenic slightly above the primary MCL and TDS above the secondary MCL.

4.4.2 SA-2 Unit 4 Cooling Tower

The following documents in Table 4-55 were referenced when researching the history and previous investigations of SA-2.

Table 4-55 SA-2 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-213	Unit 4 Dewatering 1993 3rd Quarter Report	10/28/1993	NVE
AOC-169	NOV Cooling Tower Discharge 12/97	1997-1998	Various
NDEP-20	December 18th, 1997 Water Release to Muddy River	1/8/1998	NVE
NDEP-22	December 18th 1997 Water Release to the Muddy River	2/23/1998	NVE
NDEP-23	Penalty Determination for Water Pollution Violation at Reid Gardner Plant on December 18th, 1997	6/4/1998	NDEP
AOC-131	July 31, 1999 Cooling Tower Water Release to the Muddy River	8/11/1999	NVE
AOC-85	Supplemental Phase II Environmental Site Assessment - Task Reports - Tasks1A-1E	6/21/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
AOC-224	Water Spill 3/2/2003	3/4/2003 - 5/21/2003	Various

The Unit 4 Cooling Tower began operating in 1983 when Unit 4 came on-line. In 1984, the Unit 4 Cooling Tower suffered a structural failure and was demolished, and the demolition debris was placed in MA-3 (WMU-3) on the mesa in 1985 and 1986. The Unit 4 Cooling Tower was rebuilt, and

continues to operate. "*A dewatering well operates in the area to control groundwater around the foundation [of the cooling tower]. The dewatering well is located near the northwestern corner of the Unit 4 Cooling Tower that was installed to stabilize the tower foundation. The well is reportedly a radial design, with a 20-foot-deep central well and associated gravel trenches extending to the west. The gravel trenches extending from the central point are reportedly up to 100 feet in length and of undetermined width and depth. Approximately 50 gpm of groundwater is continuously removed by the dewatering well, piped through elevated conduits, and discharged to the raw water ponds*" (AOC-109). The dewatering well does not appear to cause a significant drawdown, based on a review of groundwater contours presented in Figures 2A and 2B in Appendix B. Water from the dewatering well was sampled in 1993, 2011, and 2012. Sampling results are included in Table E-36.

On December 18, 1997, the Unit 4 cooling tower blowdown service line ruptured west of the cooling tower. The "…*water flooded the maintenance yard west of the cooling tower, continued to the south entrance ditch, overflowed into the spring, through a culvert, and eventually to the Muddy River. An estimated 500 to 1,000 gallons reached the spring. Corrective Action was taken (pumps were installed) [to pump up the spilled water]"* (AOC-169). This spill was reported to the NDEP and a finding of violation was issued.

On July 31, 1999, *"…a reactivator malfunctioned causing water to back up into the cooling tower blowdown tank, which caused the cooling tower basin to overflow into the retention basin [under the railroad bridge]"* (AOC-131). Approximately 5,000 gallons eventually overflowed into the Muddy River. The exact amount of water discharged to the river is not known. A vacuum truck, front-end loader, and a water-wagon were immediately dispatched to the site. This spill was reported to the NDEP; their response to the report is unknown.

On March 2, 2003, NVE "…*discharged approximately 1,000 gallons of storm water, fire protection water, and cooling tower water to the Muddy River over a 10-minute period of time. Discharge occurred because of a power outage on Reid Gardner Unit-4 which impacted the startup of storm water retention sump pumps"* (AOC-224). In the report to NDEP, NVE stated that the main factor contributing to the overflow was the excess flow of fire protection water running through the storm retention ponds. This spill was reported to the NDEP and a finding of violation was issued.

4.4.2.1 Site Related Chemicals

Based on operations in this area (cooling tower) the SRC parameter categories that could be present are general chemistry and metals.

4.4.2.2 Sampling Results Summary

During the Phase II ESA conducted by Kleinfelder in 2000, one soil sample (RB-76) was collected at a depth of 0.5 feet bgs. TCLP analysis for the eight RCRA metals (arsenic, barium, cadmium, chromium, mercury, lead, selenium, and silver) was conducted. Barium was reported at 0.59 mg/L and chromium was reported at 0.02 mg/L; the other metals were below the method detection limits. The data are summarized on Figure A-23. Kleinfelder recommended no further action (AOC-85).

There has been no groundwater sampling conducted specific to SA-2. A spring located south and east of the railroad bridge (South Gate Spring) is monitored quarterly. TDS in samples from the spring collected in 2006-2011 has ranged between 2100 – 7400 mg/L. Laboratory data from the spring (SGSPR) are summarized in Table E-37.

Soil and groundwater are summarized in Tables 4-56 and 4-57, respectively.

Table 4-56 SA-2 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were analyzed via TCLP method, as discussed above.						
PAHs (µg/kg)	PAHs were not identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)	TPH parameters were not identified as SRCs. No data is available.						
VOCs (µg/kg)	VOCs were not identified as SRCs. No data is available.						

Note: Soil samples used in this analysis are: RB-76 (0.5') from 2000.

Table 4-57 SA-2 Groundwater Data Summary (South Gate Spring)

Parameter Name	Minimum	Maximum	Current Screening Levels			
			Federal/Nevada Primary MCL	Nevada Secondary MCL	NDEP BCL - Residential Water	EPA Tap Water
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Alkalinity - Bicarbonate	390	430	NA	NA	NA	NA
Chloride	370	**460**	NA	400	NA	NA
Hardness as CaCO3	570	1700	NA	NA	NA	NA
Nitrate + Nitrite (As N)	0.68	0.68	NA	NA	NA	NA

Table 4-57 SA-2 Groundwater Data Summary (South Gate Spring)						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Nitrogen, Ammonia(As N)	0.072	**0.56**	NA	NA	0.209	NA
Nitrogen, Nitrate(As N)	0.22	3.7	10	NA	10	25
pH	6.8	**9.7**	NA	6.5 - 8.5	NA	NA
Phosphorus, Total (As P)	< 0.1	41	NA	NA	NA	NA
Total Nitrogen	0.43	22	NA	NA	NA	NA
Specific Conductance (umhos/cm)	3900	11,000	NA	NA	NA	NA
Sulfate	**1300**	**3900**	NA	500	NA	NA
Total Alkalinity (mg/L)	390	430	NA	NA	NA	NA
Total Dissolved Solids(residue, filterable)	**2100**	**7400**	NA	1000	NA	NA
Total Kjeldahl Nitrogen	0.233	20	NA	NA	NA	NA
Metals (mg/L)	Metals analyzed and not detected are shown on Table E-37 in Appendix E					
Arsenic, Dissolved	**0.076**	**0.2**	0.01	NA	0.01	0.000045
Barium, Dissolved	< 0.06	0.046	2	NA	2	2.9
Boron, Dissolved	2.6	**8.4**	NA	NA	7.3	3.1
Calcium, Dissolved	9.2	290	NA	NA	NA	NA
Chromium, Dissolved	< 0.003	0.02	0.1	NA	NA	NA
Lead, Dissolved	< 0.005	**0.026**	0.015	NA	0.015	NA
Magnesium, Dissolved	100	**210**	NA	150	207	NA
Manganese, Dissolved	< 0.1	**0.13**	NA	0.1	0.511	0.32
Molybdenum, Dissolved	< 0.1	**0.13**	NA	NA	0.183	0.078
Potassium, Dissolved	30	92	NA	NA	NA	NA
Selenium, Dissolved	< 0.01	**0.055**	0.05	NA	0.05	0.078
Silica, Dissolved	34	52	NA	NA	NA	NA
Sodium, Dissolved	590	2900	NA	NA	NA	NA
Vanadium, Dissolved	< 0.01	**0.12**	NA	NA	0.183	0.078
PAHs (µg/L)	PAHs were not identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters were not identified as SRCs. No data is available.					
VOCs (µg/L)	VOCs were not identified as SRCs. No data is available.					

Note: Bold indicates concentration in excess of a screening level.

Note: Sampling locations used in this analysis include: SGSPR and the Unit 4 Dewatering Well from March 1993 through December 2011.

4.4.2.3 Conclusions and Recommendations for Further Investigation

- No further soil characterization is recommended. Only two of eight metals were detected in the TCLP extract from the soil sample collected near the cooling tower. These results

demonstrate that the metals are not likely to leach at levels of concern and the soils are not a secondary source of groundwater contamination.

- Source-specific groundwater characterization is recommended in this area.

4.4.3 SA-3 Unit 4 Cooling Tower Catch Basin

The following documents in Table 4-58 were referenced when researching the history and previous investigations of SA-3.

Table 4-58 SA-3 Related Documents

Encyclopedia Document No.	Title	Date	Author
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-85	Supplemental Phase II Environmental Site Assessment - Task Reports - Tasks1A-1E	6/21/2000	Kleinfelder
DP-17	NDEP Compliant/Spill Report Number 050714-01	7/19/2005	NVE

The Unit 4 Cooling Tower Catch Basin began operating after Unit 4 came on-line in 1983. The Catch Basin is concrete-lined and is located near the Station's south gate entrance. The basin receives stormwater, coal conveyor belt washdown water, and water from SA-7, the Unit 4 Settling Pond (Foster Wheeler Pond). The Unit 4 Settling Pond receives stormwater and ash water overflow from the bottom ash transport and dewatering system.

In 2005, due to a spike in demand for electricity, "…*an excessive amount of cooling tower blowdown water was generated at [NVE] Unit 4 over a 24-48 hour period. The extra cooling tower blowdown combined with the normal plant drain sump water and quickly filled the Unit 4 catch basin to capacity. [On July 13, 2005], approximately 100,000 gallons of water were pumped 200 feet from the Unit 4 catch basin located near the plant south gate to the Unit 1,2,3 Coal Pile [storm water catch basin]. The water in the Unit 4 catch basin is normally pumped to the evaporation ponds; however, the Unit 4 catch basin discharge pipeline became partially clogged and could not handle the extra water. None of the excess water left the plant site*" (DP-17). In this reference, the Unit 4 Catch Basin is presumed to be the Unit 4 Cooling Tower Catch Basin and the "Unit 1,2,3 Coal Pile storm water catch basin" is presumed to be the Unit 4 Settling Pond (SA-7). The incident was reported to the NDEP; their response to the report is unknown.

4.4.3.1 Site Related Chemicals

Based on operations in this area (cooling tower catch basin, coal conveyor belt washdown) the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, and PAHs.

4.4.3.2 Sampling Results Summary

There is no soil data available for SA-3.

Table E-38 presents data from a single pond water sample (P-4) for the Unit 4 Cooling Tower Catch Basin collected during a Phase II ESA conducted by Kleinfelder in 2000 (AOC-85). The results indicate the presence of TDS and several metals at concentrations exceeding groundwater screening levels.

During the same sampling event, one sediment sample was taken from the Unit 4 Cooling Tower Catch Basin. The eight RCRA metals were analyzed by the TCLP method. Barium was reported at 0.62 mg/L, and selenium was reported at 0.03 mg/L; the other metals were below the method detection limits.

4.4.3.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended.
- Source-specific groundwater characterization is recommended in this area.

4.4.4 SA-4 Units 1, 2, 3 Coal Pile, Unit 4 Coal Pile, and Fly Ash Under Unit 4 Coal Pile

The following documents in Table 4-59 were referenced when researching the history and previous investigations of SA-4.

Table 4-59 SA-4 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-324	Raw Water Pond Drawings	1979-1997	NVE, Fluor, Tippett, Morrison
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-50	Phase II Environmental Site Assessment Report	6/9/1999	Black & Veatch
AOC-90	Supplemental Phase II Environmental Site Assessment - Task 18 Report - Landfills and Storage Yards	8/21/2000	Kleinfelder
AOC-92	Supplemental Phase II Environmental Site Assessment - Task 25 Report - Waste Management Unit Assessment	10/17/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NVE
AOC-219	Limited Site Characterization Workplan Area of Total Dissolved Solids Near HM-27 (Area 6)	9/24/2004	NVE
AOC-101	Additional Site Characterization, WMU-12 Area of Total Dissolved Solids and other WMU-12 correspondence	3/2005-12/2005	Various
DP-11	Limited Site Characterization, Area of Total Dissolved Solids Near HM-27 (Area 6)	3/22/2005	NVE
DP-14	Workplan for Additional Site Characterization Waste Management Unit 12 - Area of Total Dissolved Solids	5/10/2005	NVE

The Units 1,2,3 Coal Pile began at the site around 1965 when the plant became operational and the Unit 4 Coal Pile began at the site around 1983. Coal used in Unit 4 is stored in an unlined bermed area within the plant site, with the berm designed to control runoff (NDEP-25). The 1980 as-built final site grading drawings for the Station show an "inactive coal pile" in the Unit 4 coal handling area grading plan (AOC-324). The "inactive coal pile" underlies the Unit 4 coal pile and was placed as an engineered fill. Fly ash fill (WMU-12) was mentioned as an area of potential concern in a 1998 Phase I ESA. *"Fly ash layers were observed in an open trench, related to a Moapa Valley Water District water pipe repair. The observed layers were interbedded with native soils and appeared compacted"* (AOC-90). Based on this information, NVE believes the "inactive coal pile" referenced in the drawings was actually fly ash.

In 1998, one soil boring (RB-36) was drilled in the south side of the Unit 4 Coal Pile. Soil samples were analyzed for metals and the results were below the EPA Region 9 Industrial Preliminary Remediation Goals (PRGs) (AOC-50). In 2000, sampling was again conducted on the south side of the Unit 4 Coal Pile (RB-85 and RB-86) and the results indicated TPH concentrations above the previous NDEP action levels for both soil and groundwater (AOC-92). In addition, elevated TDS concentrations seem to originate from the Unit 4 Coal Pile area (AOC-109). Stemming from a request from NDEP in 2005 for more sampling, monitoring well HM-54 was installed south of the Unit 4 Coal Pile (DP-14).

4.4.4.1 Site Related Chemicals

Based on operations in this area (fly ash fill, coal storage) the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs, and TPH.

4.4.4.2 Sampling Results Summary

Table E-39 summarizes soil samples taken from RB-36, RB-85, and RB-86 in the area of SA-4 (see Figure A-23 for sample locations) and Table E-40 summarizes groundwater exceedances for all applicable SRC parameters from quarterly groundwater monitoring in the area of SA-4. Figure A-22 shows the monitoring well locations. RB-36 was sampled in 1998 and RB-85 and RB-86 were sampled in 2000, as discussed above.

The soil samples taken in the SA-4 area do not indicate that soil contamination is present at levels of concern. TPH was detected in RB-85 (10 feet bgs) at 290 mg/kg and in RB-86 (15 feet bgs) at 200 mg/kg, both above the previous NDEP action level of 100 mg/kg. No VOCs were detected in the RB-85 and RB-86 soil samples and there were no metals analyses performed.

The groundwater screening level comparison summary, along with the quarterly monitoring figures in Appendix B, indicate that there are metals and general chemistry parameter concentrations in this area above screening levels.

Soil and groundwater concentrations are summarized in Tables 4-60 and 4-61, respectively.

Table 4-60 SA-4 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were identified as SRCs. No data is available.						
Metals (mg/kg)	Metals that were analyzed and not detected are shown on Table E-39 in Appendix E.						
Arsenic	<5	**6.7**	0.29	0.0013	1.6	1.77	1
Barium	49	**300**	82	120	190,000	100,000	82
Cadmium	<0.5	**1.8**	0.38	0.52	NA	560	0.4
Chromium (total)	2.7	24	180,000	NA	NA	NA	NA
Lead	<2.5	**25**	14	NA	800	800	NA
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
TPH	<10	290	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs that were analyzed and not detected are shown on Table E-39 in Appendix E.						

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: RB-36 (0.5'), RB-36 (5'), RB-36 (10'), RB-85 (1'), RB-85 (5'), RB-85 (10'), RB-85 (15'), RB-86 (1'), RB-86 (5'), RB-86 (10'), and RB-86 (15') from December 1998 and July 2000.

Table 4-61 SA-4 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Fluoride	<1	**49**	4	2	4	0.62
Nitrogen, Nitrate(As N)	<0.1	**13**	10	NA	10	25
Sulfate	<1	**10,000**	NA	500	NA	NA
Phosphorus (total)	<0.02	30	NA	NA	NA	NA
TDS (residue, filterable)	**1600**	**18,000**	NA	1000	NA	NA

Table 4-61 SA-4 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Metals (mg/L)	VOCs that were analyzed and not detected are shown on Table E-40 in Appendix E.					
Arsenic	<0.002	**2.3**	0.01	NA	0.01	0.000045
Barium	<0.005	0.98	2	NA	2	2.9
Boron	2.5	**56**	NA	NA	7.3	3.1
Cadmium	<0.003	**0.046**	0.005	NA	0.005	0.069
Calcium	4.5	330	NA	NA	NA	NA
Chloride	150	**2900**	NA	400	NA	NA
Chromium	<0.003	0.091	0.1	NA	NA	NA
Magnesium	11	**1200**	NA	150	207	NA
Manganese	<0.005	**0.65**	NA	0.1	5.11	0.32
Molybdenum	<0.005	**0.36**	NA	NA	0.183	0.078
Nickel	<0.005	0.029	NA	NA	0.73	0.3
Selenium	<0.002	**0.33**	0.05	NA	0.05	0.078
Sodium	<0.5	22,000	NA	NA	NA	NA
Strontium	2.3	11	NA	NA	21.9	NA
Titanium	<0.005	0.11	NA	NA	146	NA
Vanadium	0.003	**0.45**	NA	NA	0.183	0.078
Zinc	<0.005	0.18	NA	5	11	4.7
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters were identified as SRCs. No data is available.					
VOCs (µg/L)	VOCs were not identified as SRCs. No data is available.					

Note: Bold indicates concentration in excess of a screening level.

Note: Wells used in this analysis are: HM-19, HM-20, HM-24, HM-28, HM-31R, HM-52, HM-52R, HM-53, HM-54 from March 2003 through December 2011.

4.4.4.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the coal piles are still in service, soil characterization at each coal pile will be addressed in the future when the coal piles are taken out of service.

- Further source-specific groundwater characterization is recommended.

4.4.5 SA-5 and SA-6 Area of Previous Fly Ash Fill (WMU-13 and WMU-14)

The following documents listed in Table 4-62 were referenced when researching the history and previous investigations of SA-5 and SA-6.

Table 4-62 SA-5 and SA-6 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
AOC-90	Supplemental Phase II Environmental Site Assessment - Task 18 Report - Landfills and Storage Yards	8/21/2000	Kleinfelder
AOC-92	Supplemental Phase II Environmental Site Assessment - Task 25 Report - Waste Management Unit Assessment	10/17/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
AOC-116	Revised Hydrogeologic Characterization Report Response to NDEP comments letters dated August 11, 2003	5/21/2004	NPC

According to the Phase II ESA conducted in 2000, *"WMU-13 consists of less than 100 cubic yards of flyash spread over a small area adjacent to WMU-14. This area may have been used to stockpile material during construction of Wally Kay Road of which WUM-14 is a portion; and WMU-14 underlies Wally Kay Road and appears to be an engineered fill"* (AOC-92). Although this document refers to Wally Kay Road, the road shown on figures in this report is an unnamed road located east of the Station. Kleinfelder recommended closure of WMUs 13 and 14 with no further action.

Fly ash is currently visible at the surface in this area. NVE is currently pursuing purchase of this land from the Bureau of Land Management (BLM).

4.4.5.1 Site Related Chemicals

Based on historical operations in this area (fly ash fill) and review of available data, the SRC parameter categories that could be present are general chemistry, metals, and TPH.

4.4.5.2 Sampling Results Summary

Soil samples were collected at RB-89 and RB-90 in April 2000. Ten soil samples were collected from each boring, at depths ranging from one foot to 45 foot bgs. The maximum TPH concentration detected was 200 mg/kg in RB-90 at 10 feet bgs. VOCs were non-detect in all samples. The data are presented in Table E-41 and Figure A-23. Groundwater samples were collected from soil borings RB-89 and RB-90 after drilling, and the results are provided in Table E-42. Groundwater in the vicinity of SA-5 and SA-6 is approximately 55 feet bgs. No VOCs or TPH were detected in these samples. Metals and general chemistry parameters were detected, with aluminum, chloride, iron, manganese, sulfate and TDS exceeding current Nevada Secondary MCLs. Selenium exceeded the primary MCL in one sample. Soil and groundwater results are summarized in Tables 4-63 and 4-64, respectively.

Table 4-63 SA-5 and SA-6 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were not identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
TPH	<10	200	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs that were analyzed and not detected are shown on Table E-41 in Appendix E.						

Note: Soil samples used in this analysis are: RB-89 (1'), RB-89 (5'), RB-89 (10'), RB-89 (15'), RB-89 (20'), RB-89 (25'), RB-89 (30'), RB-89 (35'), RB-89 (40'), RB-89 (45'), RB-90 (1'), RB-90 (5'), RB-90 (10'), RB-90 (15'), RB-90 (20'), RB-90 (25'), RB-90 (30'), RB-90 (35'), RB-90 (40'), and RB-90 (45') from July 2000.

Table 4-64 SA-5 and SA-6 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Chloride	**410**	**410**	NA	400.0	NA	NA
Nitrogen, Nitrate (as N)	0.8	0.8	10	NA	10	25
pH (S.U.)	7.84	7.84	NA	6.5-8.5	NA	NA
Sulfate	**1300**	**1300**	NA	500.0	NA	NA
Phosphorus	0.03	0.03	NA	NA	NA	NA
Total Dissolved Solids (TDS)	**2500**	**2500**	NA	1000	NA	NA
Metals (mg/L)	Metals that were analyzed and not detected are shown on Table E-42 in Appendix E.					
Aluminum	**2.9**	**2.9**	NA	0.20	36.5	16
Barium	0.036	0.039	2.0	NA	2	2.9
Boron	1.3	1.3	NA	NA	7.3	3.1

Table 4-64 SA-5 and SA-6 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Calcium	200	200	NA	NA	NA	NA
Chromium	0.01	0.024	0.1	NA	NA	NA
Iron	**3.2**	**3.2**	NA	0.6	25.6	11
Magnesium	95	95	NA	150.0	207	NA
Manganese	**0.25**	**0.25**	NA	0.1	5.11	0.32
Molybdenum	0.035	0.035	NA	NA	0.183	0.078
Potassium	30	30	NA	NA	NA	NA
Selenium	0.022	**0.074**	0.05	NA	0.05	0.078
Silver	< 0.005	0.012	NA	0.10	0.1825	0.071
Sodium	400	400	NA	NA	NA	NA
Titanium	0.1	0.1	NA	NA	146	NA
PAHs (µg/L)	PAHs were not identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters that were analyzed and not detected are shown on Table E-42 in Appendix E.					
VOCs (µg/L)	VOCs that were analyzed and not detected are shown on Table E-42 in Appendix E.					

Note: Bold indicates concentration in excess of a screening level.
Note: Wells used in this analysis are: RB-89 and RB-90 from July 2000 to August 2000.

4.4.5.3 Conclusions and Recommendations for Further Investigation

- Additional soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern.
- No further groundwater characterization is recommended at this time. If ash and soil samples indicate concern for leaching, further groundwater characterization will be re-evaluated.

4.4.6 SA-7 Unit 4 Settling Pond

The following documents in Table 4-65 were referenced when researching the history and previous investigations of SA-7.

Table 4-65 SA-7 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-50	Phase II Environmental Assessment Report	6/1/1999	Black and Veatch
NDEP-38	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 3- Unit 4 Settling Pond	6/5/2000	Kleinfelder

The Unit 4 Settling Pond was built in 1983 and is also known as the Foster Wheeler Pond. The pond is concrete-lined and designed to receive storm water and overflow from the ash transport and de-watering system (NDEP-25). Discharges from the Unit 4 Settling Pond are directed to the Unit 4 Cooling Tower Catch Basin (SA-3) before they are discharged to the evaporation ponds.

4.4.6.1 Site Related Chemicals

The SRC parameter categories at SA-7 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, landfill solids disposal, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, and PAHs.

4.4.6.2 Sampling Results Summary

In 1999, one soil sample (RB-61) was collected near SA-7 by Black and Veatch. The soil sample was only analyzed for diesel range TPH (DRO). Diesel range TPH was not detected in this soil sample (AOC-50). One pond water sample and one sediment sample (P-5) were collected by Kleinfelder during a Supplemental Phase II ESA conducted at the site in 2000. The sediment sample was analyzed for the eight RCRA metals by the TCLP method. Barium was reported at 0.98 mg/L and selenium was reported at 0.03 mg/L; the other metals were below method detection limits. The pond water analytical results are summarized in Table E-43. Soil data is summarized in Table 4-66.

Kleinfelder recommended no further action.

Table 4-66 SA-7 Soil Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
Aldehydes and Diols (mg/kg)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were identified as SRCs. No data is available.						
Metals (mg/kg)	Metals were identified as SRCs. No data is available.						
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						

Table 4-66 SA-7 Soil Data Summary							
Parameter Name	Minimum	Maximum	Current Screening Levels				
			EPA MCL-Based SSL	EPA Risk-Based SSL	EPA RSL Industrial Soil	NDEP BCL Outdoor Worker	NDEP LBCL (DAF 1)
TPH (mg/kg)	TPH parameters were analyzed and not detected, as stated above.						
VOCs (µg/kg)	VOCs were not identified as SRCs. No data is available.						

Note: Soil samples used in this analysis are: RB-61 (0.5') from 1999.

4.4.6.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the pond is still in service, soil characterization will be addressed when the pond it taken out of service.

- Source-specific groundwater characterization is recommended.

4.4.7 SA-8 Units 1, 2, 3 Catch Basin

The following documents in Table 4-67 were referenced when researching the history and previous investigations of SA-8.

Table 4-67 SA-8 Related Documents			
Encyclopedia Document No.	Title	Date	Author
AOC-336	Wastewater Disposal Study Reid Gardner Station	7/3/1972	Stearns-Roger
AOC-315	Unit No. 3 Plans	9/25/1976	Stearns-Roger
NDEP-25	Phase I Environmental Site Assessment	10/1/1998	CH2M Hill
AOC-85	Supplemental Phase II Environmental Site Assessment - Task Reports - Tasks1A-1E	6/21/2000	Kleinfelder

The Units 1, 2, 3 Catch Basin was constructed in 1976 (AOC-315). This pond is concrete-lined and is used to collect Units 1,2,3 Cooling Tower overflow and storm water.

4.4.7.1 Site Related Chemicals

Based on operations in this area (cooling tower catch basin and stormwater runoff) the SRC parameter categories that could be present are general chemistry, metals, and PAHs.

4.4.7.2 Sampling Results Summary

There is no soil data available for SA-8. One pond water and one sediment sample (P-1) were collected during a Phase II ESA performed by Kleinfelder in 2000. Pond water data

does not show parameters present at levels of concern other than arsenic slightly above the primary MCL and aluminum, magnesium and TDS above the secondary MCL. The pond water analytical results are summarized in Table E-44. The sediment sample was analyzed for the eight RCRA metals by the TCLP method. Barium was reported at 0.46 mg/L and the other metals were below method detection limits. Kleinfelder recommended no further action.

4.4.7.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the pond is still in service, soil characterization will be addressed when the pond it taken out of service.

- Source-specific groundwater characterization is recommended.

4.4.8 SA-17 Reported Previous Waste Disposal Area (WMU-8)

The following documents in Table 4-68 were referenced when researching the history and previous investigations of SA-17.

Table 4-68 SA-17 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC 96	Waste Management Units	1/12/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NVE
AOC102	Limited Site Characterization, Waste Management Unit 8	3/30/2005	NVE
NDEP-62	Limited Site Characterization, Waste Management Unit 8	3/25/2005	Converse

According to the 2000 Kleinfelder report "*WMU-8 originally may have been a borrow area on the east side of the railroad approximately 100-200 feet north of the coal unloading underground structure. Based on verbal information received from long time RGS [Reid Gardner Station] staff, apparently WMU-8 may have received inadvertent wastes from plant wash-downs, petroleum-impacted soils, drums of unknown contents, and/or municipal debris. All or part of this WMU may have been removed*" (AOC 96).

According to a Limited Site Characterization performed by Converse in 2005, 16 soil borings were advanced in this area to a depth of approximately 15 bgs. The focus of this investigation was to look for signs of buried debris, stained soil, and hydrocarbon or other odors and indications of contamination. Soil cuttings were field screened using a portable Photoionization Detector. The borings were located in a 50 foot center grid pattern over a 100 foot by 400 foot area to encompass the suspect area. The boring logs indicate that the borehole locations were drilled in native soil. The borings consisted of sandy silt with gravel in the top 2.5 feet followed by sandy clay and sandy silt with clay to a depth of approximately 15 bgs. None of the boring logs contained fill or disturbed material. No buried debris was encountered and no visual evidence of impacted soil was found. Soil

samples were not submitted for laboratory analysis. Converse recommended no additional investigation (NDEP-62).

4.4.8.1 Site Related Chemicals

Based on the results of the 2005 investigation, SRCs were not identified.

4.4.8.2 Sampling Results Summary

There is no soil or groundwater analytical data available for SA-17.

4.4.8.3 Conclusions and Recommendations for Further Investigation

- No further soil characterization is recommended. The 2005 field investigations found no visual evidence of buried debris or contamination. The boring logs indicate that this area was comprised of native soil.
- No further groundwater characterization is recommended. There are no indications that groundwater has been impacted in this area by Station activities.

4.4.9 SA-19 Unit 4 Absorber and Units 1, 2, 3 Scrubbers

The following documents in Table 4-69 were referenced when researching the history and previous investigations of SA-19.

Table 4-69 SA-19 Related Documents

Encyclopedia Document No.	Title	Date	Author
No studies have been previously conducted for this source area.			

The Units 1, 2, and 3 Scrubbers and the Unit 4 Absorber (shown on Figure A-22) are wet scrubbers used to remove sulfur dioxide (SO_2) and other contaminants from air emissions from the four generating units. The Units 1,2 and 3 Scrubbers were on-line after 1968 and the Unit 4 absorber came on-line in 1983. The blowdown from the scrubbers and absorber is discharged to the evaporation ponds. These units have been identified as potential sources of contamination because of the elevated TDS and sulfate concentrations in monitoring wells HM-32 and HM-32-R, which are near the Unit 4 Absorber.

4.4.9.1 Site Related Chemicals

Based on operations in this area (wet scrubbers used to remove contaminants from air emissions) the SRC parameter categories that could be present are general chemistry and metals.

4.4.9.2 Sampling Result Summary

There is no soil analytical data available for SA-19. Table E-45 in Appendix E summarizes groundwater monitoring statistics for HM-32 and HM-32R from June 2005 to December 2011.

These results show screening levels are often exceeded for arsenic, boron, chloride, molybdenum, sulfate, and TDS, as summarized in Table 4-70.

Table 4-70 SA-19 Groundwater Data Summary

Parameter Name	Minimum	Maximum	Current Screening Levels			
			Federal/Nevada Primary MCL	Nevada Secondary MCL	NDEP BCL - Residential Water	EPA Tap Water
Aldehydes and Diols (mg/L)	Formaldehyde and ethylene glycol were not identified as SRCs. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Chloride	**480**	**2800**	NA	400	NA	NA
Nitrogen, Nitrate (As N)	<0.1	5.4	10	NA	10	25
Phosphorus (total)	0.038	4200	NA	NA	NA	NA
Sulfate	**2200**	**32,000**	NA	500	NA	NA
TDS (residue, filterable)	**3600**	**55,000**	NA	1000	NA	NA
Metals (mg/L)						
Arsenic	0.14	**2.3**	0.01	NA	0.01	0.000045
Barium	0.0068	0.056	2	NA	2	2.9
Boron	3.4	**23**	NA	NA	7.3	3.1
Cadmium	<0.003	**0.025**	0.005	NA	0.005	0.0069
Calcium	3.5	260	NA	NA	NA	NA
Chromium (Total)	<0.003	0.008	0.1	NA	NA	NA
Magnesium	5.8	117	NA	150	207	NA
Molybdenum	0.12	**1.4**	NA	NA	0.183	0.078
Nickel	0.005	0.033	NA	NA	0.73	0.3
Selenium	0.0058	**0.15**	0.05	NA	0.05	0.078
Sodium	510	19,000	NA	NA	NA	NA
Vanadium	0.0058	**0.28**	NA	NA	0.183	0.078
Zinc	0.028	0.037	NA	5	11	4.7
PAHs (µg/L)	PAHs were not identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)	TPH parameters were not identified as SRCs. No data is available.					
VOCs (µg/L)	VOCs were not identified as SRCs. No data is available.					

Note: Bold indicates concentration in excess of a screening level.
Note: Wells used in this analysis are: HM-32 and HM-32R from July 2005 to December 2011.

4.4.9.3 Conclusions and Recommendations for Further Investigation

- Soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern.

- Further source-specific groundwater characterization is recommended to evaluate the elevated TDS and sulfate values nearby.

4.4.10 Potential Station Source Areas Summary and Recommendations

Nine potential station area sources were evaluated. Additional data should be collected at seven of the source areas as shown in Table 4-71.

Table 4-71 Potential Station Source Areas Summary and Recommendations

Source No.	Description	Recommendation
SA-1	Unit 4 Treated Water Pond	- Further soil characterization. - Further source-specific groundwater characterization.
SA-2	Unit 4 Cooling Tower	- No further soil characterization. - Further source-specific groundwater characterization.
SA-3	Unit 4 Cooling Tower Catch Basin	- Further soil characterization. - Further source-specific groundwater characterization.
SA-4	Coal Piles and Fly Ash Under Unit 4 Coal Pile (WMU-12)	- Further soil characterization. - Further source-specific groundwater characterization.
SA-5 and SA-6	Area of Previous Fly Ash Fill (WMU-13 and WMU-14)	- Further soil characterization. - No further groundwater characterization.
SA-7	Unit 4 Settling Pond (Foster Wheeler Pond)	- Further soil characterization. - Further source-specific groundwater characterization.
SA-8	Units 1, 2, 3 Catch Basin	- Further soil characterization. - Further source-specific groundwater characterization.
SA-17	Reported Previous Waste Disposal Area (WMU-8)	- No further soil characterization. - No further groundwater characterization.
SA-19	Units 1, 2, 3 Scrubbers and Unit 4 Absorber	- Further soil characterization. - Further source-specific groundwater characterization.

4.5 Potential Northern Station Source Areas

The potential source areas listed in Table 4-72 are areas located north of the main Station and Wally Kay Road. The potential Northern Station source areas can be seen in Figure A-24.

Table 4-72 Potential Northern Station Source Areas	
Source No.	**Description**
SA-18	ASP-1
	ASP-2
	ASP-3
	Former Clear Wells
	Former Fly Ash Disposal Area (WMU-11)

4.5.1 SA-18 ASP 1, 2, 3; Former Clear Wells; and Former Fly Ash Disposal Area

The following documents listed in Table 4-73 were referenced when researching the history and previous investigations of SA-18.

Table 4-73 SA-18 Related Documents

Encyclopedia Document No.	Title	Date	Author
AOC-314	Unit No. 1 Plans	11/2/1965	Stearns-Roger
NDEP115	Environmental Analysis Record: Evaporation Ponds RG Steam Plant	1/1/1973	NPC
NDEP97	Geologic Field Report of the Proposed Evaporative Ponds near Moapa, Clark County, Nevada	6/14/1973	Roger Sulenski
AOC-315	Unit No. 3 Plans	9/25/1976	Stearns-Roger
AOC-223	Clear well Overflow Spill Report	11/24/1986	NPC
NDEP16	Hydrogeological Study of Surface Impoundments, Volume 1 and 2	6/1/1992	Kleinfelder
AOC-22	Bottom Ash Memo	2/21/1994	NPC
AOC-24	Fly Ash MSDS	4/1/1994	NPC
AOC-96	Waste Management Units	1/12/2000	Kleinfelder
AOC-90	Supplemental Phase II Environmental Site Assessment - Task 18 Report - Landfills and Storage Yards	8/21/2000	Kleinfelder
SKOTI07	Closure Plan 1,2,3 Ash Settling Ponds	10/2/2000	NPC
AOC-218	Closure for 1,2,3 Ash Settling Ponds memo	10/2/2000	NDEP
AOC-92	Supplemental Phase II Environmental Site Assessment - Tas 25 Report - Waste Management Unit Assessment	10/17/2000	Kleinfelder
AOC-109	Revised Hydrogeologic Characterization Report, Volume 1 and 2	2/20/2002	NPC
AOC-138	Renewal of Authorization to Discharge Permit #NEV91022	2/19/2004	NPC
AOC-116	Revised Hydrogeologic Characterization Report Response to NDEP comments letters dated August 11, 2003	5/21/2004	NPC

Table 4-73 SA-18 Related Documents			
Encyclopedia Document No.	**Title**	**Date**	**Author**
NDEP55	Limited Site Characterization Work plan for Area Surrounding Former HP-12 (Area 3)	9/24/2004	NPC
NDEP58	Revised Limited Site Characterization Work plan for former ASP-1,2,3 area	11/18/2004	NPC
NDEP59	Revised Limited Site Characterization Work plan for Dissolved Chlorinated Solvent Area 6	11/18/2004	NPC
AOC-105	Limited Site Characterization, Area Surrounding Former HP-12 (Former ASP-1,2,3 Area)	3/22/205	NPC
AOC-106	Additional Site Characterization, Former ASP-1,2,3 Area	7/21/2005	NPC
AOC-107	Additional Site Characterization Report Response Former ASP-1,2,3 area and Other Correspondence	9/19/2005	NDEP
DP24	Work plan for Additional Site Characterization, Former ASP-1,2,3 Area	11/4/2005	NPC
NDEP68	Letter regarding ASP-1,2,3 work plan	12/13/2005	NDEP

For the purpose of this report, the ASP 1, 2, 3 Ponds, Former Clear Wells, and Former Fly Ash Disposal Area (WMU-11) are combined as SA-18 and are identified in Figure A-24. These potential source areas were combined because they are all located in the same general area and were all used to manage ash and non-scrubber wastewater from Station activities.

ASP-1,2,3

ASP 1, 2, and 3 were previously located on the northern portion of the Station, and covered approximately fifteen acres. "*These ponds [were] constructed of earthen embankments derived from a mix of local soils. The ponds were originally used to allow the settling of flyash from RGS Unit 1 and 2 wastewater prior to its transfer to ponds historically in the [current] location of Pond E. Their use was apparently discontinued with the introduction [of] Ponds F and G in about 1984 to 1985"* (AOC-96). ASP-1 (also known as Pond A) was in use when Unit 1 was brought on-line in 1965. ASP-2 (also known as Pond B) was brought on-line with Unit 2 in 1969. It is not clear if ASP-3 existed. Because these ponds have been referenced as ASP-1, ASP-2, and ASP-3; it is presumed that a third pond was present adjacent to ASP-2, north of the current raw ponds location. Because ASP-1 and ASP-2 were constructed at the same time as Unit 1 and Unit 2, respectively, it is assumed that ASP-3 came on-line with Unit 3 in 1974. ASP-1 was over-excavated in 1982 to make way for construction of the Raw Water Ponds (AOC-319).

According to the 2000 Kleinfelder report, "*In 1990 to 1991, the use of ASP-2 and ASP-3 was re-initiated for the disposal of decant water from the Station diesel recovery system. The water discharged from the diesel recovery system apparently contained some petroleum hydrocarbons*" (AOC-96). By September 1991, a 48,000-gallon holding tank was installed to hold the diesel recovery system water, which was ultimately used for dust control.

During a Phase II ESA completed in 2002, groundwater samples were collected from hydro-punches HP-9, HP-10, HP-11 and HP-12. Hydro-punch sample location HP-12 was located north of the former location of ASP 1, 2, and 3. Groundwater results from HP-12 indicated a TDS concentration

of 35,915 mg/L. TDS concentrations in HP-9, HP-10 and HP-11 ranged from 2,012 mg/L to 2,215 mg/L (AOC-109). According to the 2004 NVE Work Plan, "*apparently, part of the fly ash removed during construction of the Raw Water Ponds was placed in the vicinity of HP-12. The high TDS at HP-12 is likely the result of seepage from the former ASP-1,2,3 ponds and the flyash landfilled in the vicinity of HP-12"* (NDEP-55). Figure A-24 shows the location of the hydro-punch samples and reported TDS concentrations. Laboratory reports for these hydro-punch samples were not located.

In October 2000, NVE submitted a closure schedule to the NDEP for ASP 1, 2 and 3. This schedule was approved by the NDEP and the completion date for unspecified closure activities was reportedly on August 29, 2001 (AOC-218). It is unknown if the NDEP accepted this closure.

In February 2005, NVE installed three monitoring wells in the SA-18 area, IMW-12.5R, IMW-13R, and IMW-14R. These well locations are shown on Figure A-24. IMW-13R and IMW-14R exceeded the action levels at that time for the dissolved metals boron, molybdenum, selenium, sodium, sulfate, and TDS. Monitoring well IMW-14R also exceeded the action levels at that time for magnesium, chloride, and nitrate (AOC-105).

In July 2005, NVE completed an additional groundwater investigation to define the extent of groundwater contamination to the south. NVE installed and sampled three additional groundwater monitoring wells; IMW-9R, IMW-15, and IMW-17; south and southeast of the former ASP-1, 2, 3 area. These well locations are also shown on Figure A-24. Groundwater samples from these three monitoring wells contained elevated concentrations of dissolved metals, sulfate, TDS, and TPH (AOC-106).

Currently, the six monitoring wells installed in 2005 are routinely sampled.

Former Clear Wells

Three former clear wells (upper, middle, and lower) were located west of the Raw Water Ponds and south of ASP-2 and ASP-3. Their date of construction is unknown. On November 2, 1986, "*…excessive input to the (lower) clear well from the catch basin and surge tank exceeded the capability of the clear well pump"* (AOC-223). The overflow was caused by a chain reaction initiating from the Units 1,2,3 Cooling Towers through the Units 1,2,3 Catch Basin (SA-8), which overflowed to the upper of the clear wells, eventually to the lower, and on to the Muddy River.

WMU-11

WMU-11 consists of former fly ash disposal that began around 1980. It is not known how long fly ash was disposed in this area. According to the Kleinfelder Phase II ESA completed in August 2000, NVE staff reported the discovery of additional WMU areas, including WMU-11. "*WMU-11 appears to consist of fly ash covered by a thin veneer of native soil. Several sections of steel pipe were noted lying on the surface in the southwestern portion of the WMU. This pipe was apparently used for conveying fly ash slurry, as evidenced by fly ash blockages observed in the pipe. Native vegetation has re-established itself in the previously disturbed areas. The vegetation appears to be in good condition*" (AOC-90). Neither groundwater nor soil samples were collected in the vicinity of WMU-11 as part of this investigation.

A Phase II ESA conducted by Kleinfelder in October 2000 found concentrations of TCE exceeding the MCL in groundwater east of WMU-11 on the opposite side of the railroad tracks. The report recommended "*…additional investigation of WMU-11 (RB-87 and RB-88), as the landfill is reported to have waste other than fly ash present. [TCE] was reported above groundwater MCLs in borehole RB-88*" (AOC-92).

4.5.1.1 Site Related Chemicals

The SRC parameter categories at SA-18 were selected based on a review of historical documents regarding onsite chemical usage, process water discharges to onsite evaporation and settling ponds, landfill solids disposal, available groundwater data in the area, and the results of solids samples collected in 2009 from the former Pond D and Pond G areas. Former Pond D and Pond G solids analytical data are discussed in Sections 4.2.4 and 4.2.6, respectively. Based on this review, the SRC parameter categories that could be present are formaldehyde, general chemistry, metals, PAHs, TPH and VOCs.

4.5.1.2 Sampling Results Summary

Two soil samples, RB-87 and RB-88, were collected near WMU-11 in 2000 (AOC-92). No VOCs were detected in these samples and no other TPH or metals concentrations were detected above screening levels applicable at that time. No other soil samples have been collected in the area of SA-18. Groundwater samples were also collected from these borings. TCE was detected in RB-88 at 69 µg/L, above the MCL of 5µg/L. NVE is not aware of any Station activities in that area that could have contributed to TCE in groundwater. A former asphalt plant for the railroad located approximately 500 feet south of RB-88 (shown in Figure A-24) apparently used solvents. The soil and groundwater data is summarized on Tables E-46 and E-47 and below in Tables 4-74 and 4-75, respectively.

Groundwater monitoring data from monitoring wells IMW-9R, IMW-12.5R, IMW-13R, IMW-14R, IMW-15, and IMW-17 from June 2005 to December 2011 is summarized in Table E-48. Arsenic, nitrate and fluoride concentrations have exceeded primary MCLs and chloride, sulfate and TDS concentrations have exceeded secondary MCLs. TCE has not been detected in these monitoring wells.

Table 4-74 SA-18 Soil Data Summary							
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**				
			EPA MCL-Based SSL	**EPA Risk-Based SSL**	**EPA RSL Industrial Soil**	**NDEP BCL Outdoor Worker**	**NDEP LBCL (DAF 1)**
Aldehydes and Diols (mg/kg)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.						
Asbestos	Asbestos was not identified as an SRC. No data is available.						
Dioxins and Furans (ng/kg)	Dioxins and furans were not identified as SRCs. No data is available.						
General Chemistry (mg/kg)	General chemistry parameters were identified as SRCs. No data is available.						
Metals (mg/kg)	Metals that were analyzed and not detected are shown on Table E-46 in Appendix E.						
Arsenic	**6.7**	**6.7**	0.29	.0013	1.6	1.77	1
Barium	41	41	82	120	190,000	100,000	82
Chromium (total)	3.5	3.5	180,000	NA	NA	NA	NA
Lead	7.0	7.0	14	NA	800	800	NA
Selenium	**1.8**	**1.8**	0.26	0.4	5100	5680	0.3
PAHs (µg/kg)	PAHs were identified as SRCs. No data is available.						
PCBs (µg/kg)	PCBs were not identified as SRCs. No data is available.						
SVOCs (µg/kg)	SVOCs were not identified as SRCs. No data is available.						
TPH (mg/kg)							
TPH	<10	26	NA	NA	NA	NA	NA
VOCs (µg/kg)	VOCs that were analyzed and not detected are shown on Table E-46 in Appendix E.						

Note: Bold indicates concentration in excess of a screening level.

Note: Soil samples used in this analysis are: RB-87 (1'), RB-87 (5'), RB-87 (10'), RB-87 (15'), RB-87 (20'), RB-87 (25'), RB-87 (30'), RB-87 (35'), RB-87 (45'), RB-88 (1'), RB-88 (5'), RB-88 (10'), RB-88 (15'), RB-88 (20'), RB-88 (25'), RB-88 (30'), RB-88 (35'), RB-88 (40'), and RB-88 (45') from July and August 2000.

Table 4-75 SA-18 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
Aldehydes and Diols (mg/L)	Formaldehyde was identified as an SRC. No data is available. Ethylene glycol was not identified as an SRC. No data is available.					
Asbestos	Asbestos was not identified as an SRC. No data is available.					
Dioxins and Furans (ng/L)	Dioxins and furans were not identified as SRCs. No data is available.					
General Chemistry (mg/L)						
Alkalinity (Total)	100	100	NA	NA	NA	NA
Chloride	66.1	**2400**	NA	400	NA	NA
Fluoride	<1	**12**	4	2	4	0.62
Nitrogen, Nitrate (As N)	<0.1	**25**	10	NA	10	25
pH (S.U.)	7.86	7.86	NA	6.5 – 8.5	NA	NA
Phosphorus	<0.02	7	NA	NA	NA	NA
Specific Conductivity (umhos/cm)	2580	2580	NA	NA	NA	NA
Sulfate	190	**3000**	NA	500	NA	NA
Sulfide	<0.01	0.021	NA	NA	NA	NA
TDS (residue, filterable)	470	**9400**	NA	1000	NA	NA
Metals (mg/L)	Metals that were analyzed and not detected are shown on Tables E-47 and E-48 in Appendix E.					
Arsenic	**0.0021**	**0.11**	0.01	NA	0.01	0.000045
Barium	0.0041	0.11	2	NA	2	2.9
Boron	0.525	**18**	NA	NA	7.3	3.1
Calcium	15.3	1160	NA	NA	NA	NA
Chromium (Total)	0.003	0.08	0.1	NA	NA	NA
Iron	**2**	**2**	NA	0.6	25.6	11
Magnesium	5.11	**430**	NA	150	207	NA
Manganese	<0.05	**0.16**	NA	0.1	5.11	0.32
Molybdenum	<0.005	**0.78**	NA	NA	0.183	0.078
Nickel	<0.005	0.027	NA	NA	0.73	0.3
Potassium	18	89	NA	NA	NA	NA
Selenium	0.00096	**0.2**	0.05	NA	0.05	0.078
Sodium	120	3100	NA	NA	NA	NA
Strontium	0.692	4.7	NA	NA	NA	21.9
Titanium	<0.05	0.044	NA	NA	146	NA
Vanadium	<0.003	0.04	NA	NA	0.183	0.078
Zinc	<0.005	0.18	NA	5	11	4.7
PAHs (µg/L)	PAHs were identified as SRCs. No data is available.					
PCBs (µg/L)	PCBs were not identified as SRCs. No data is available.					
SVOCs (µg/L)	SVOCs were not identified as SRCs. No data is available.					
TPH (mg/L)						
TPH	<0.5	110	NA	NA	NA	NA
VOCs (µg/L)	VOCs that were analyzed and not detected are shown on Table E-48 in Appendix E.					
cis-1,2-Dichloroethene	<1	5	70	NA	70	28
Trichloroethene	<1	**69**	5	NA	5	0.44

Table 4-75 SA-18 Groundwater Data Summary						
Parameter Name	**Minimum**	**Maximum**	**Current Screening Levels**			
			Federal/Nevada Primary MCL	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**

Note: Bold indicates concentration in excess of a screening level.
Note: Sampling locations used in this analysis are: IMW-9R, IMW-12.5R, IMW-13R, IMW-14R, IMW-15, IMW-17, RB-87, and RB-88, from July 2000 through December 2011.

4.5.1.3 Conclusions and Recommendations for Further Investigation

- Further soil characterization is recommended. Limited soil sampling has been conducted for SA-18 and the nature and extent of soil contamination in this area is unknown.
- SA-18 sources will be included in North Station Area groundwater characterization efforts.

4.5.2 Potential Northern Station Source Areas Summary and Recommendations

Further investigation is recommended at this source area as shown in Table 4-76.

Table 4-76 Potential Northern Station Source Areas Summary and Recommendations

Source No.	Description	Recommendation
SA-18	ASP-1, ASP-2, ASP-3, Former Clear Wells, Former Fly Ash Disposal Area	- Further soil characterization. - Groundwater beneath source areas included in North Station Area groundwater characterization

Section 5

Conclusions and Recommendations

Based on a review of applicable documents, 35 potential source areas were identified. Table 5-1 summarizes the recommendations for further characterization of these potential source areas. For each potential source area, available historical information as well as available soil and groundwater data was reviewed and summarized. Based on the available information, a recommendation is made regarding the need for further soil and/or groundwater characterization for each potential source area. Many of the potential sources have been grouped together for the purposes of further groundwater characterization. For the purpose of this report, the groundwater groupings have been determined to be Mesa Area Groundwater, Ponds Area Groundwater, Petroleum Area Groundwater, and North Station Area Groundwater. These groupings are preliminary and are subject to change as further information is made available during the Conceptual Site-Wide Model (CSM) process. This process is discussed further in Section 2.1 of this Report. Recommendations were also made to further characterize many of the potential source areas on a source-specific basis. These recommendations are summarized below on Table ES-1.

Four potential source areas have been adequately characterized for the purposes of the source area identification and characterization process (e.g., no further soil or groundwater characterization is recommended). In the future, NVE may request No Further Investigation or No Further Action determinations from NDEP for these source areas by submitting reports that summarize source area data and describe the rationale for demonstrating that no further investigation or remediation is required at that source area.

Additionally, NVE prioritized each of the potential source areas with respect to further characterization. Criteria used for this prioritization are as follows:

- Proximity/potential pathways of contamination to receptors,
- Current impacts to groundwater,

- Likelihood of future impacts to groundwater,
- Continuing source of contamination,
- Chemicals of Concern (CoCs).

Using these criteria, NVE identified five potential sources as “high priority”. These potential sources were assigned an “A” priority. Seven sources were identified as “medium priority” and were assigned a “B” priority. The remaining 23 potential sources were identified as “low priority” and were assigned a “C” priority. These assigned priorities are preliminary and are subject to change as further information is made available during the CSM process. This process is discussed further in Section 2.1 of this Report.

The primary objective of this report is to identify potential sources of contamination at the NVE Reid Gardner Station and summarize available information for each potential source area. The second objective of this report is to identify which potential sources of contamination at the Station will require further soil and/or groundwater characterization in order to evaluate whether they have impacted soil and/or groundwater at concentrations of concern. These objectives have been met.

Table 5-1 Recommendations for Further Characterization of Potential Source Areas

	Source No.	Description	Further Source Characterization Priority*	Further Soil Characterization	Further Groundwater Characterization
Potential Mesa Source Areas	MA-1	Closed Sanitary Landfill (WMU-1)	C	None	Mesa Area
	MA-2	Special Asbestos Waste Cell (WMU-2) (Actively Permitted)	C	None	None
	MA-3	Disposal Area for Construction and Demolition Debris (WMU-3)	C	None	Mesa Area
	MA-4	Class III (Industrial Waste) Landfill (WMU-4) (Active Permit)	C	None	Mesa Area
	MA-5	Closed Ash Disposal Site (WMU-5)	C	None	Mesa Area
	MA-6	Evaporation Ponds P1 - P5	C	None	Mesa Area
	MA-7	Landfill Used for Industrial and Non-Industrial Waste (WMU-7)**	B	None	Source-Specific
	MA-8	Disposal Area for Water Treatment Waste (WMU-9)	C	None	Mesa Area
	MA-9	Former Mesa Dredge Pond (WMU-10)	C	None	Mesa Area
	PA-4	Closed Fly Ash Fill Area Under Landfill Haul Road (WMU-6)	C	X	Ponds Area
Potential Pond Source Areas	PA-1	Hogan Wash	B	X	Source-Specific
	PA-2	Ponds 4B and 4C	B	X	Ponds Area
	PA-3	Former Pond 4A	A	X	Ponds Area
	PA-5	Former Pond D (West Pond)	A	X	Ponds Area
	PA-6	Ponds E (East Pond, Pond C, Pond D)	A	X	Ponds Area
	PA-7	Pond F and Former Pond G (Units 1,2,3 Laydown Ponds)	A	X	Ponds Area
	PA-8	Hydrogen Peroxide Tank Release	C	None	None
Potential Petroleum Source Areas	SA-9	Units 1 and 2 Emergency Diesel Generator	C	X	None
	SA-10	Former Units 1,2,3 Lube Oil Rack	B	X	Source-Specific
	SA-11	Former Gasoline UST (1000-gallon) and Warehouse 1	B	X	Petroleum Area
	SA-12	Former Diesel AST (850,000- gallon)	C	None	None
	SA-13	Former Diesel Fuel Unloading Area	C	None	Petroleum Area
	SA-14	Former Underground Product Piping, Petroleum Tanks	A	X	Petroleum Area
	SA-15	Free Product Recovery System	C	X	Petroleum Area
	SA-16	Vehicle Maintenance Area	C	X	Source-Specific
Potential Station Source Areas	SA-1	Unit 4 Treated Water Pond	C	X	Source-Specific
	SA-2	Unit 4 Cooling Tower	C	None	Source-Specific
	SA-3	Unit 4 Cooling Tower Catch Basin	C	X	Source-Specific
	SA-4	Coal Piles and Fly Ash Under Unit 4 Coal Pile (WMU-12)	B	X	Source-Specific
	SA-5 and SA-6	Area of Previous Fly Ash Fill (WMU-13 and WMU-14)	C	X	None
	SA-7	Unit 4 Settling Pond (Foster Wheeler Pond)	C	X	Source-Specific
	SA-8	Units 1, 2, 3 Catch Basin	C	X	Source-Specific
	SA-17	Reported Previous Waste Disposal Area (WMU-8)	C	None	None
	SA-19	Units 1, 2, 3 Scrubbers and Unit 4 Absorber	C	X	Source-Specific
Potential Northern Station Source Area	SA-18	ASP-1, ASP-2, ASP-3, Former Clear Wells, Former Fly Ash Disposal Area (WMU-11)	B	X	North Station Area
TOTAL				**21**	**29**

*A – High Priority, B – Medium Priority, C – Low Priority
**NVE is currently evaluating remedial options for MA-7

Section 6

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Section 7

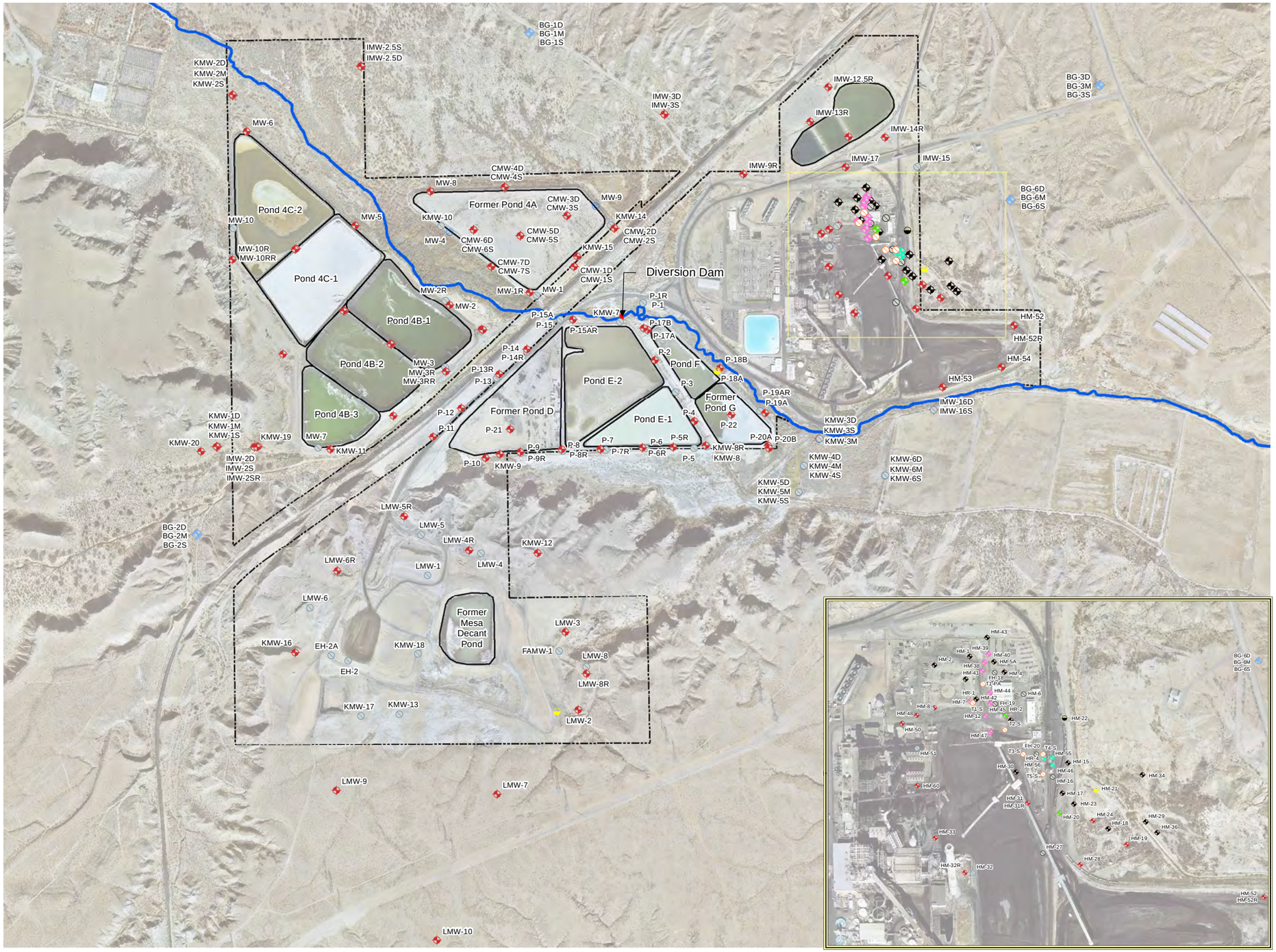
Acronyms and Abbreviations

ACBM	Asbestos-Containing Building Material
AOC	Administrative Order on Consent
AMSL	Above Mean Sea Level
ASTM	American Society for Testing and Materials
ASP	Ash Settling Pond
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
BCA	Bureau of Corrective Actions
BCL	Basic Comparison Level
bgs	Below ground surface
BLM	Bureau of Land Management
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
C&D	Construction and Demolition
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response and Liability Act
CCHD	Clark County Health District
cm/sec	centimeters per second
CSM	Conceptual Site Model
CTBD	Cooling Tower Blowdown
DAF	Dilution Attenuation Factor
DPE	Dual Phase Extraction
DRO	Diesel Range Organics
EFPS	Effluent Forwarding Pump Station
Encyclopedia	Encyclopedia of Supporting Documentation
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ET	Environmental Technologies
ft.	Feet
GRO	Gasoline Range Organics
gpm	gallons per minute

GPR	Ground Penetrating Radar
HDPE	High Density Polyethylene
LBCL	Leaching Basic Comparison Level
MA	Mesa Area
MCL	Maximum Contaminant Level
MFLC	Mesa Flyash Landfill Complex
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MW	Megawatt
MSDS	Material Safety Data Sheet
MTBE	Methyl tert-butyl ether
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NDWR	Nevada Department of Water Resources
NPC	Nevada Power Company
NPDES	National Pollutant Discharge Elimination System
NVE	NV Energy
ORO	Oil Range Organics
PA	Pond Area
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
pCi/g	picocuries per gram
PRGs	Preliminary Remediation Goals
PVC	Polyvinyl Chloride
REC	Recognized Environmental Condition
RCRA	Resource and Conservation Recovery Act
RGS	Reid Gardner Station
RME	Reasonable Maximum Exposure
RSL	Regional Screening Level
SA	Station Area
SNHD	Southern Nevada Health District
SO_2	Sulfur Dioxide
SRC	Site Related Chemical
SLs	Screening Levels
SSL	Soil Screening Level
Station	Reid Gardner Generating Station
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TEQ	Toxicity Equivalent
TPH	Total Petroleum Hydrocarbons
TRI	Toxic Release Inventory
UST	Underground Storage Tank
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
VERS	Vapor Extraction Remediation System
VOC	Volatile Organic Compound
WMU	Waste Management Unit

Appendix A

Figures



Legend

- Muddy River
- Property Boundary

Former Remediation Trench
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

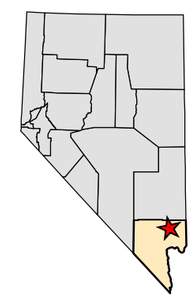
Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

500 250 0 500 1,000 1,500 2,000 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. This figure shows all monitoring locations at Reid Gardner Station, not just those monitored this period



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SITE AREA
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-1

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

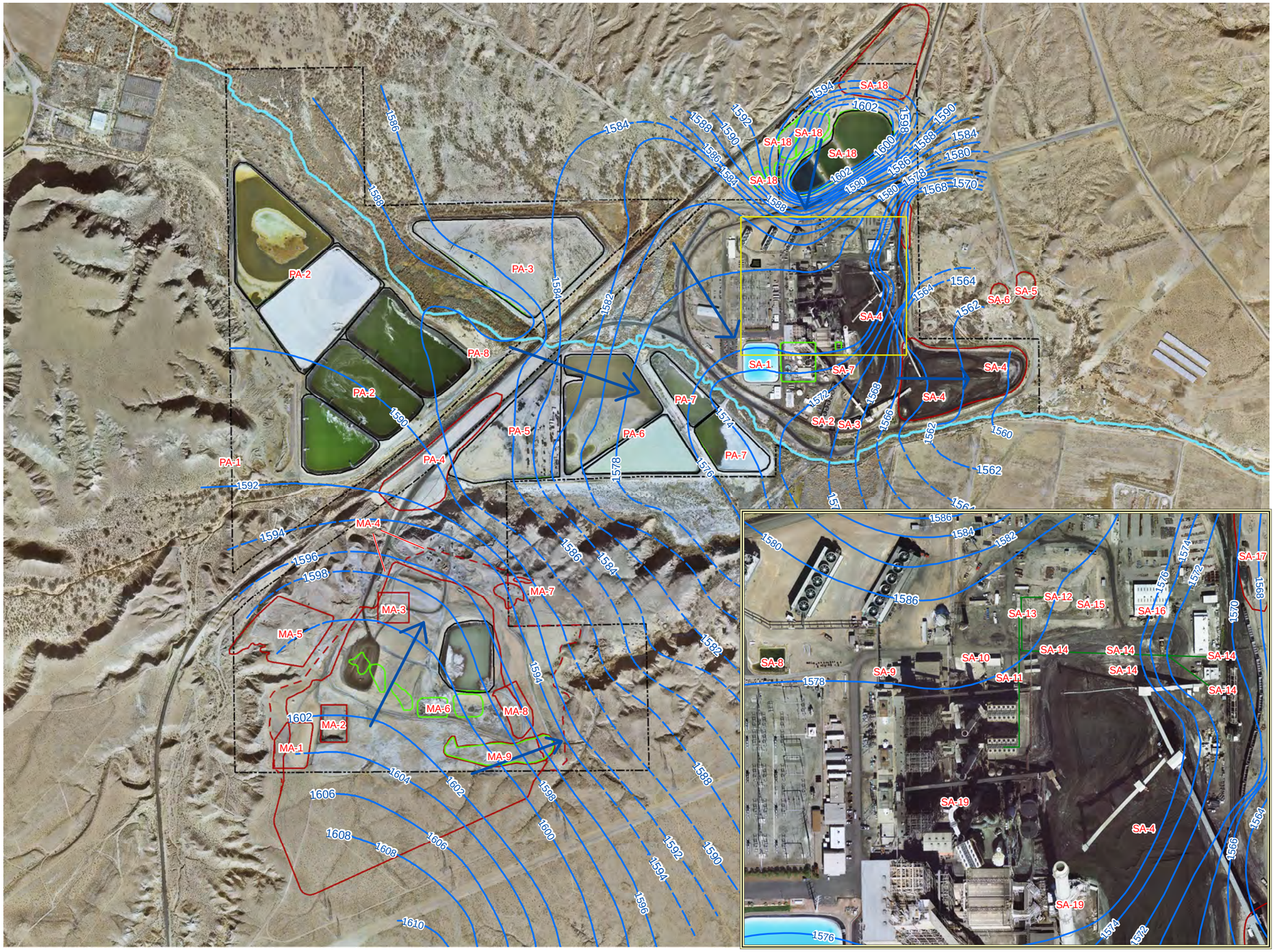
0 1 in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.08

REV. 2

lloy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp09\Active\14-GIS\GIS\Working\Data\Mxd\Prelim_Source_Id_Report\Fig\A1_Site_Plan.mxd © STANLEY CONSULTANTS



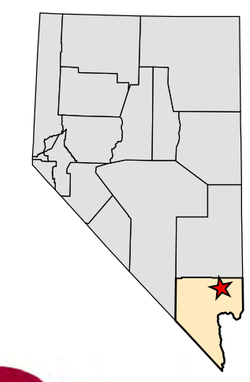
Legend

- Waste Management Unit
- Inactive Landfill Boundary
- Historical Ponds
- Muddy River
- Groundwater Elevation Contour (ft) (2011-Q4)
- Inferred Groundwater Elevation Contour (ft) (2011-Q4)
- Groundwater Flow Direction
- Diesel Piping

Source Area No.
MA = Mesa Area
PA = Pond Area
SA = Station Area

1,000 500 0 1,000 2,000 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Waste management units (WMUs) based on 2002 Revised Hydrogeological Characterization Report, Plate 2 and are approximate boundaries
3. MA-4 boundary modifed per December 2009 Landfill Final Cover Plan (CH2M Hill)
4. MA-7 boundary modified per September 2011 Final Sampling and Analysis Report
5. MA-9 boundary modified per 1994 USGS aerial and NV Energy personnel interviews
6. SA-18 outlines modified per 1965 Unit No. 1 Plans and 1976 Unit No. 3 Plans
7. Clear Well outlines modified per 1984 Topography by Cooper Aerial



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POTENTIAL SOURCE AREAS
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-2

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.08

REV. 2

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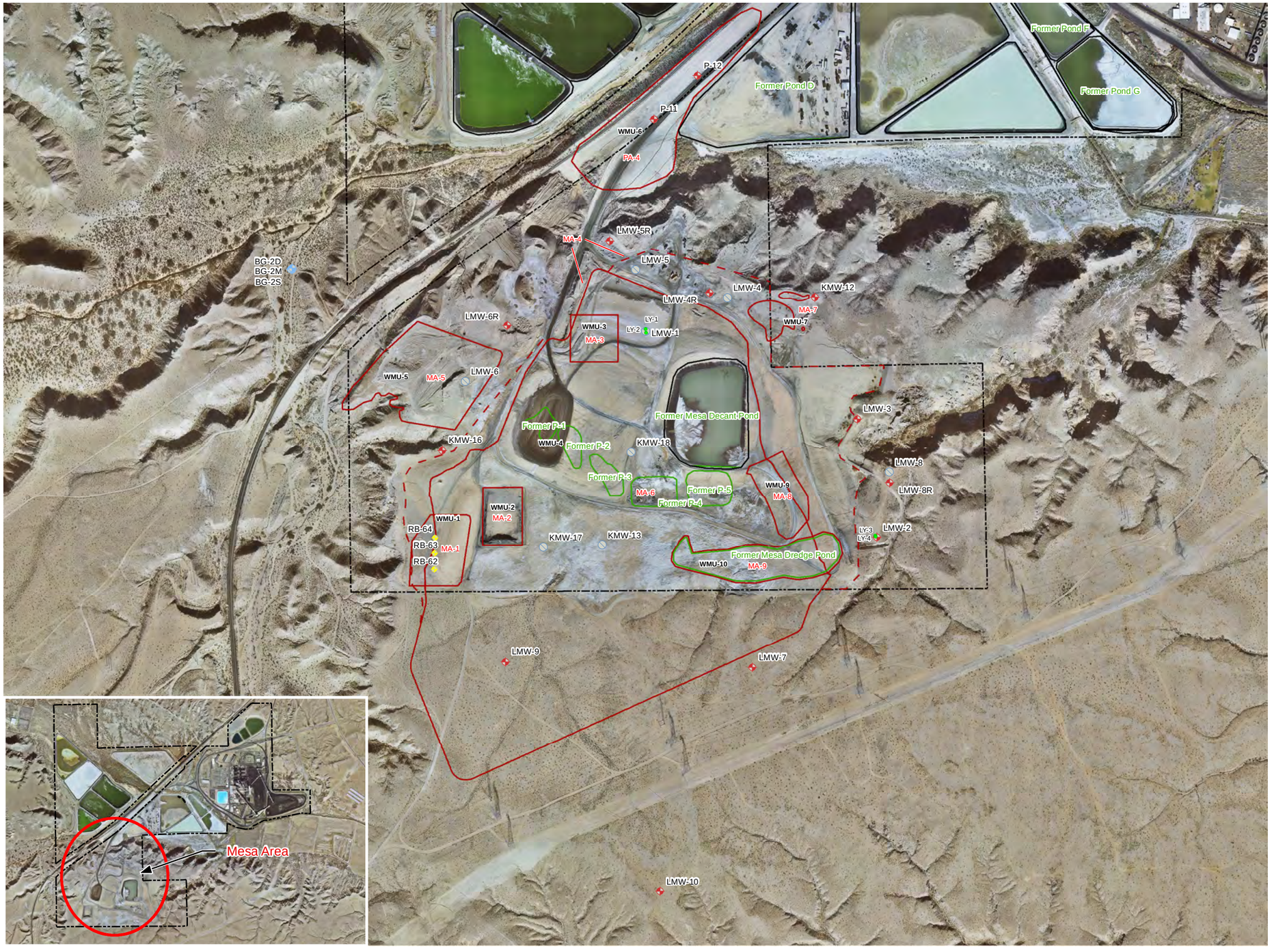

Legend

Former Remediation Trench
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

- Abandoned/Destroyed Lysimeter
- Soil Vapor Sampling Locations
- Property Boundary
- Waste Management Unit
- Inactive Landfill Boundary
- Historical Ponds

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name

MA-1, Closed Sanitary Landfill (WMU-1)
MA-2, Special Asbestos Waste Cell (WMU-2)
MA-3, Disposal Area for C&D Debris (WMU-3)
MA-4, Existing Class III (Industrial) Landfill (WMU-4)
MA-5, Closed Ash Disposal Site (WMU-5)
MA-6, Evaporation Ponds (P1 - P5)
MA-7, Landfill Used for Ind & Non-Ind Waste (WMU-7)
MA-8, Water Treatment Waste Disposal Area (WMU-9)
MA-9, Former Mesa Dredge Pond (WMU-10)
PA-4, Ash Strctrl Fill Under Landfill Haul Rd (WMU-6)

650 325 0 650 1,300 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2 Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. Area, waste management units (WMUs) based on 2002 Revised Hydrogeological Characterization Report, Plate 2
4. MA-4 boundary modifed per December 2009 Landfill Final Cover Plan (CH2M Hill)
5. MA-7 boundary modified per fall 2008 site visit and NV Energy personnel interviews
6. MA-10 boundary modified per 1994 USGS aerial and NV Energy personnel interviews
7. Soil Vapor Sampling locations per 1999 Phase II Environmental Site Assessment.
8. P Pond locations based on 1984 Topographic Map of Reid Gardner.
9. Ind. is an abbreviation for Industrial
10. Data for this Figure is shown in Table E-1 through E-6.

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POTENTIAL MESA SOURCE AREAS
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-3

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MT/AE	AE	RLS

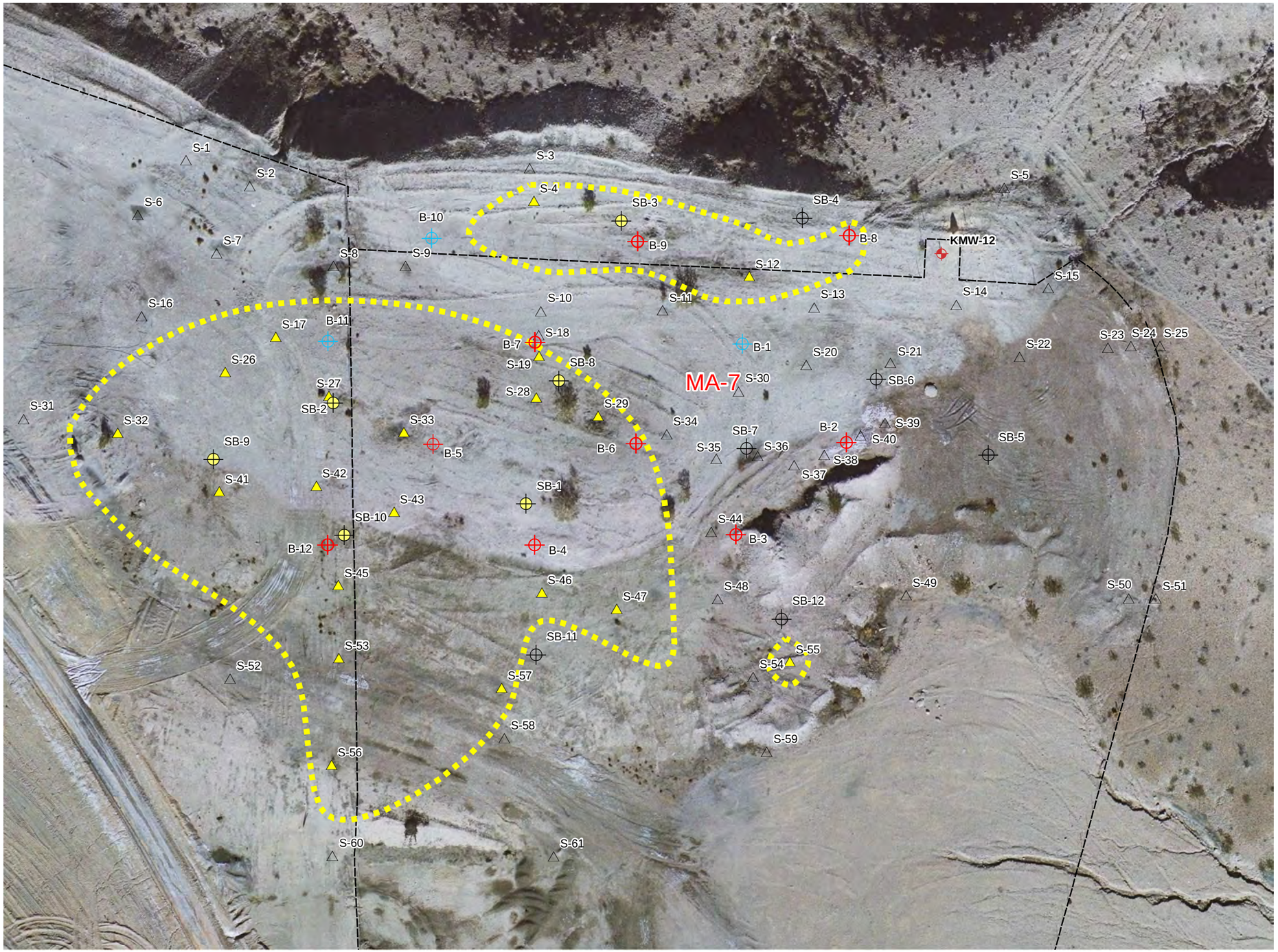
0 1 in.
At full size
1 inch = 650 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects F\20618 03 NVE RGS AOC Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\mesa sources\Fig\A3 MESA SOURCES.mxd © STANLEY CONSULTANTS



Legend

- 2005 Soil Boring with No Observed Debris
- 2005 Soil Boring with Observed Debris
- Apparent Footprint of Buried Debris

November 2009 Soil Borings

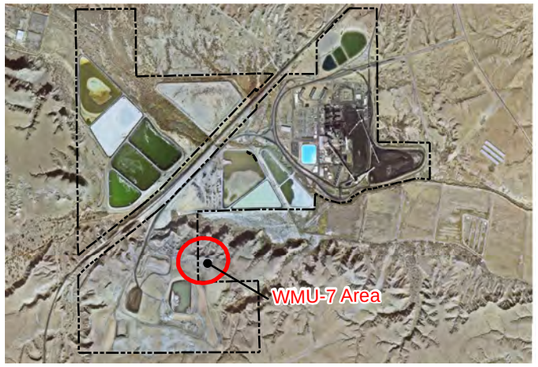
- Exploratory Boring without Debris
- Exploratory Boring with Debris
- Soil Sample Boring without Debris
- Soil Sample Boring with Debris
- Active Monitoring Well
- Fence Line/Property Boundary

Source Area No. and Name

MA-7, Landfill used for Ind & Non-Ind Waste (WMU-7)

50 25 0 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Borings surveyed November 16, 2009 by NV Energy
3. Datums: State Plane 1983, NAVD 1988
4. WMU-7 is bounded to the west by the NVE property boundary and is bounded to the north, south, and east by a fenceline on BLM land.
5. Data for this figure are shown in Tables E-3 through E-6
6. Fence line "notch" around well KMW-12 is approximate.



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MA-7 - WMU-7
SOIL BORING LOCATIONS
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-4

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MTR	RLS/BC	RLS
1		Draft for NDEP	11/6/12	DNR	RLS	RLS
0		Draft for NDEP	2/28/11	AE/RK	RLS	RLS

0 1 in.
At full size
1 inch = 50 feet

NVEnergy

20618.08

REV. 2

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Legend

- Sample Location
- Low Permeability or Slurry Wall
- Groundwater Trench
- Muddy River
- Property Boundary

GMR Monitoring Locations

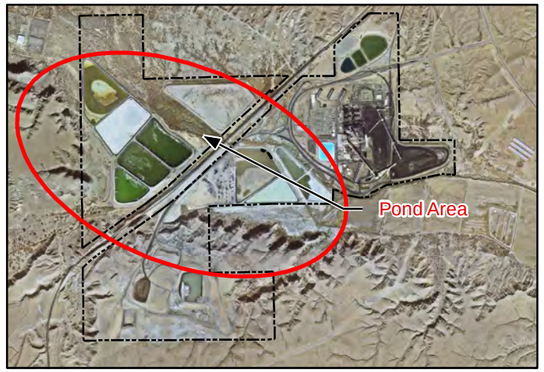
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name

PA-1, Hogan Wash
PA-2, Ponds 4C (C1-2)
PA-2, Ponds 4B (B1-3)
PA-3, Former Pond 4A
PA-5, Former Pond D (West Pond)
PA-6, Ponds E (East Pond, Pond C, Pond D)
PA-7, Former Pond G (Units 1,2,3 Laydown Ponds)
PA-7, Pond F (Units 1,2,3 Laydown Ponds)
PA-8, Hydrogen Peroxide Tank Release

600 300 0 600 1,200 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Former 4A trench location is approximate. Former Pond D and E trenches based on 2002 as-built drawings.
3. Former Pond D and Pond E slurry walls based on 1989 cut-off wall drawings. Pond 4B, 4C, and 4A cores and slurry walls based on 1982 drawings. Ponds F and G slurry wall based on 1986 as-built drawings.
4. Data for this map figure is shown in Tables E-7 through E-18.



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POTENTIAL POND SOURCE AREAS
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-5

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AAE	RLS
0		Draft for NDEP	2/28/11	MET	CQ/AAE	RLS

0 1 in.
At full size
1 inch = 600 feet

NVEnergy

20618.08

REV. 2

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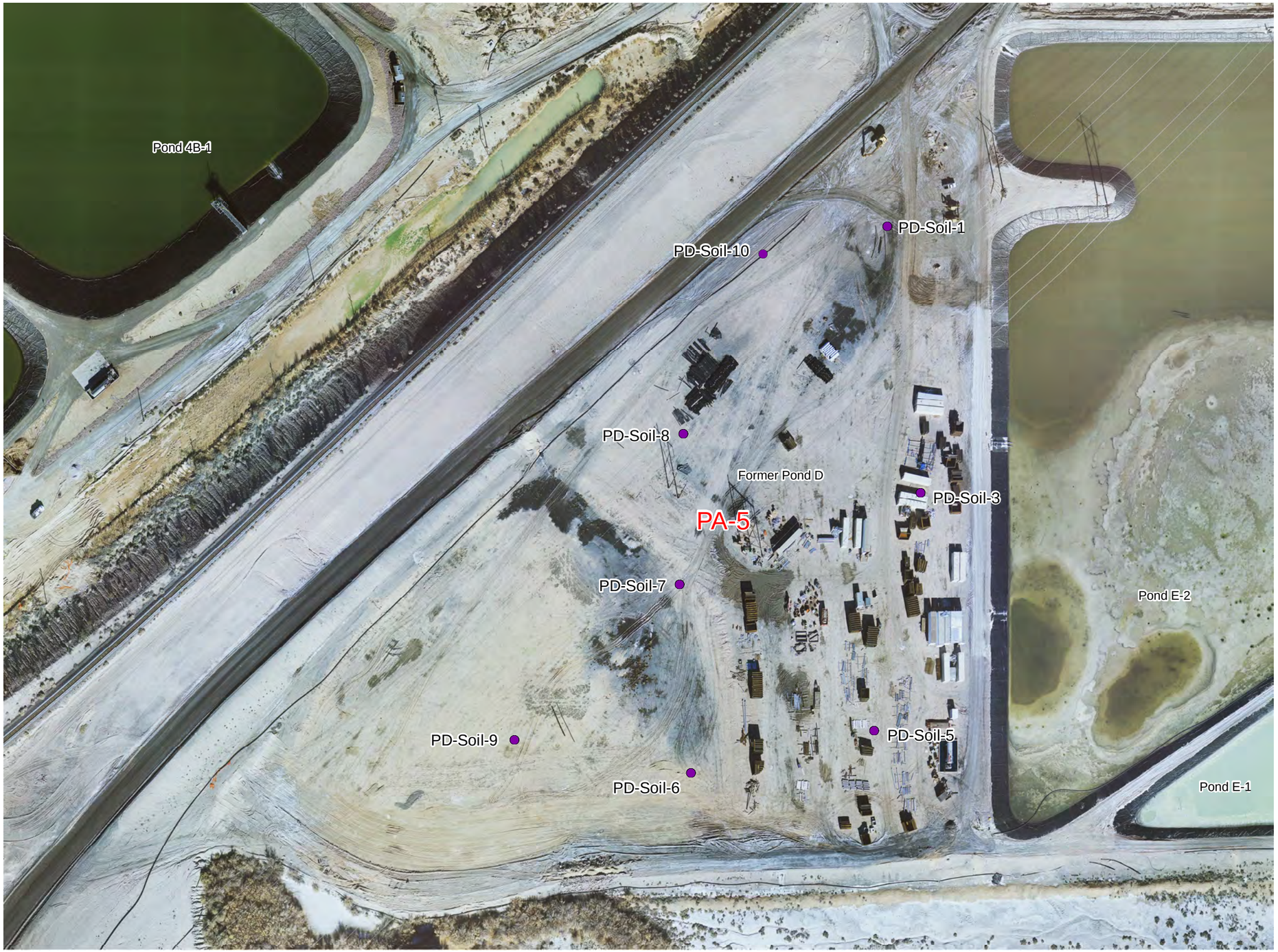


Legend

● Soil Boring Location

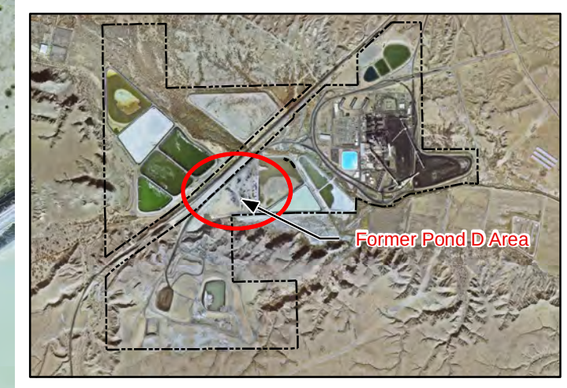
Source Area No. and Name

PA-5, Former Pond D (West Pond)

N

150 75 0 150 300 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Data for this figure is shown in Table E-14



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PA-5 - POND D SOIL SAMPLING LOCATIONS
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-6

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1in.
At full size
1 inch = 150 feet

NVEnergy

20618.08

REV. 2

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Legend

Pond G Soil Sample Location

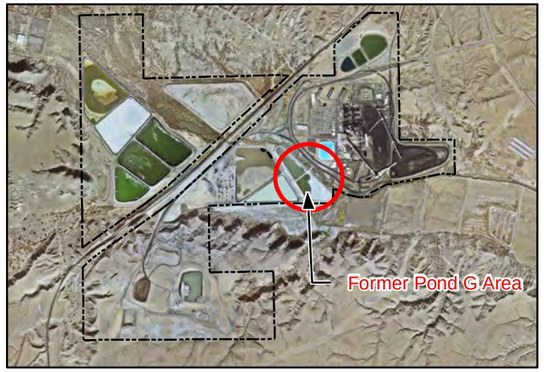
Muddy River

Source Area No. and Name

PA-7, Former Pond G (Units 1,2,3 Laydown Ponds)

100 50 0 100 200 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Data for this Figure is shown in Table E-18.



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PA-7 - FORMER POND G SOIL SAMPLING LOCATIONS
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-7

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BO	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1in.
At full size
1 inch = 100 feet

NVEnergy

20618.08

REV. 2

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Legend

- Abandoned/Removed Underground Diesel Piping

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name

SA-9, Units 1 and 2 Emergency Diesel Generator
SA-10, Former Unit 1,2,3 Lube Oil Rack
SA-11, Fmr Gasoline UST(1000-gal)/ Warehouse 1
SA-12, Former 850,000-gallon Diesel AST
SA-13, Former Diesel Fuel Unloading Area
SA-14, Diesel AST
SA-14, Former Diesel UST
SA-14, Former Diesel UST and Unloading Area
SA-14, Former Underground Product Piping to USTs
SA-15, Free Product Recovery System
SA-16, Vehicle Maintenance Area

- Soil Boring Location
- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Gasoline UST, Removed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

N

100 50 0 100 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Location of diesel piping based on NVE personnel interviews.
3. Data for this Figure is shown on Tables E-19 through E-34.
4. HM-60 location is approximate
5. Soil boring locations are approximate

July 2013

POTENTIAL PETROLEUM SOURCE AREAS
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-8

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REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

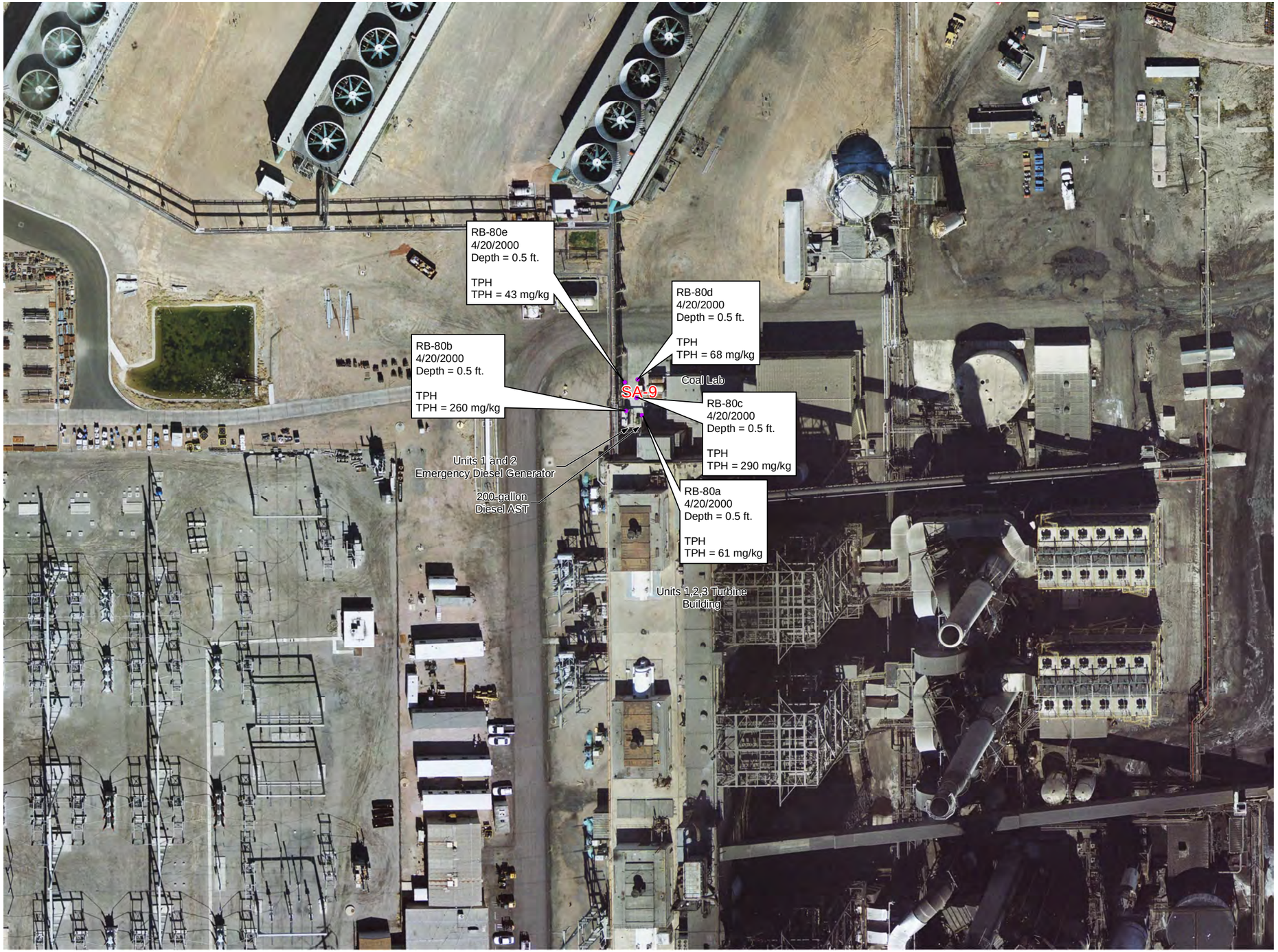
0 1 in.
At full size
1 inch = 100 feet

NVEnergy

20618.08

REV. 2

llcy-fs1\Projects F\20618 03 NVE RGS AOC Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\petroleum sources\Fig\A8 PSIR SA 9-16.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location

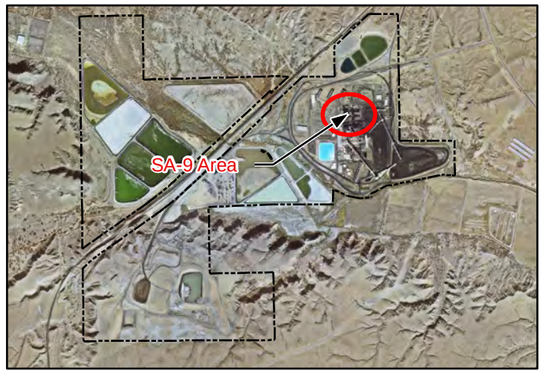
Source Area No. and Name

SA-9, Units 1 and 2 Emergency Diesel Generator

N

80 40 0 80 160 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Location of diesel piping based on NVE personnel interviews.



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SA-9 - SOIL DATA
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-9

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

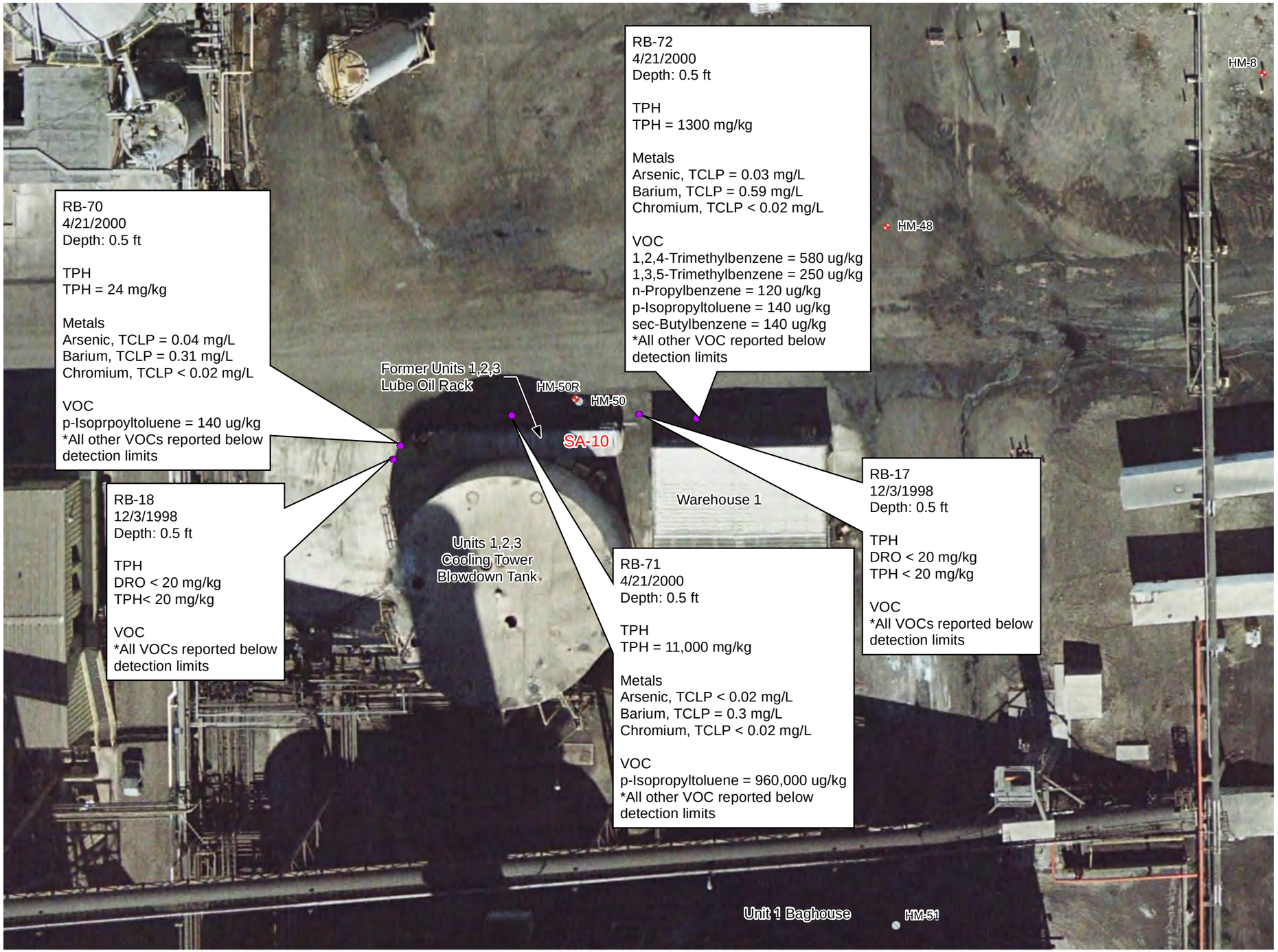
0 1 in.
At full size
1 inch = 80 feet

NVEnergy

20618.08

REV.
2

\\cy-fs1\Projects F\20618 03 NVE RGS AOC Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\petroleum sources\Fig\A9 SA 9 Soil Fig.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

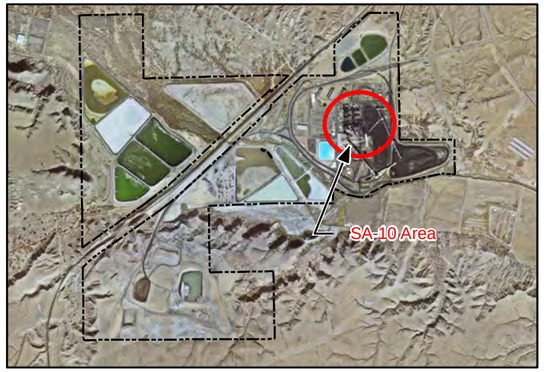
Former Remediation Trench
- Abandoned / Destroyed

Source Area No.and Name

SA-10, Former Unit 1,2,3 Lube Oil Rack

25 12.5 0 25 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Data for the Figure is shown in Table E-19.



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SA-10 - FORMER LUBE OIL RACK
SOIL DATA (0.5 ft)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-10

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 25 feet

NVEnergy

20618.08

REV. 2

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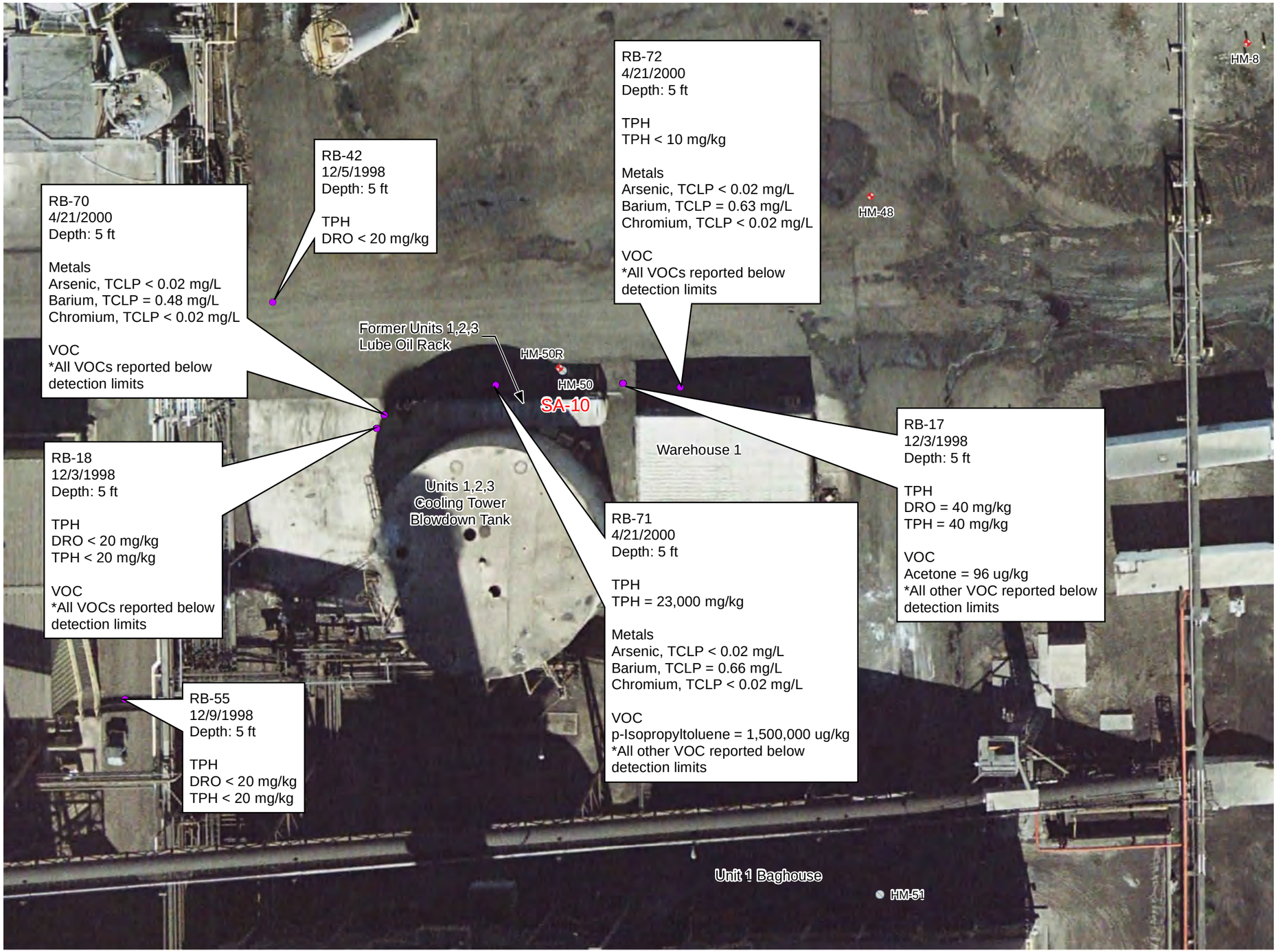

Legend

- Soil Boring Location

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name
SA-10, Former Unit 1,2,3 Lube Oil Rack

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

N

25 12.5 0 25 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Data for this Figure is shown in Table E-19.

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July 2013

SA-10 - FORMER LUBE OIL RACK SOIL DATA (5 ft)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-11

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

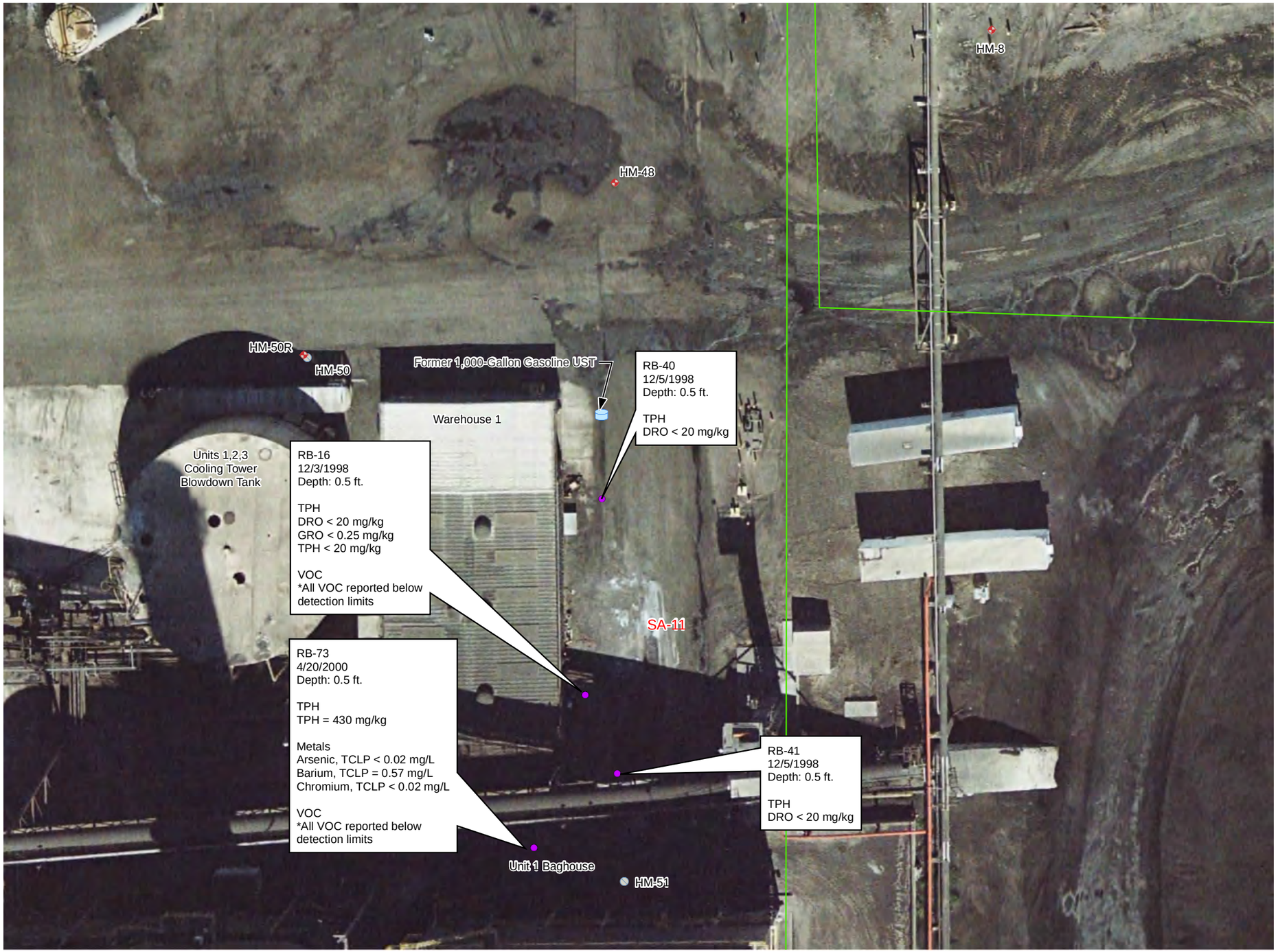
0 1 in.
At full size
1 inch = 25 feet

NVEnergy

20618.08

REV. 2

Illey-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp09\Active\14-GIS\GIS\Mxd\PSCM\Prelim_Source_ID_Report\petroleum_sources\FigA11_PSIR_SA-10_Soil_Fig_5ft.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location
- Gasoline UST, Removed
- Abandoned/Removed Underground Diesel Piping

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name

SA-11, Fmr Gasoline UST(1000-gal)/ Warehouse 1

25 12.5 0 25 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Location of 1,000-gallon UST and diesel piping based on NVE personnel interviews.
3. Data for the Figure is shown in Table E-25.

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July 2013

SA-11 - SOIL DATA (0.5 ft)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-12

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 25 feet

NVEnergy

20618.08

REV. 2

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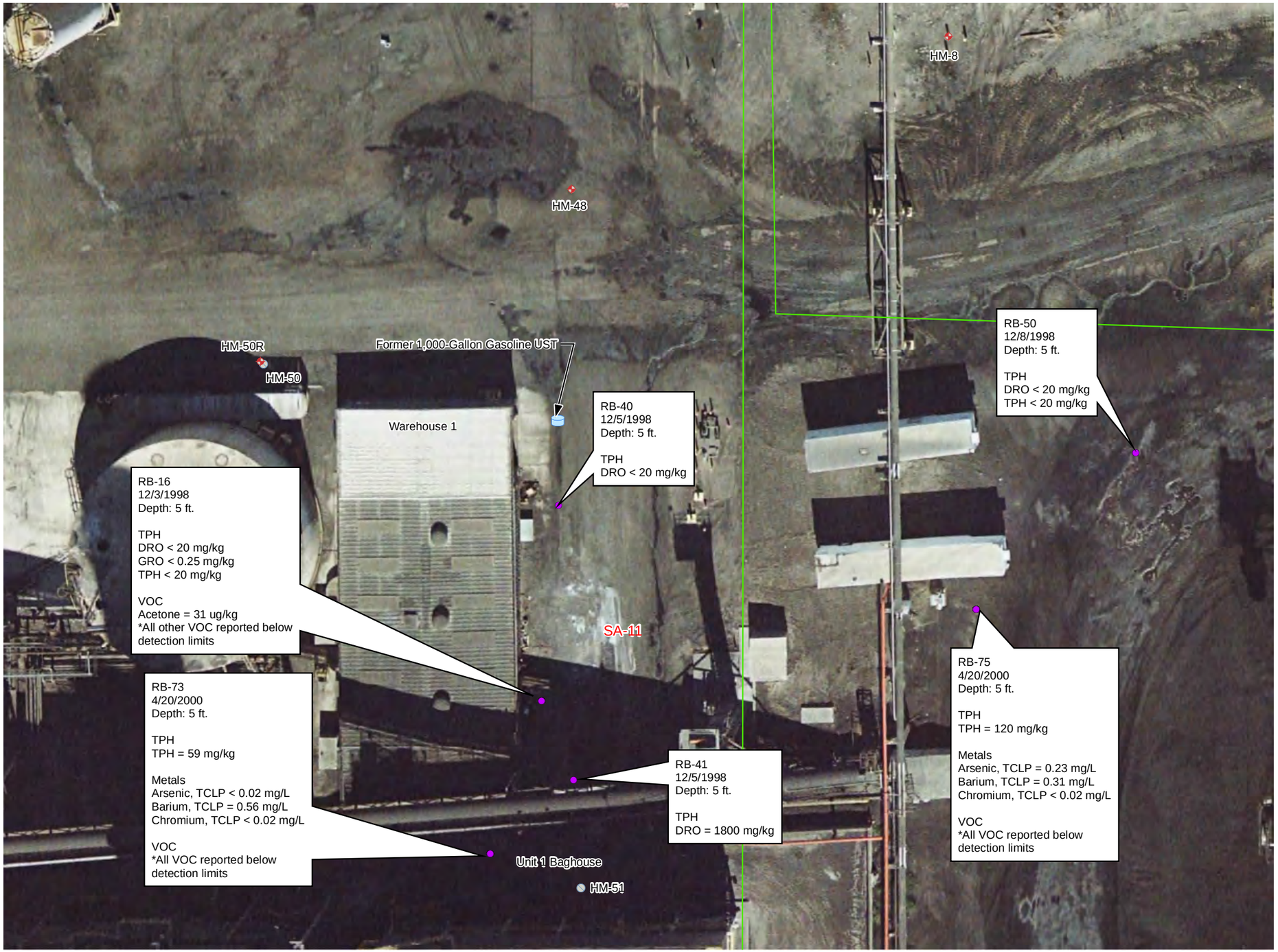


Legend

- Soil Boring Location
- Gasoline UST, Removed
- Abandoned/Removed Underground Diesel Piping

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name

SA-11, Fmr Gasoline UST(1000-gal)/ Warehouse 1

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

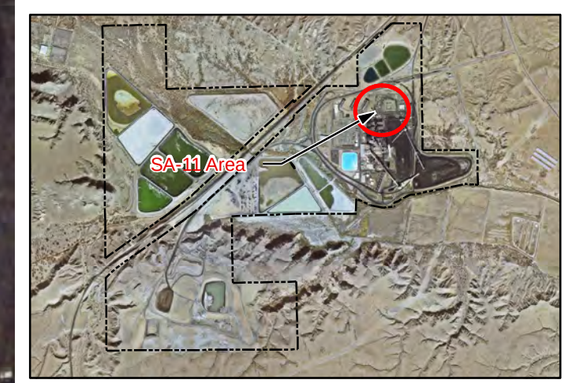
GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

N

25 12.5 0 25 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Location of 1,000-gallon UST and diesel piping based on NVE personnel interviews.
3. Data for this Figure is shown on Table E-25.



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July 2013

SA-11 - SOIL DATA (5 ft.)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-13

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

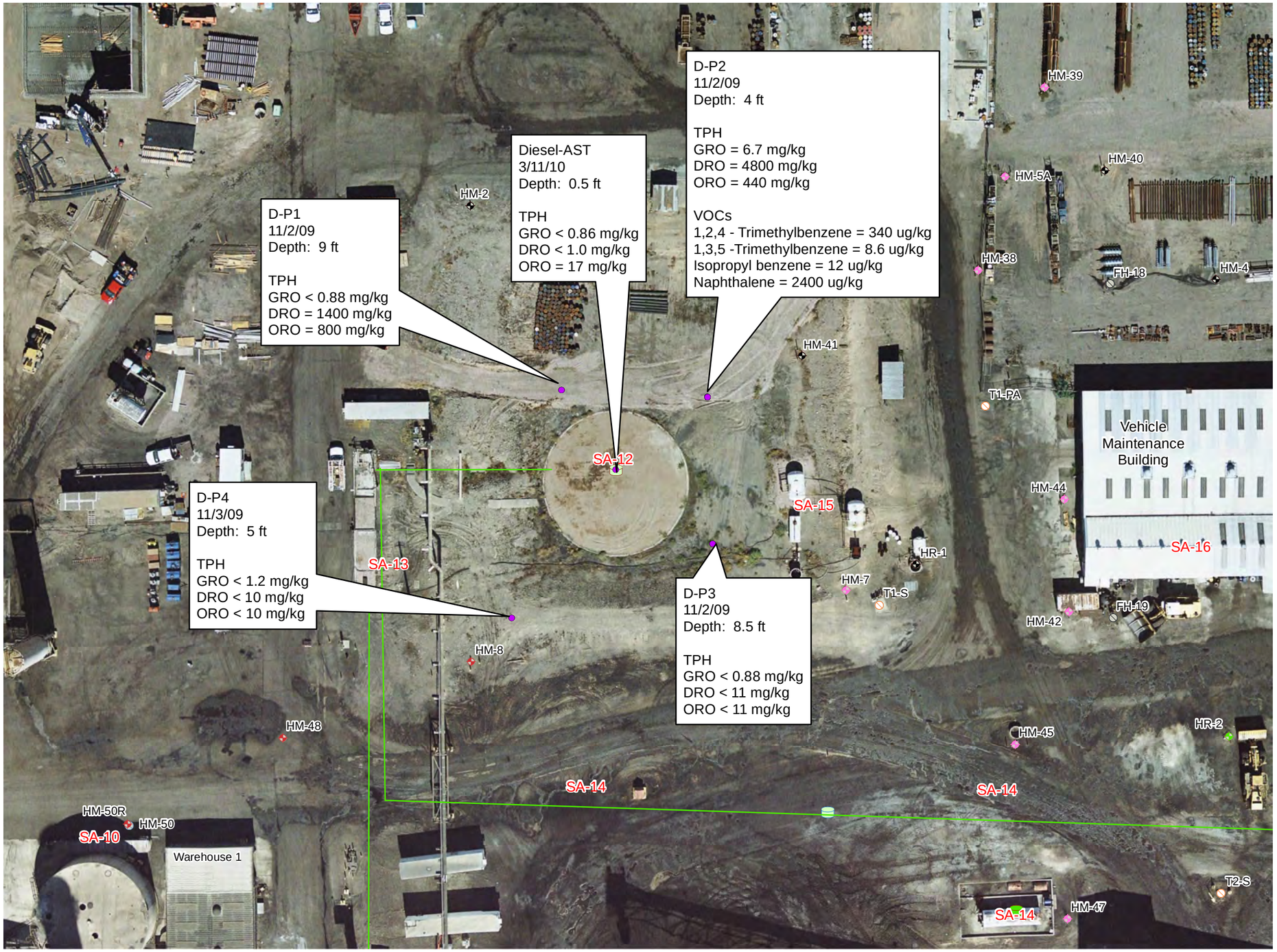
0 1 in.
At full size
1 inch = 25 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim_Source_ID_Report\petroleum_sources\FigA13_PSIR_SA-11_Soil_Fig_5ft.mxd © STANLEY CONSULTANTS



Legend

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name
- SA-10, Former Unit 1,2,3 Lube Oil Rack
- SA-11, Fmr Gasoline UST(1000-gal)/ Warehouse 1
- SA-12, Former 850,000-gallon Diesel AST
- SA-13, Former Diesel Fuel Unloading Area
- SA-14, Diesel AST
- SA-14, Former Diesel UST
- SA-14, Former Diesel UST and Unloading
- SA-14, Former Underground Product Piping to USTs
- SA-15, Free Product Recovery System
- SA-16, Vehicle Maintenance Area

- Soil Boring Location
- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Abandoned/Removed Underground Diesel Piping

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

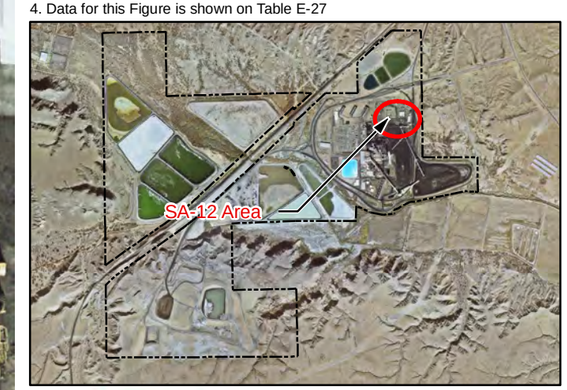
GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

N

50 25 0 50 100 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. 850,000-gallon AST has been removed.
3. Location of diesel piping based on NVE personnel interviews.
4. Data for this Figure is shown on Table E-27



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SA-12 - SOIL DATA
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-14

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 50 feet

NVEnergy

20618.08

REV. 2

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Legend

- Abandoned/Removed Underground Diesel Piping
- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Gasoline UST, Removed
- Approximate extent of historic SA-13 releases

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name
- SA-13, Former Diesel Fuel Unloading Area
- SA-14, Diesel AST
- SA-14, Former Diesel UST
- SA-14, Former Diesel UST and Unloading
- SA-14, Former Underground Product Piping to USTs

- Soil Boring Location

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

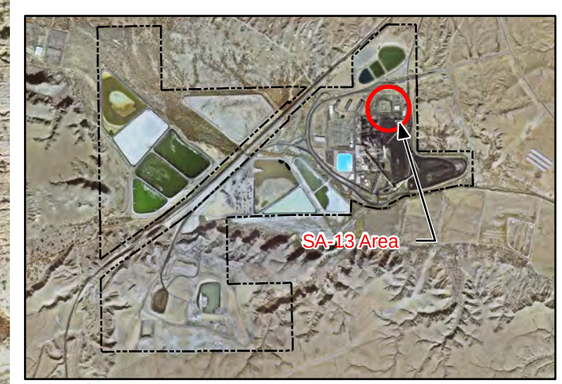
Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

N

125 62.5 0 125 250 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Diesel piping location based on NVE personnel interviews.
3. Excavation Area based on August 18, 1999 memo to NDEP regarding release from Diesel Fuel Lines.
4. Data for this Figure is shown on Table E-28



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REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 125 feet

NVEnergy

20618.08

REV. 2

SA-13 - SOIL DATA (0.5 ft)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-15

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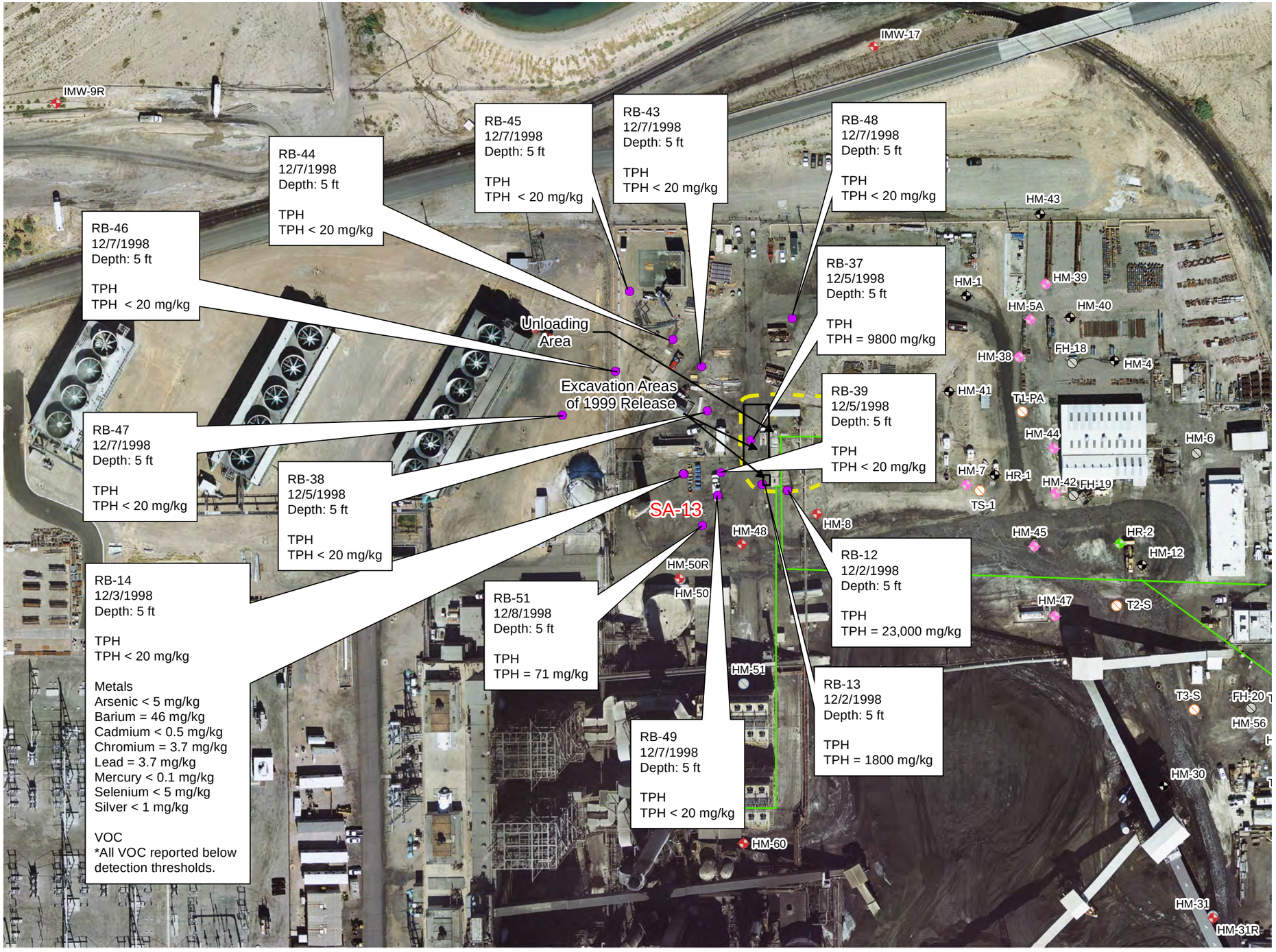


Legend

- Soil Boring Location
- Abandoned/Removed Underground Diesel Piping
- Approximate extent of historic SA-13 releases

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name
SA-13, Former Diesel Fuel Unloading Area

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

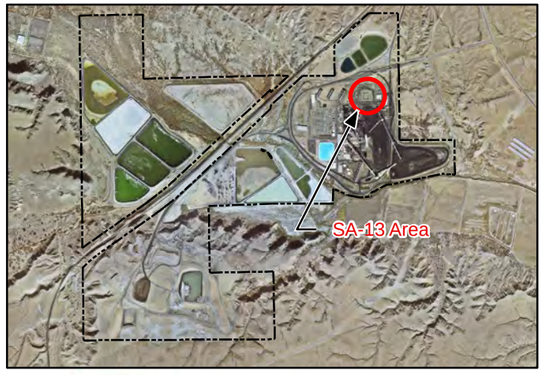
Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

125 62.5 0 125 250 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Excavation Area based on August 18, 1999 memo to NDEP regarding release from Diesel Fuel Lines
3. Data for this Figure is shown in Table E-28.



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July 2013

SA-13 - DIESEL FUEL UNLOADING AREA
SOIL DATA (5 ft)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-16

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

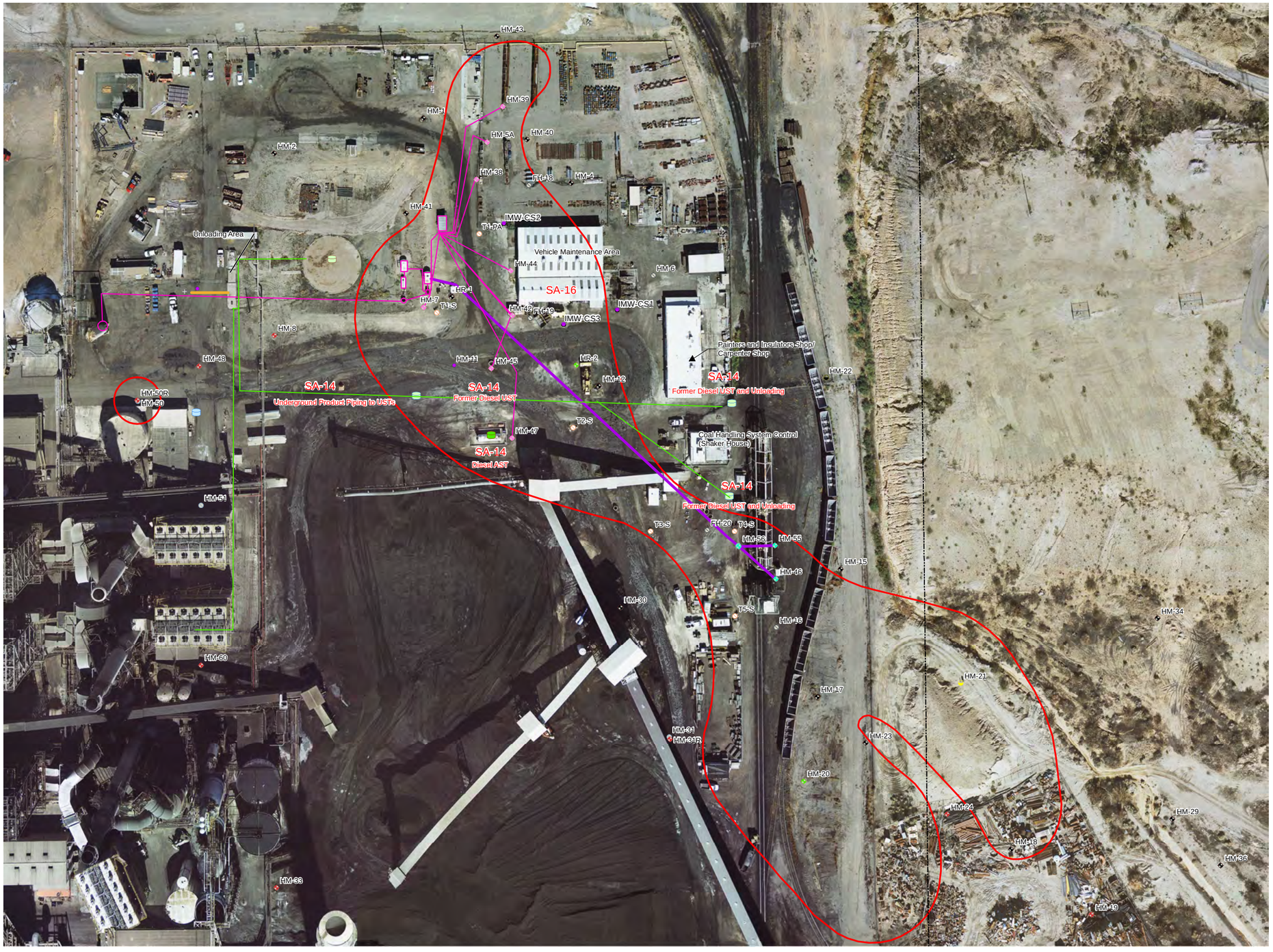
0 1 in.
At full size
1 inch = 125 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects F\20618 03 NVE RGS AOC Imp09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\petroleum sources\Fig\A16 PSIR SA-13 Soil Fig 5 ft.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location
- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Gasoline UST, Removed
- Property Boundary
- Abandoned/Removed Underground Diesel Piping
- Maximum Historical Extent of Measureable Diesel Free Product
- Vapor Extraction Remediation System
- Dewatering System
- Concrete Trench

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name
- SA-14, Diesel AST
- SA-14, Former Diesel UST
- SA-14, Former Diesel UST and Unloading
- SA-14, Former Underground Product Piping to USTs
- SA-16, Vehicle Maintenance Area

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

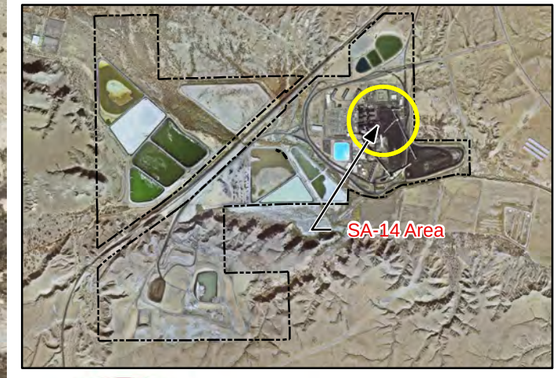
Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

N

125 62.5 0 125 250 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Diesel Piping, Dewatering System and Vapor Extraction System locations based on NVE personnel interviews.
3. Data for this Figure is shown in Table E-30.



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SA-14-FORMER PRODUCT LINES AND USTS
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-17

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/CC	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR/CC	AE	RLS
0		Draft for NDEP	7/5/11	MET	AE	RLS

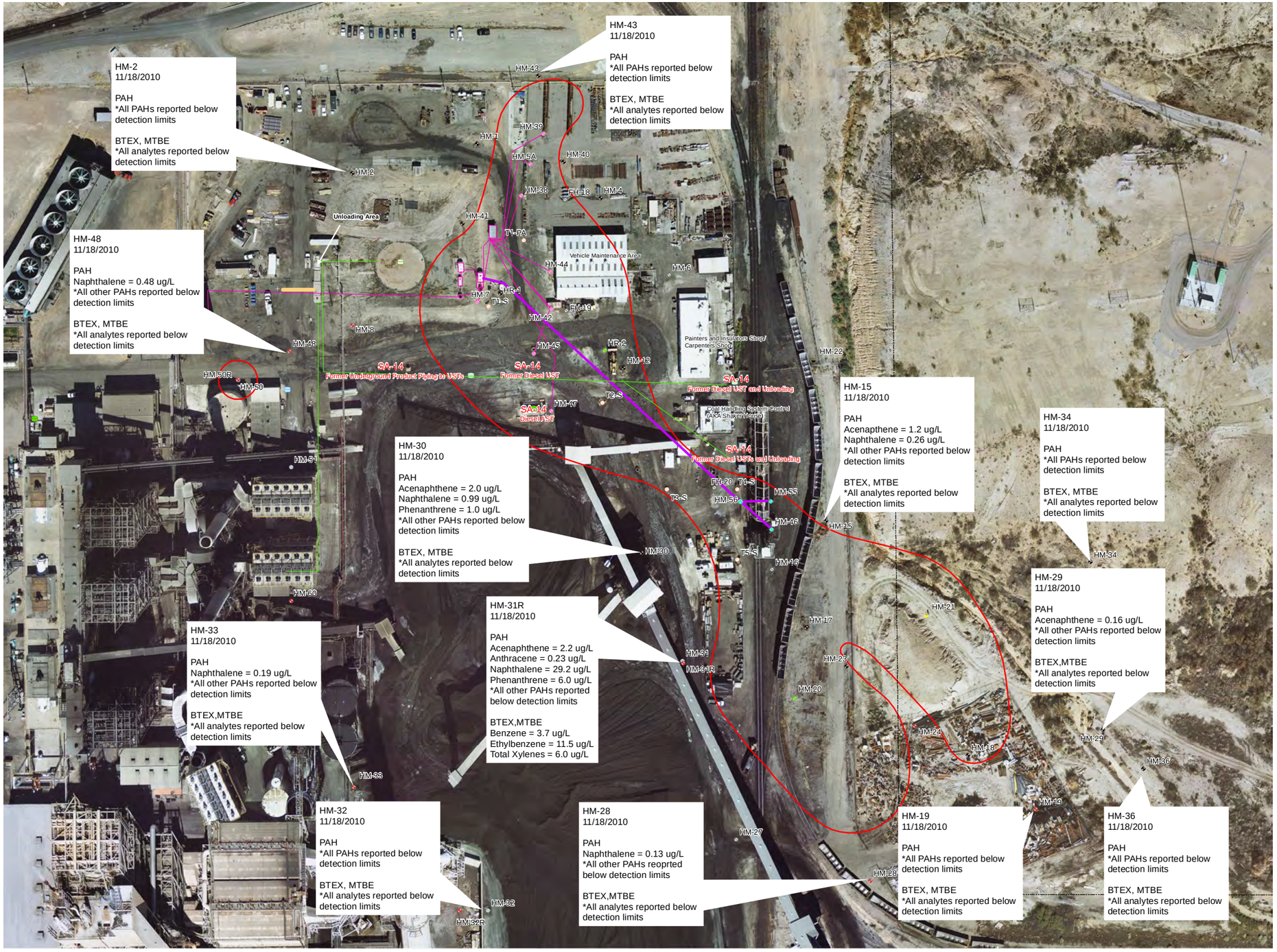
0 1 in.
At full size
1 inch = 125 feet

NVEnergy

20618.08

REV. 2

\\cv-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim_Source_ID_Report\petroleum_sources\FigA17_PSIR_SA_14.mxd © STANLEY CONSULTANTS



Legend

- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Gasoline UST, Removed
- Abandoned/Removed Underground Diesel Piping
- Maximum Historical Extent of Measureable Diesel Free Product
- Dewatering System
- Vapor Extraction Remediation System
- Concrete Trench

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name
- SA-14, Diesel AST
- SA-14, Former Diesel UST
- SA-14, Former Diesel UST and Unloading
- SA-14, Former Underground Product Piping to USTs

- Property Boundary

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

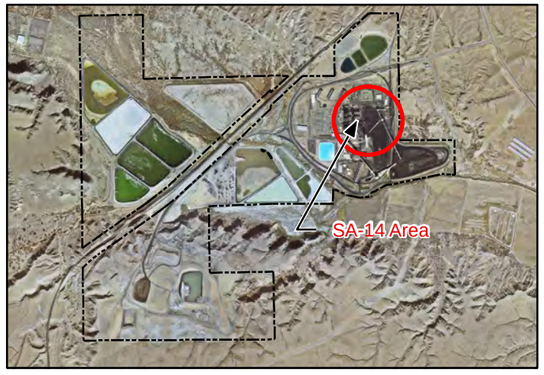
Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

N

150 75 0 150 300 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Location of the Diesel Piping and Vapor Extraction System are based on NVE personnel interviews.
3. Data for this Figure is shown on Table E-31



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July 2013

SA-14 - GROUNDWATER DATA
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-18

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 150 feet

NVEnergy

20618.08

REV. 2

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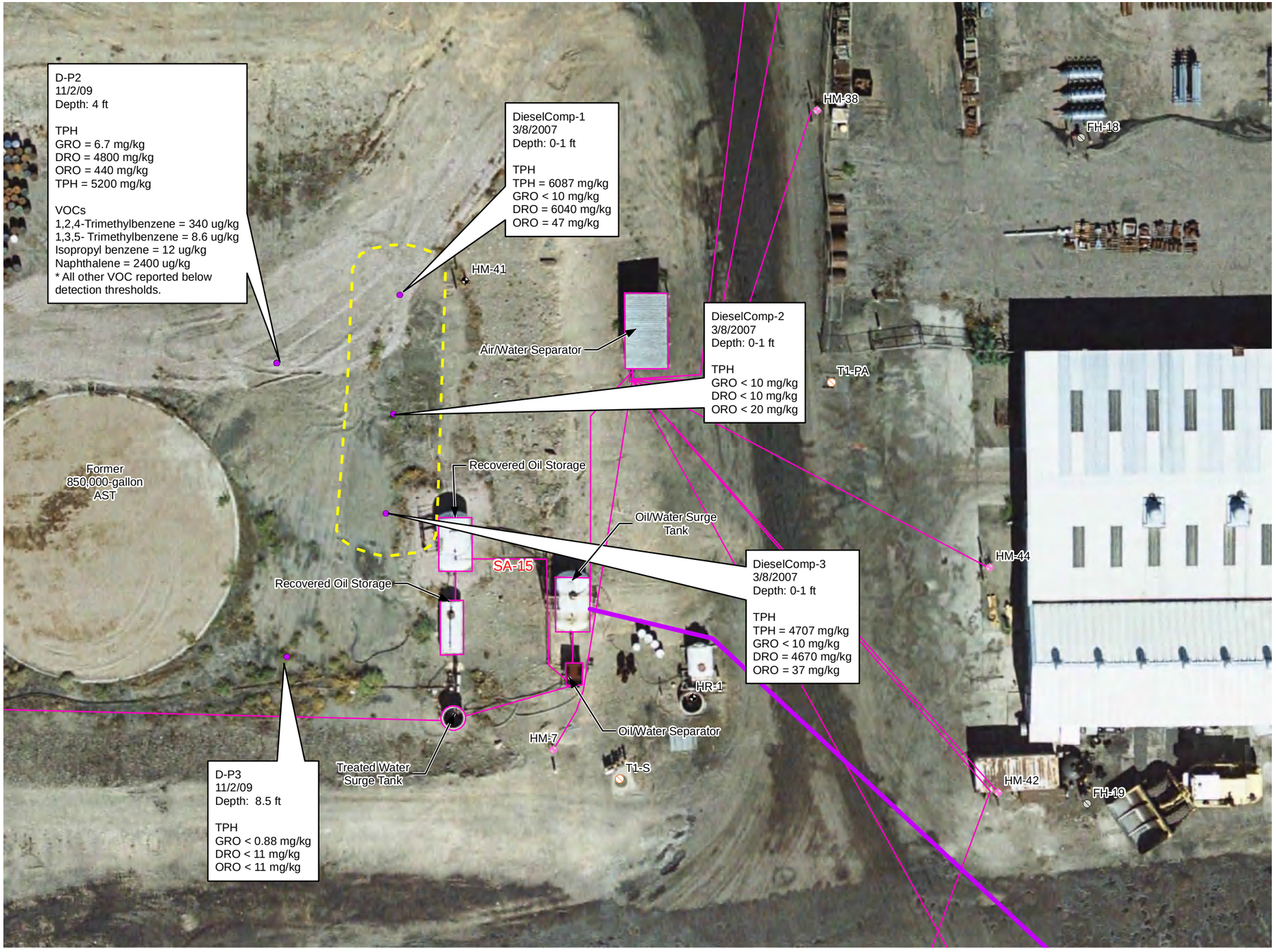


Legend

- Soil Boring Location
- Dewatering System
- Vapor Extraction Remediation System
- Estimated Extent of Observed Surface Releases

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name
SA-15, Free Product Recovery System

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

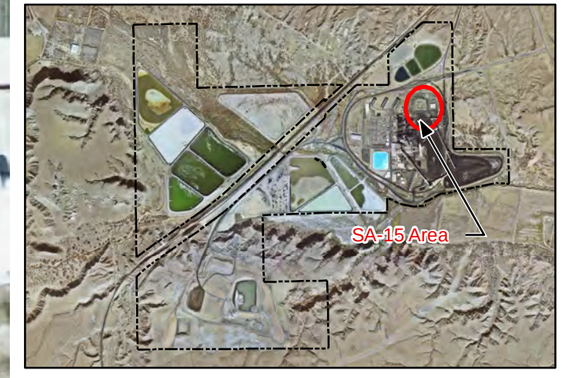
Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

N

25 12.5 0 25 50 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. The location of the Dewatering System and Vapor Extraction Remediation System based on NVE personnel interviews
3. Data for this Figure is shown in Table E-32
4. The exact locations of Diesel Comp-1 through Diesel Comp-3 are unknown



Stanley Consultants INC.

July 2013

SA-15 - SOIL DATA
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-19

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	7/5/11	MET	AE	RLS

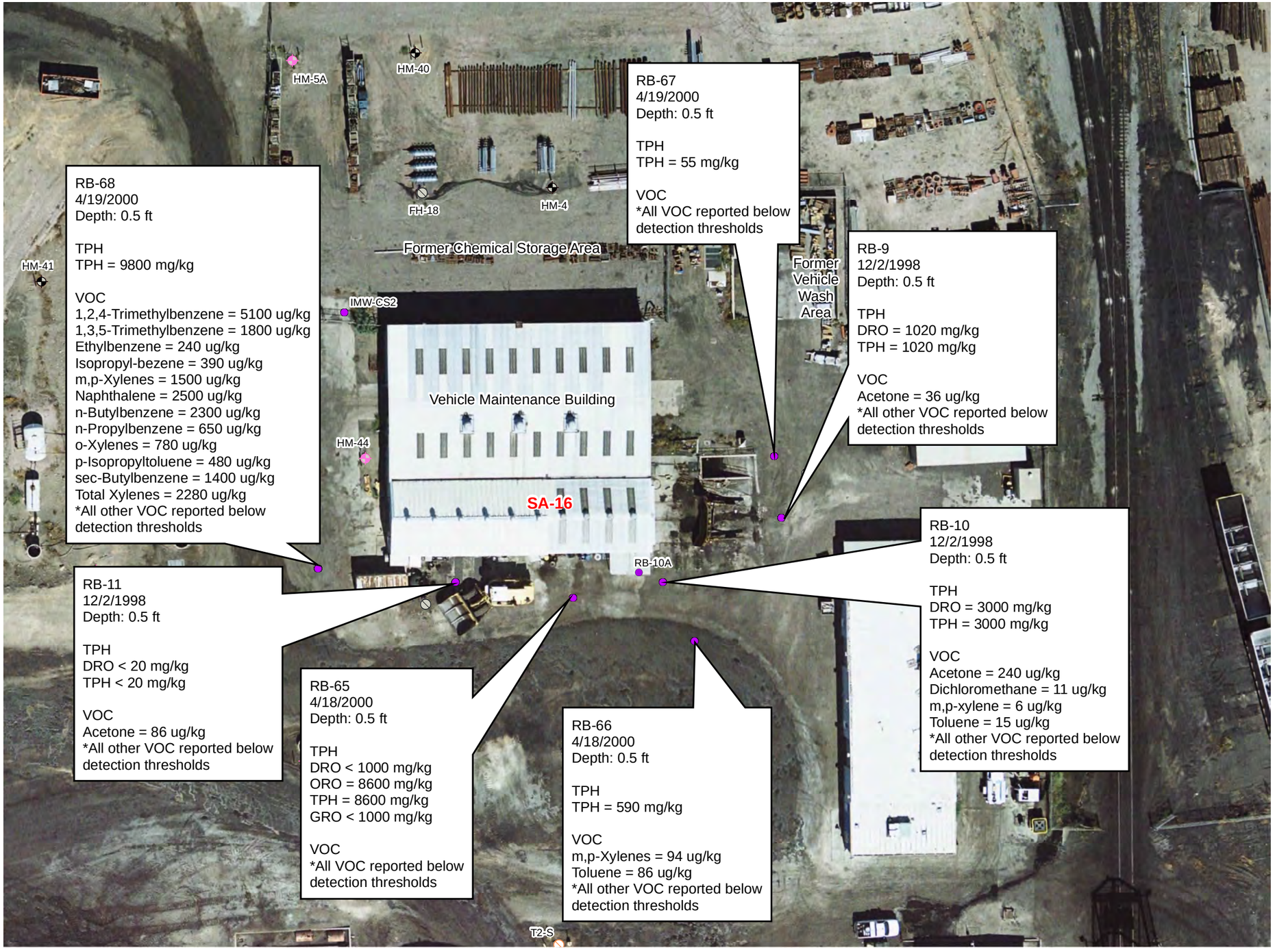
0 1 in.
At full size
1 inch = 25 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects F\20618 03 NVE RGS AOC Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\petroleum sources\FigA19 PSIR SA-15.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name
SA-16, Vehicle Maintenance Area

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

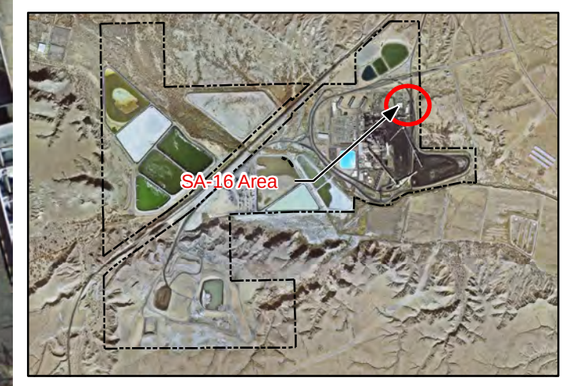
Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Former Remediation Trench
- Abandoned / Destroyed

N

40 20 0 40 80 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Data for this Figure is shown on Table E-33.



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July 2013

SA-16 - SOIL DATA (0.5 FT)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-20

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

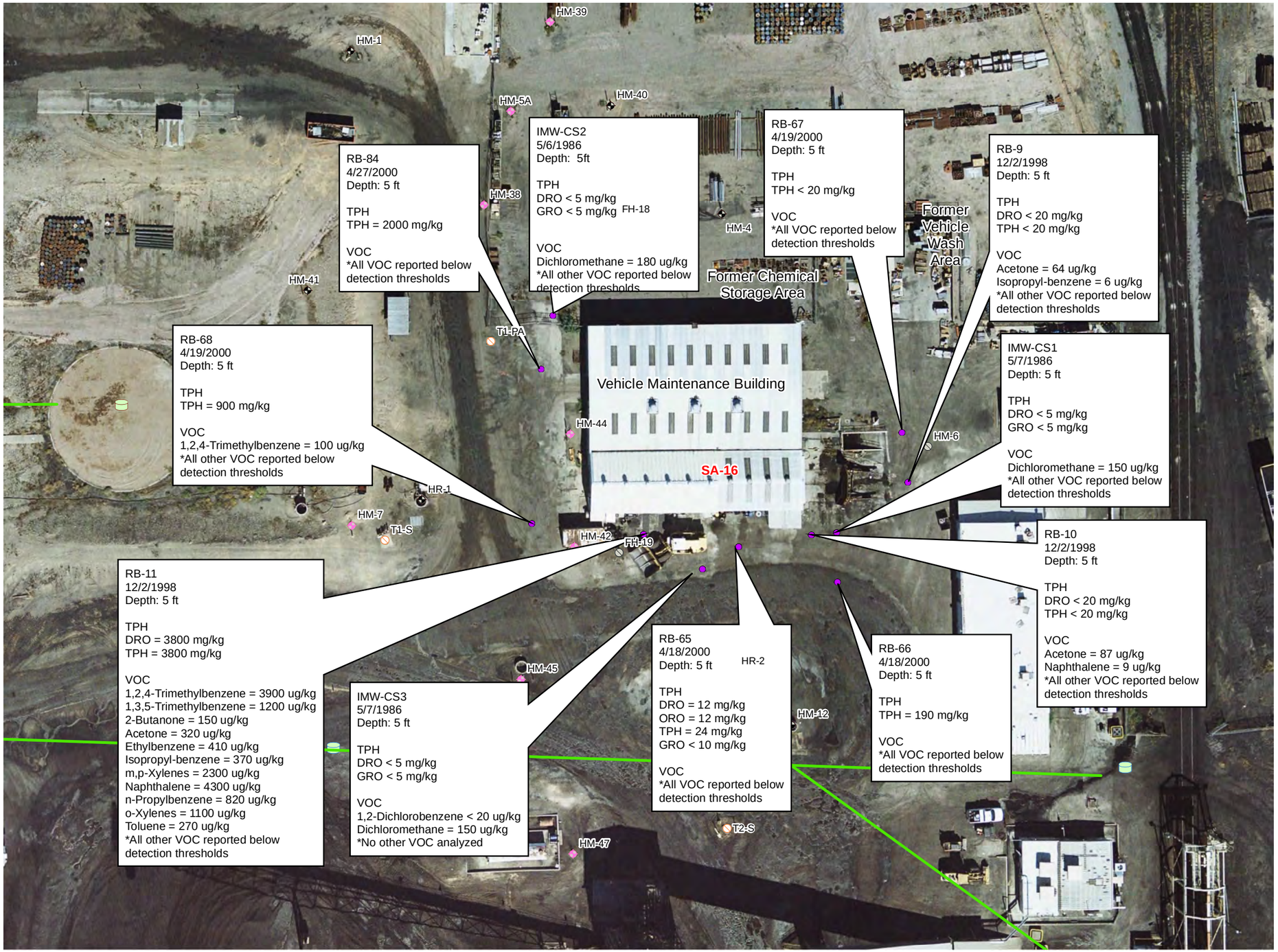
0 1 in.
At full size
1 inch = 40 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects F\20618 03 NVE RGS AOC Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim Source ID Report\petroleum sources\Fig\A20 PSIR SA-16 Soil Fig 0 5ft.mxd © STANLEY CONSULTANTS



Legend

- Soil Boring Location
- Diesel Piping
- Diesel AST, Active
- Diesel AST, Removed
- Diesel UST, Removed
- Gasoline UST, Removed

GMR Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Free Product Gauging
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Background Wells
- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

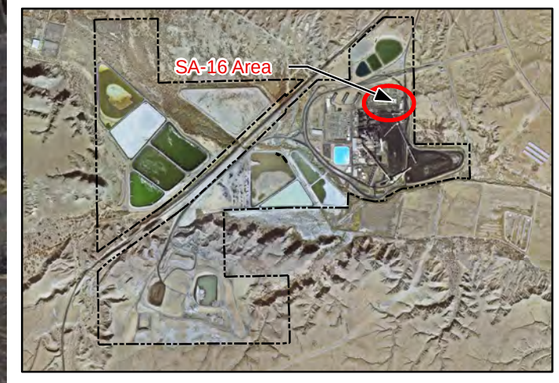
Former Remediation Trench
- Abandoned / Destroyed

Source Area No. and Name
SA-16, Vehicle Maintenance Area

N

50 25 0 50 100 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Diesel Piping location based on NVE personnel interviews.
3. Data for this figure is shown on Table E-33.



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SA-16 - SOIL DATA (5 FT)
POTENTIAL SOURCE AREA IDENTIFICATION AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-21

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	JMO	RLS

0 1 in.
At full size
1 inch = 50 feet

NVEnergy

20618.08

REV. 2

llicy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp\09\Active\14-GIS\GIS\Mxd\PSCM\Prelim_Source_ID_Report\petroleum_sources\Fig A21_PSIR_SA-16_Soil_Fig_5ft.mxd © STANLEY CONSULTANTS

Legend

- Unit4 Dewatering Well
- Soil Boring
- Pond Sample Location
- Waste Management Unit
- Muddy River
- Property Boundary

GMR Monitoring Locations

- Sampled or Gauged
- Damaged
- Dry
- Abandoned / Destroyed

Source Area No. and Name

SA-1, Unit 4 Treated Water Pond
SA-2, Unit 4 Cooling Tower
SA-3, Unit 4 Cooling Tower Catch Basin
SA-4, Units 1,2,3 Coal Pile
SA-4, Unit 4 Coal Pile/Fly Ash Under Unit 4 Coal Pile (WMU-12)
SA-5, Area of Previous Fly Ash Fill (WMU-14)
SA-6, Area of Previous Fly Ash Fill (WMU-13)
SA-7, Unit 4 Settling Pond (Foster Wheeler Pond)
SA-8, Units 1,2,3 Catch Basin
SA-17, Reported Previous Waste Disposal Area (WMU-8)
SA-19, Unit 4 Absorbers
SA-19, Units 1,2,3 Scrubbers

300 150 0 300 600 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Area, waste management units (WMUs) based on 2002 Revised Hydrogeological Characterization Report, Plate 2
3. Data for this figure located in Tables E-35 through E-45.

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POTENTIAL STATION SOURCE AREAS
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-22

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AAE	RLS
0		Draft for NDEP	2/28/11	MET	AAE	RLS

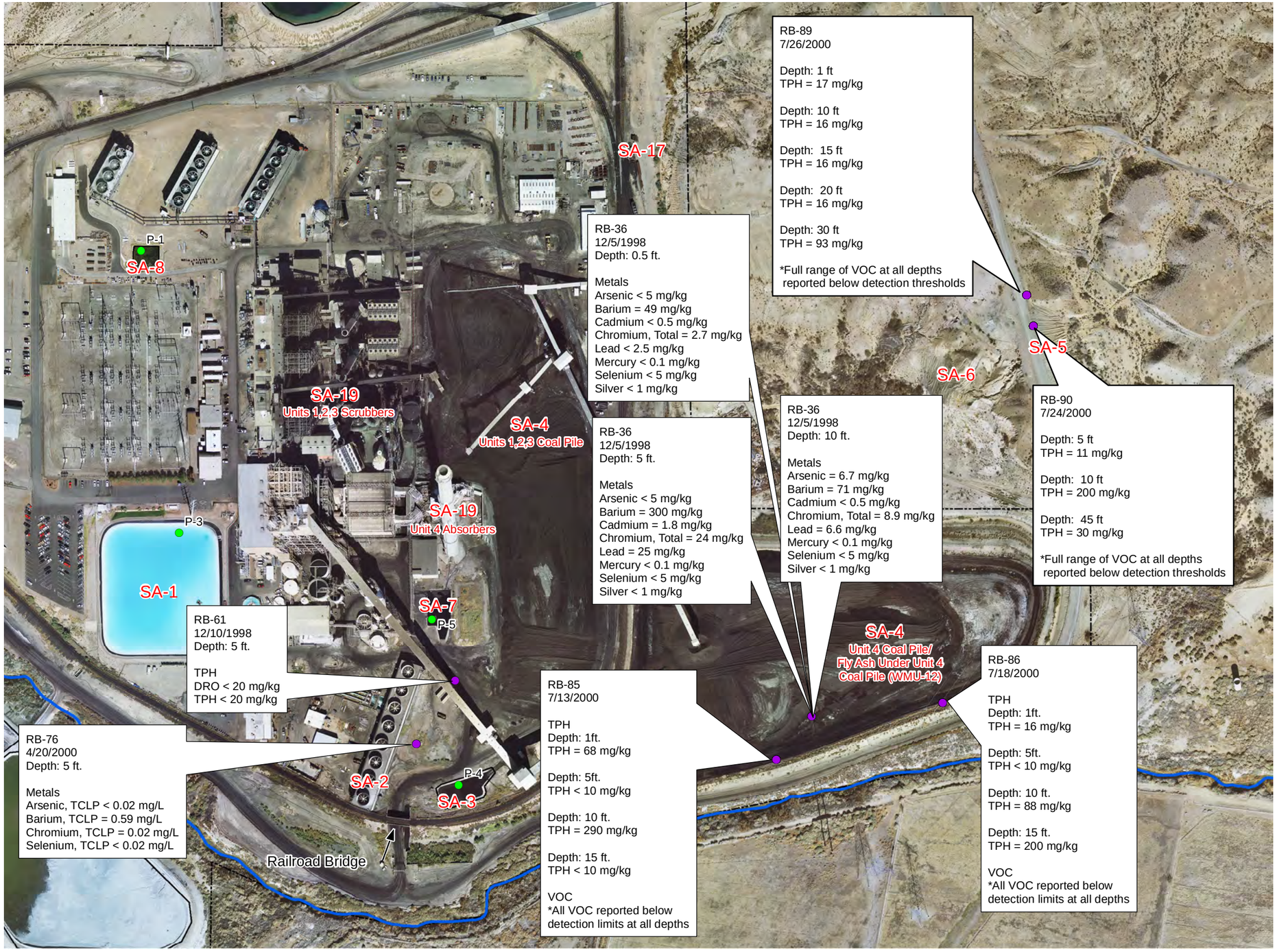
0 1 in.
At full size
1 inch = 300 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp09\Active\14-GIS\GIS\Mxd\PSC\Prelim Source ID Report\station sources\FigA22_Station Src Loc.mxd © STANLEY CONSULTANTS



Legend

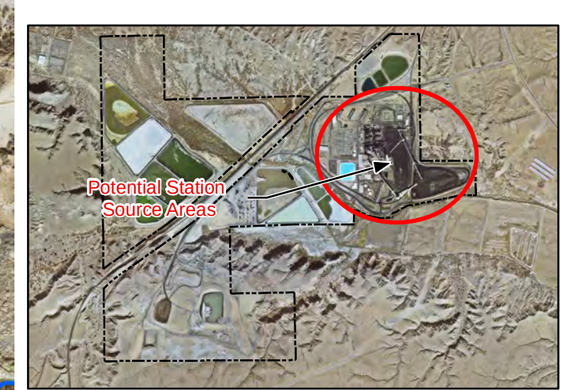
- Soil Boring
- Pond Sample Location
- Waste Management Unit
- Muddy River
- Property Boundary

Source Area No. and Name

- SA-1, Unit 4 Treated Water Pond
- SA-2, Unit 4 Cooling Tower
- SA-3, Unit 4 Cooling Tower Catch Basin
- SA-4, Unit 4 Coal Pile/Fly Ash Under Unit 4 Coal Pile (WMU-12)
- SA-4, Units 1,2,3 Coal Pile
- SA-5, Area of Previous Fly Ash Fill (WMU-14)
- SA-6, Area of Previous Fly Ash Fill (WMU-13)
- SA-7, Unit 4 Settling Pond (Foster Wheeler Pond)
- SA-8, Units 1,2,3 Catch Basin
- SA-17, Reported Previous Waste Disposal Area (WMU-8)
- SA-19, Units 1,2,3 Scrubbers
- SA-19, Unit 4 Absorbers

300 150 0 300 600 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Area, waste management units (WMUs) based on 2002 Revised Hydrogeological Characterization Report, Plate 2
3. Data for this figure located in Tables E-39 and E-41.



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July 2013

POTENTIAL STATION SOURCE AREAS
SOIL DATA
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-23

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AAE	RLS
0		Draft for NDEP	2/28/11	MET	AAE	RLS

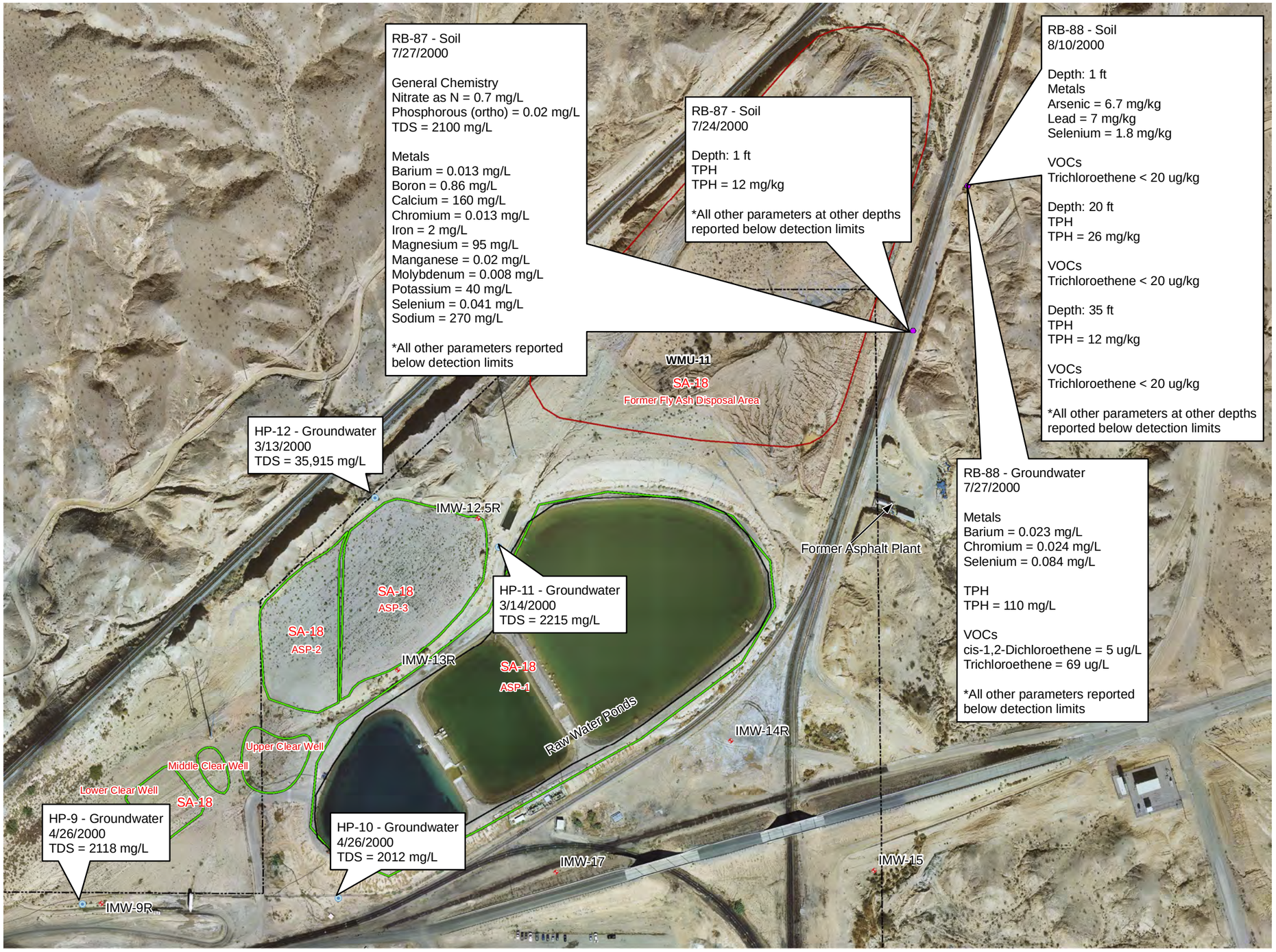
0 1 in.
At full size
1 inch = 300 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp09\Active\14-GIS\GIS\Wxd\PSCM\Prelim_Source_ID_Report\station_sources\FigA23_Station_Src_Soil.mxd © STANLEY CONSULTANTS



Legend

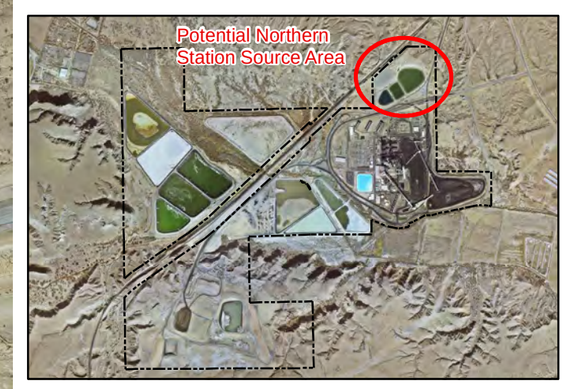
- Soil Boring
- Waste Management Unit
- Pond Outline
- Historical Ponds
- March 2000 Hydro-punch TDS Concentration (mg/L)
- Monitoring Well

Source Area No. and Name

- SA-18, ASP-1
- SA-18, ASP-2
- SA-18, ASP-3
- SA-18, Former Clear Wells
- SA-18, Former Fly Ash Disposal Area (WMU-11)

225 112.5 0 225 450 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Area, waste management units (WMUs) based on 2002 Revised Hydrogeological Characterization Report, Plate 2
3. WMU-11 boundary modified per August 2000 Phase II (AOC-090)
4. Hydpunch locations based on Additional Site Characterization Former ASP 1,2,3 Area (AOC-106), Figure 1 and are approximate
5. Data for this figure located in Tables E-46 through E-48



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SA-18 - SOIL AND GROUNDWATER DATA
POTENTIAL SOURCE AREA IDENTIFICATION
AND CHARACTERIZATION REPORT
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure A-24

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
2		Final submittal to NDEP	7/25/13	DNR/MT	AE/BC	RLS
1		Draft for NDEP	11/6/12	DNR	AE	RLS
0		Draft for NDEP	2/28/11	MET	AE	RLS

0 1 in.
At full size
1 inch = 225 feet

NVEnergy

20618.08

REV. 2

\\cy-fs1\Projects_F\20618_03_NVE_RGS_AOC_Imp09\Active\14-GIS\GIS\Wxd\PSCM\Prelim_Source_ID_Report\other_sources\Fig\24 Source Area_18 soil.mxd © STANLEY CONSULTANTS

Appendix B

4th Quarter 2011 Groundwater Monitoring Figures and Sampling Record

2011 REID GARDNER
GMR
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

MONITORING WELLS

WELL NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
Mesa Wells							
LMW-2	QTRLY	X	X	X	X		Sampled 12/5/11, silty
LMW-3	QTRLY	X	X	X	X		Sampled 12/6/11, moderately silty
LMW-4	QTRLY	X	X				ABANDONED July 20011
LMW-4R	QTRLY		X	X	X		Sampled 12/7/11, moderately silty
LMW-5	QTRLY	X	X				ABANDONED July 2011
LMW-5R	QTRLY		X	X	X		Sampled 12/9/11
LMW-6	QTRLY	X	X				ABANDONED July 2011
LMW-6R	QTRLY		X	X	X		Sampled 12/5/11, black discoloration initially then clears
LMW-7	QTRLY	X	X	x	x		Sampled 12/5/11, slightly silty
LMW-8	QTRLY	X	X				ABANDONED July 20011
LMW-8R	QTRLY		X	X	X		Sampled 9/9/11, dark grey appearance, clears after 5 gallons
LMW-9	QTRLY	X	X	X	X		Sampled 12/5/11
LMW-10	QTRLY	X	X	X	X		Sampled 12/6/11, slightly silty
LMW-11	QTRLY	X		X	X		Sampled 12/6/11, silty, dry @ 13 gals.
KMW-12	QTRLY	X	X	X	X		Sampled 12/7/11, slightly silty
KMW-13	QTRLY						ABANDONED Nov 2005
KMW-16	QTRLY	X	X	X	X		Sampled 12/5/11, slightly silty
KMW-17	QTRLY						ABANDONED Aug 2006
Unit 4 Pond Wells							
IMW-2D	SEMI-A		X		X		Sampled 12/7/11
IMW-2S	QTRLY	X	X				ABANDONED July 2011
IMW-2SR	QTRLY			X	X		Sampled 12/7/11, black color 1st 5 gallons, mod. sulfur odor, pumped dry @ 26 gals.
KMW-1D	SEMI-A		X		X		Sampled 12/7/11
KMW-1M	SEMI-A		X		X		Sampled 12/7/11, dry @ 4 gals.
KMW-1S	QTRLY	X	X	X	X		Sampled 12/7/11, bailed dry @ 1.5 gals.
KMW-19	SEMI-A		X		X		Sampled 12/7/11, silty
KMW-20	QTRLY	X	X	X	X		Sampled 12/7/11, silty
KMW-11	QTRLY	X	X		X		Sampled 12/7/11
KMW-2D	SEMI-A		X		X		Sampled 12/8/11
KMW-2M	SEMI-A		X		X		Sampled 12/8/11
KMW-2S	QTRLY	X	X	X	X		Sampled 12/8/11, silty
MW-10R	QTRLY	X	X				ABANDONED July 2011
MW-10RR	QTRLY				X		Sampled 12/8/11, dry @ 23 gals.
MW-2R	QTRLY	X	X	X	X		Sampled 12/7/11, pumped dry @ 18 gals.
MW-3R	QTRLY	X	X				ABANDONED July 2011
MW-3RR	QTRLY			X	X		Sampled 12/7/11, sl. Yellow hue
MW-5	QTRLY	X	X	X	X		Sampled 12/8/11
MW-6	QTRLY	X	X	X	X		Sampled 12/8/11
MW-7	QTRLY	X	X				ABANDONED July 2011
CMW-1D	QTRLY			X	X		Sampled 12/8/11
CMW-1S	QTRLY			X	X		Sampled 12/8/11, silty
CMW-2D	QTRLY			X	X		Sampled 12/8/11
CMW-2S	QTRLY			X	X		Sampled 12/8/11, silty
CMW-3D	QTRLY			X	X		Sampled 12/8/11
CMW-3S	QTRLY			X	X		Sampled 12/8/11
CMW-4D	QTRLY			X	X		Sampled 12/9/11
CMW-4S	QTRLY			X	X		Sampled 12/9/11, silty
CMW-5D	QTRLY			X	X		Sampled 12/9/11
CMW-5S	QTRLY			X	X		Sampled 12/9/11, silty
CMW-6D	QTRLY			X	X		Sampled 12/9/11
CMW-6S	QTRLY			X	X		Sampled 12/9/11, silty
CMW-7D	QTRLY			X	X		Sampled 12/9/11
CMW-7S	QTRLY			X	X		Sampled 12/9/11, silty
KMW-15	QTRLY	X	X	X	X		Sampled 12/8/11, sl. Yellow hue
MW-1R	QTRLY	X	X	X	X		Sampled 12//8/11, sl. Yellow/orange hue
MW-4	QTRLY	X	X	X	X		Sampled 12/8/11
MW-8	QTRLY	X	X	X	X		Sampled 12/8/11
MW-9	QTRLY	X	X	X	X		Sampled 12/8/11
IMW-2.5D	SEMI-A		X		X		Sampled 12/8/11
IMW-2.5S	QTRLY	X	X	X	X		Sampled 12/8/11, sl. Silty
IMW-3D	SEMI-A		X		X		Sampled 12/9/11, silty
IMW-3S	QTRLY	X	X	X	X		Sampled 12/9/11, silty

2011 REID GARDNER
GMR
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

MONITORING WELLS (Continued)

WELL NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
Unit 1,2,3 Pond Wells							
P-1R	QTRLY	X	X	X	X		Sampled 12/5/11, organic matter, silty, dry @ 23 gals.
P-2	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Yellow hue, dry @ 10 gals.
P-3	QTRLY						Well Destroyed by Construction
P-4	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Yellow hue, dry @ 7 gals.
P-5R	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Yellow hue, dry @ 15 gals.
P-6R	QTRLY	X	X	X	X		Sampled 12/5/11, mod. Yellow hue
P-7R	QTRLY	X	X	X	X		Sampled 12/5/11, mod. Yellow hue
P-8R	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Yellow hue
P-9	QTRLY			X	X		Sampled 12/5/11, dry @ 5.5 gals.
P-9R	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Yellow hue, dry @ 19 gals.
KMW-9	QTRLY	X	X	X	X		Sampled 12/5/11, slightly silty
P-10	QTRLY	X	X	X	X		Sampled 12/5/11, sl. Silty, some organics, dry @ 4 gals.
P-11	QTRLY	X	X	X	X		Sampled 12/7/11
P-12	QTRLY	X	X	X	X		Sampled 12/7/11
P-13R	QTRLY	X	X	X	X		Sampled 12/7/11, silty, dry @ 11 gals.
P-14R	QTRLY	X	X	X	X		Sampled 12/7/11, dry @ 20 gals.
P-15AR	QTRLY	X	X	X	X		Sampled 12/6/11, dry @ 25 gals.
P-17A	QTRLY	X	X	X	X		Sampled 12/6/11, mod. Yellow hue, dry @ 2.5 gals.
P-17B	QTRLY	X	X	X	X		Sampled 12/6/11, mod. Yellow hue, dry @ 3 gals.
P-18A	QTRLY	X	X	X	X		No sample, well dry (12/6/11)
P-18B	QTRLY	X	X	X	X		Sampled 12/6/11, sl. Yellow hue, dry @ 1 gal.
P-19A	QTRLY	X	X				ABANDONED July 2011
P-19AR	QTRLY			X	X		Sampled 12/6/11, dry @ 21 gals.
P-20A	QTRLY	X	X	X	X		Sampled 12/6/11, sl. Yellow hue, sl. Silty at end, dry @ 23 gals.
P-20B	QTRLY	X	X	X	X		Sampled 12/9/11
KMW-8R	SEMI-A		X		X		Sampled 12/6/11, Sl. Yellow hue, dry @ 17 gals.
P-21	QTRLY			X	X		Sampled 12/5/11
P-22	QTRLY			X	X		Sampled 12/6/11, dry @ 26 gals.
KMW-4D	SEMI-A						Well Destroyed by Livestock
KMW-4M	SEMI-A						Well Destroyed by Livestock
KMW-4S	QTRLY						Well Destroyed by Livestock
IMW-16S	QTRLY	X	X	X	X		Sampled 12/6/11, dry @ 2 gals.
IMW-16D	QTRLY						Well Destroyed

MONITORING WELL REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field
Depth to Groundwater
Groundwater Elevation
pH

Lab
TPH (GRO, DRO, ORO, and Total)
Specific Conductance
TDS
Chloride
Nitrate as N
Sulfate

Dissolved Metals ONLY
Arsenic
Beryllium
Boron
Cadmium
Calcium
Chromium
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Selenium
Sodium
Titanium
Vanadium

ANALYZE FOR THESE PARAMETERS FOR THESE WELLS IN ADDITION TO THE REGULAR PARAMETERS

Fluoride
Strontium
Sulfide (H2S)
Sulfite
Total Organic Carbon
Total Suspended Solids
Turbidity
Zinc

KMW-1D
KMW-1M
KMW-1S
KMW-19
KMW-20
IMW-2D
MW-2R
MW-3RR
MW-4
MW-7
MW-9
KMW-15
P-2
P-3
P-4
P-5R
P-6R
P-7R
P-8R
P-9R
P-10
KMW-9
IMW-9R
IMW-12.5R
IMW-13R
IMW-14R
IMW-17
HM-28
HM-52R
HM-53
HM-54

2011 REID GARDNER
GMR
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

ADDITIONAL MONITORING WELLS (Continued)

Former ASP-1,2,3 Area

WELL NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
IMW-9R	QTRLY	X	X	X	X		Sampled 12/9/11
IMW-12.5R	QTRLY	X	X	X	X		Sampled 12/9/11
IMW-13R	QTRLY	X	X	X	X		Sampled 12/9/11, silty
IMW-14R	QTRLY	X	X	X	X		Sampled 12/9/11
IMW-15	QTRLY	X	X	X	X		Sampled 12/9/11, organic mattter, dry @ 4 gals.
IMW-17	QTRLY	X	X	X	X		Sampled 12/9/11, slightly silty

MONITORING WELL REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field	Lab	Dissolved Metals Only	
Depth to Groundwater	TPH (GRO, DRO, ORO, and Total)	Arsenic	Manganese
Groundwater Elevation	VOC 8260 Full Scan	Barium	Molybdenum
pH	TDS	Beryllium	Nickel
	Chloride	Boron	Selenium
	Sulfate	Cadmium	Sodium
	Nitrate as N	Calcium	Titanium
	Phosphates as P	Chromium	Vanadium
		Magnesium	

Dissolved Chlorinated Solvents Area

WELL NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
HM-8	QTRLY	X	X	X	X		Sampled 12/12/11
HM-48	QTRLY	X	X	X	X		Sampled 12/12/11, sheen, silty
HM-50	QTRLY						Well paved over/abandoned
HM-50R	QTRLY			X	X		Gauged 12/12/11, free product, no sampled collected
HM-51	QTRLY						Well Destroyed by Construction

MONITORING WELL REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field	Lab	Dissolved Metals Only	
Depth to Groundwater	TPH (GRO, DRO, ORO, and Total)	Arsenic	Manganese
Groundwater Elevation	VOC 8260 Full Scan	Barium	Molybdenum
pH	Ethylene	Beryllium	Nickel
	TDS	Boron	Selenium
	Chloride	Cadmium	Sodium
	Sulfate	Calcium	Titanium
	Nitrate as N	Chromium	Vanadium
	Phosphates as P	Magnesium	

2011 REID GARDNER
GMR
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

ADDITIONAL MONITORING WELLS (Continued)

Waste Management Unit-12 Area

WELL NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
HM-19	QTRLY	X	X	X	X		Sampled 12/12/11
HM-20	QTRLY	X	X	X	X		Gauged 12/12/11, free product, no sample
HM-24	QTRLY	X	X	X	X		Sampled 12/12/11, sheen, silty
HM-28	QTRLY	X	X	X	X		Sampled 12/12/11, silty
HM-31R	QTRLY	X	X	X	X		Sampled 12/12/11, yellow hue, sheen
HM-32	QTRLY	X	X				ABANDONED July 2011
HM-32R	QTRLY			X	X		Sampled 12/12/11
HM-33	QTRLY	X	X	X	X		Sampled 12/12/11
HM-52	QTRLY	X	X				
HM-52R				X	X		Sampled 12/12/11
HM-53	QTRLY	X	X	X	X		Sampled 12/12/11
HM-54	QTRLY	X	X	X	X		Sampled 12/12/11
Unit 4 Dewatering Well Effluent	QTRLY			X	X		Sampled 12/12/11

MONITORING WELL REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field	**Lab**	**Dissolved Metals Only**	
Depth to Groundwater*	TDS	Arsenic	Manganese
Groundwater Elevation*	Chloride	Barium	Molybdenum
pH	Sulfate	Beryllium	Nickel
	Nitrate as N	Boron	Selenium
	Phosphates as P	Cadmium	Sodium
		Calcium	Titanium
		Chromium	Vanadium
		Magnesium	

*except Unit 4 Dewatering Well Effluent

ANALYZE FOR THESE PARAMETERS IN THE UNIT 4 DEWATERING WELL EFFLUENT IN ADDITION TO THE REGULAR PARAMETERS

Fluoride
Strontium
Sulfide (H2S)
Sulfite
Total Organic Carbon
Total Suspended Solids
Turbidity
Zinc

SURFACE WATER ELEVATIONS

POND NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
MR Upstream	QTRLY			X	X		New location as of 3rd qtr 2011, Measured 12/11/11
MR Midstream	QTRLY			X	X		New location as of 3rd qtr 2011, Measured 12/11/11
MR Downstream1	QTRLY			X	X		New location as of 3rd qtr 2011, Measured 12/12/11
MR Downstream2	QTRLY			X	X		New location as of 3rd qtr 2011, Measured 12/12/11

SURFACE ELEVATIONS REPORTING (To be done QTRLY)

Field
DTW
Surfacewater Elevation

MR - Muddy River

2011 REID GARDNER
DMR AND OTHER LOCATIONS
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

EVAPORATION PONDS

POND NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
EFPS	QTRLY		X	X	X		Sampled 12/12/11
Pond B-1 Leachate	QTRLY	X	X	X	X		Sampled 12/16/11
Pond B-2 Leachate	QTRLY	X	X	X	X		Sampled 12/16/11
Pond B-3 Leachate	QTRLY	X	X	X	X		Sampled 12/12/11
Pond C-1 Leachate	QTRLY	X	X	X	X		12/12/11 - Not working, not sampled
Pond C-2 Leachate	QTRLY	X	X	X	X		12/12/11 - Not working, not sampled
Pond E-1 Leachate	QTRLY	X	X	X	X		12/12/11 - Working, but no discharge
Pond E-2 Leachate	QTRLY	X	X	X	X		Sampled 12/12/11
Pond F Leachate	QTRLY	X	X	X	X		12/12/11 - Working, but no discharge
Pond F Effluent	QTRLY	X	X	X	X		Sampled 12/12/11

EVAPORATION POND REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field	Lab	Metals Total	
pH	TDS	Arsenic	Molybdenum
	Nitrate + Nitrite as N	Beryllium	Nickel
	Sulfate	Boron	Selenium
	Total Nitrogen as N	Cadmium	Iron
	Total Kjeldahl as N	Calcium	Lead
	Total Phosphorus	Chromium	Mercury
	Hardness as CaCo3	Magnesium	Silver
		Manganese	Thallium
		Antimony	Zinc
		Barium	
		Copper	
		Fluoride	

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

MUDDY RIVER & SOUTH GATE SPRING

SAMPLE NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
MR-UP	QTRLY	X	X	X	X		Sampled 12/12/11
MR-1	QTRLY	X	X	X	X		Sampled 12/12/11
MR-2	QTRLY	X	X	X	X		Sampled 12/12/11
MR-3	QTRLY	X	X	X	X		Sampled 12/12/11
MR-4	QTRLY	X	X	X	X		Sampled 12/12/11
SGSPR	QTRLY	X	X	X	X		Sampled 12/12/11

`

MUDDY RIVER REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Field	Lab	Metals Total	
pH	TDS	Arsenic	Manganese
	Total Nitrogen as N	Barium	Mercury
	Total Kjeldahl Nitrogen as N	Boron	Molybdenum
	Nitrate + Nitrite as N	Calcium	Selenium
	Total Phosphorus	Chromium	Nickel
	Sulfate	Iron	Silver
	Hardness as Ca CO3	Lead	Thallium
		Magnesium	Zinc
		Antimony	
		Beryllium	
		Cadmium	
		Copper	
		Fluoride	

MR - Muddy River
SG - South Gate Spring

2011 REID GARDNER
DMR AND OTHER LOCATIONS
ANNUAL SAMPLING RECORD

QTRLY	Quarterly - Samples will be collected in March (1st Qtr), June (2nd Qtr), September (3rd Qtr), and December (4th Qtr).
SEMI-A	Semi-Annual - Samples will be collected in June (2nd Qtr) and December(4th Qtr).

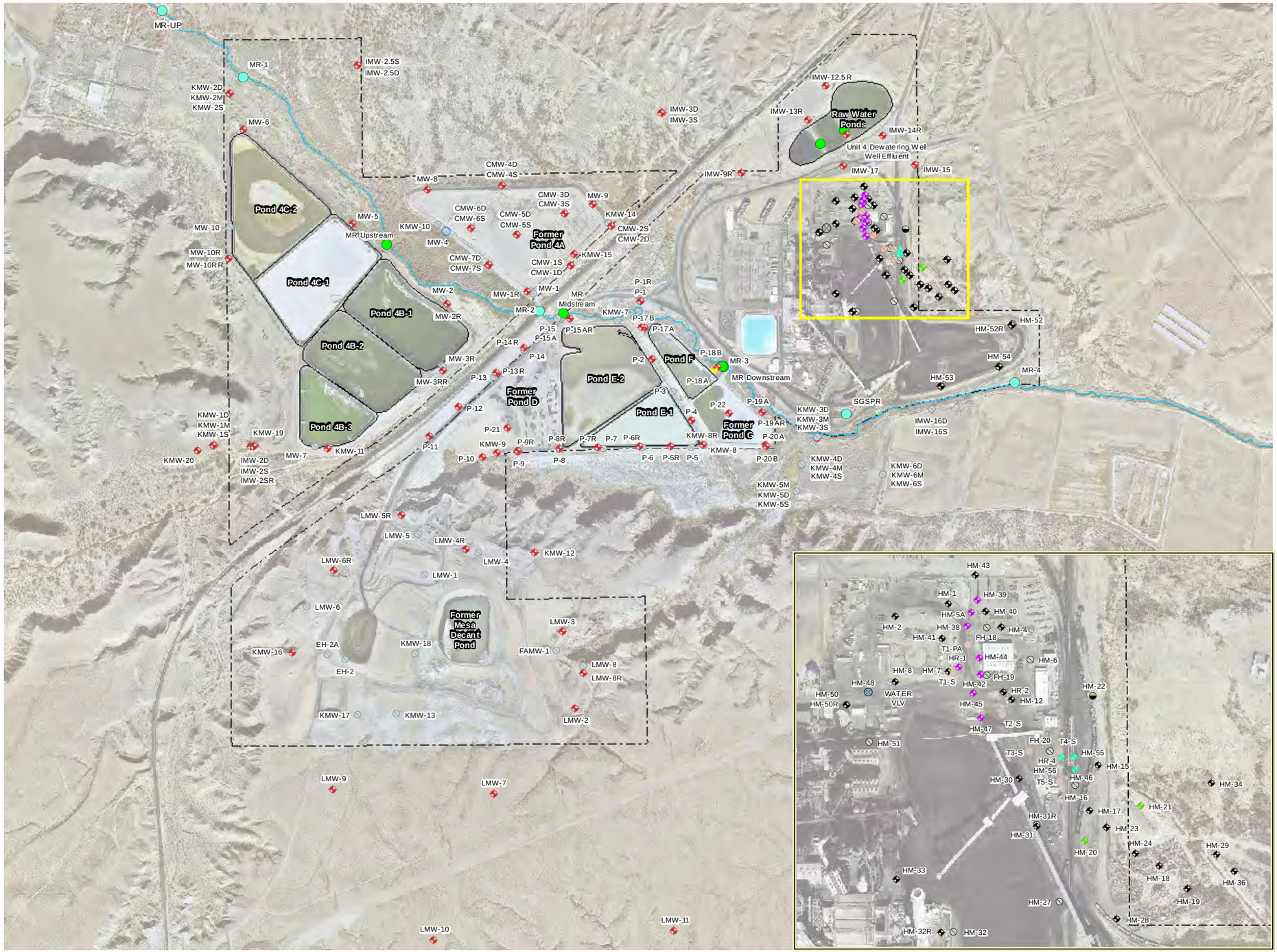
HAUL ROAD & COAL PILE DUST CONTROL

SAMPLE NUMBER	SAMPLING FREQUENCY	2011 SAMPLES COLLECTED					REMARKS
		1ST QTR	2ND QTR	3RD QTR	4TH QTR		
Units 1,2,3 Bottom Ash Surge (HRDC)	QTRLY	X	X	X	X		Sampled 12/12/11
Unit 4 Bottom Ash Surge (HRDC)	QTRLY	X	X	X	X		Sampled 12/12/11
Diesel Recovery System (CPDC)	QTRLY	X					Last Sampled (3/15/11)
Units 1,2,3 CTBD (HRDC)	QTRLY	X	X	X	X		Sampled 12/12/11
Unit 4 CTBD (HRDC)	QTRLY	X	X	X	X		Sampled 12/12/11

DUST CONTROL REPORTING AND ANALYSIS PARAMETERS (To be done QTRLY)

Lab	**Metals Total**	
Nitrate + Nitrite as N	Arsenic	Molybdenum
TPH (Sampled monthly)	Beryllium	Nickel
Sulfate	Boron	Selenium
TDS	Cadmium	Iron
Total Kjeldahl Nitrogen as N	Calcium	Lead
Total Nitrogen as N	Chromium	Mercury
Total Phosphorus	Magnesium	Silver
Hardness as CaCo3	Manganese	Thallium
	Antimony	Zinc
	Barium	
	Copper	
	Fluoride	

CTBD - Cooling Tower Blowdown
HRDC - Haul Road Dust Control
CPDC - Coal Pile Dust Control



Legend

Well Monitoring Locations
- Sampled or Gauged
- Damaged
- Dry
- Abandoned/Destroyed

Surface Water Monitoring Locations
- Surface Water Sampling
- Surface Water Elevation
- Muddy River
- Pond Outline
- Property Boundary

Former Remediation Trench
- Abandoned/Destroyed

Passive Recovery
- Sampled or Gauged
- Damaged
- Dry
- Abandoned/Destroyed

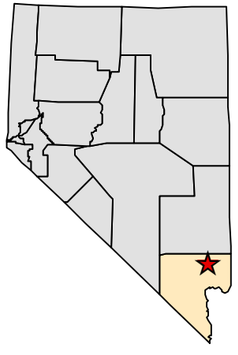
Vapor Extraction
- Sampled or Gauged
- Damaged
- Dry
- Abandoned/Destroyed

Dewatering
- Sampled or Gauged
- Damaged
- Dry
- Abandoned/Destroyed

Free Product / Other Monitoring
- Sampled or Gauged
- Damaged
- Dry
- Abandoned/Destroyed

1,000 500 0 1,000 2,000 Feet

Notes:
1. Aerial flown January 2, 2009 and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. Surface water locations are permitted and reported under the Discharge Monitoring Report (DMR)
3. DMR and Groundwater Monitoring Report (GMR) sampling locations current as of 4th qtr 2011
4. MR Downstream gauging location is either lower or upper culvert
5. This figure relays all quarterly monitoring locations sampled or gauged at Reid Gardner Station, and does not reflect the actual monitored locations this quarter.



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QUARTERLY MONITORING LOCATIONS
2011 GMR
AOC Implementation
NV Energy
Reid Gardner Station
Moapa, NV
Figure 1

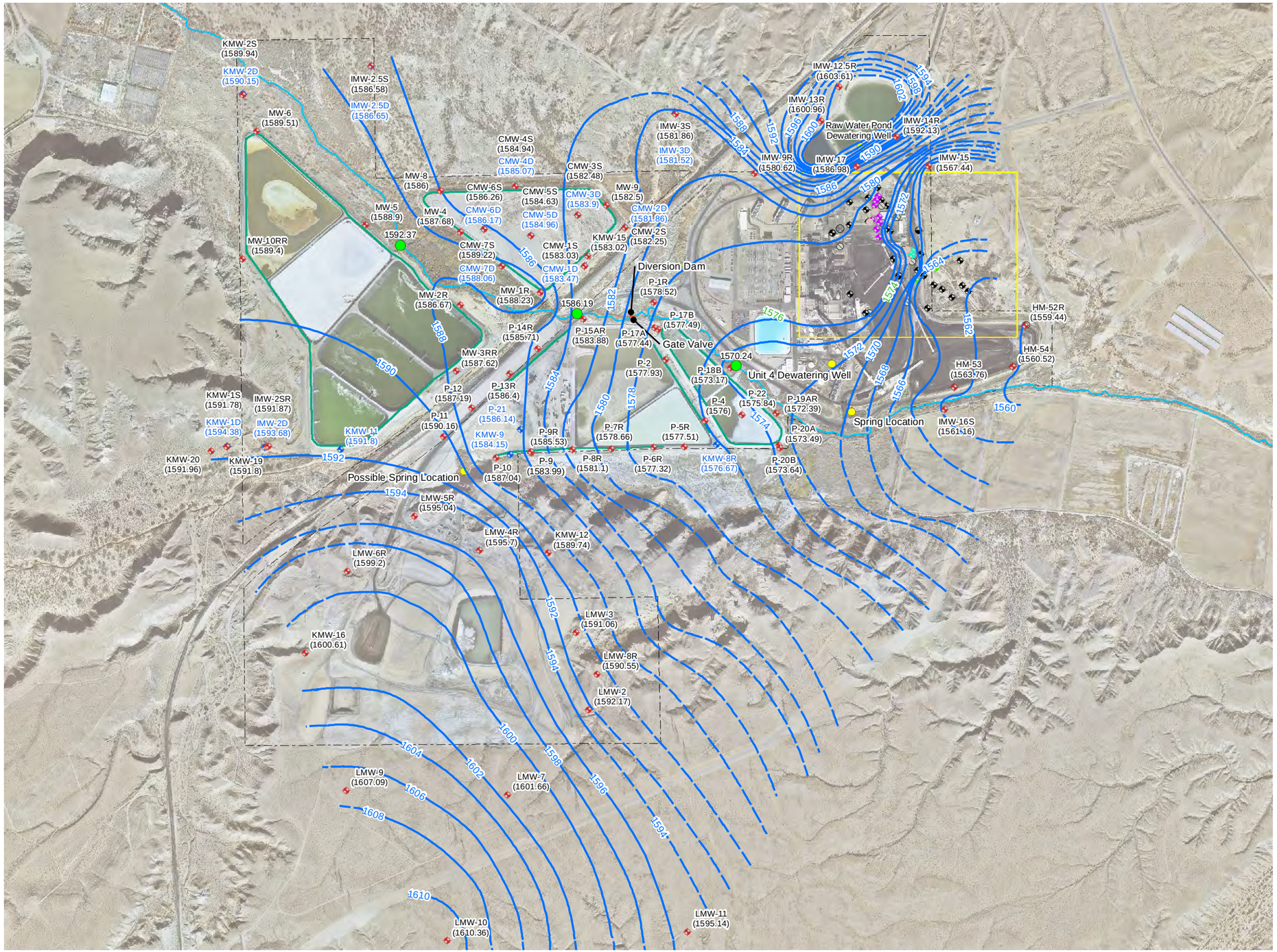
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP. Changed MW-4 well status to "Damaged"; P-18A/B symbols corrected	2/14/12	CC	JO/AE	AE

0 1 in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



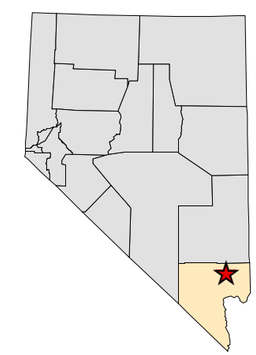
Legend

Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Dewatering and Water Sources
- Surface Water Elevation (2011 Q4)
- Muddy River
- Diversion Dam
- Pond Slurry Walls
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Elevation Contour (ft)
- Property Boundary
- Figure 2B Map Area

1,000 500 0 1,000 2,000 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. Information for wells located within the yellow inset is available on Figure 2B
4. Diesel recovery system did not operate during 4th qtr 2011
5. Shallow and deep well classifications are subject to change
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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SHALLOW GROUNDWATER ELEVATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 2A

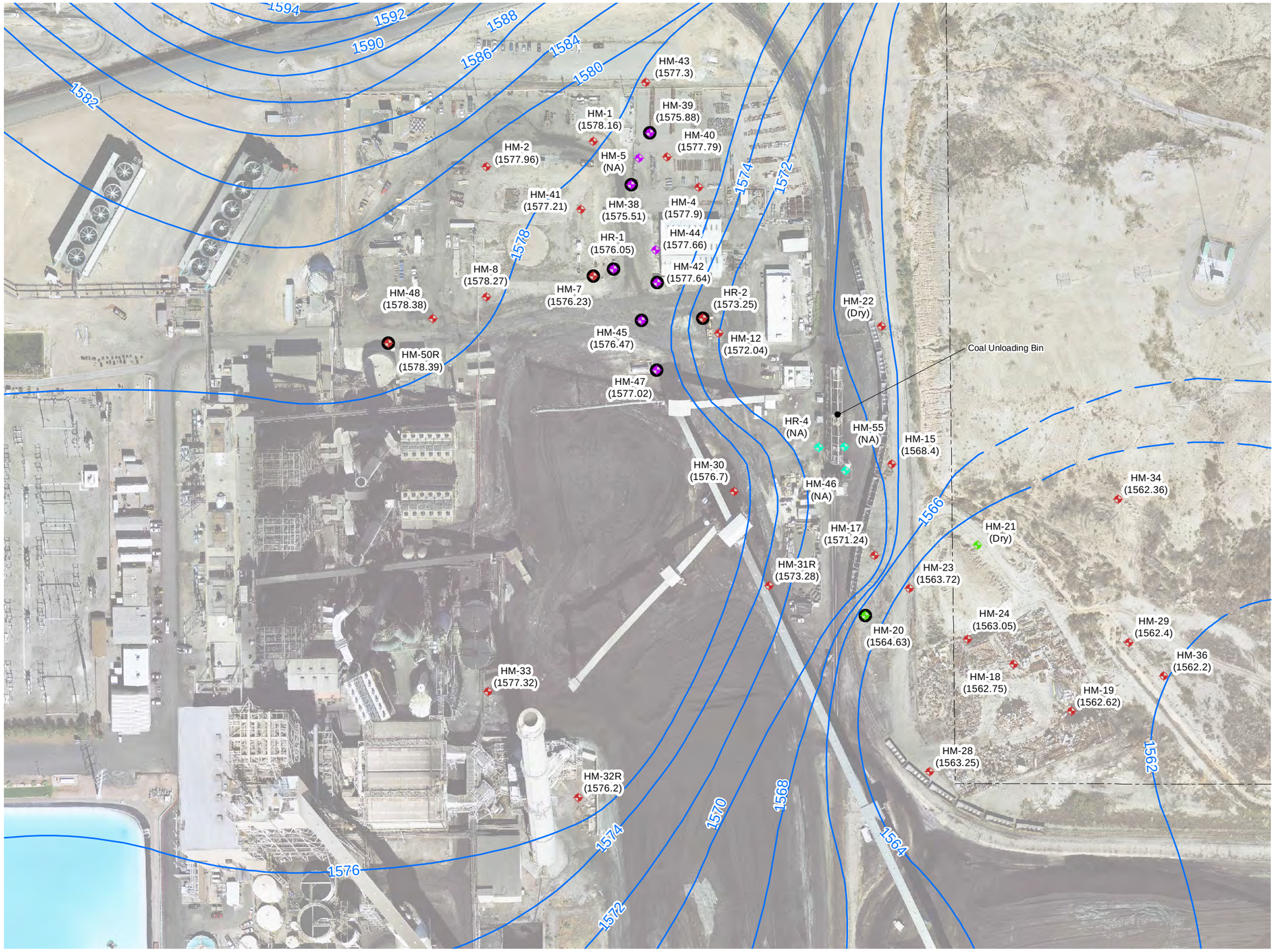
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	JO/AE	AE

0 1 in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

Diesel Area Well Types (Active)

- Dewatering
- Free Product / Other Monitoring
- Passive Recovery
- Vapor Extraction
- Diesel Area Well with Product (2011 Q4)
- Groundwater Elevation Contour (ft)
- Inferred Groundwater Elevation Contour (ft)
- Property Boundary

175 87.5 0 175 350 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2 Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. Area shown in this figure is outlined on Figure 2A
4. Diesel recovery system did not operate during 4th quarter 2011
5. Monitoring wells with free product were not used in contouring
6. NA=Not accessible

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SHALLOW GROUNDWATER ELEVATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 2B

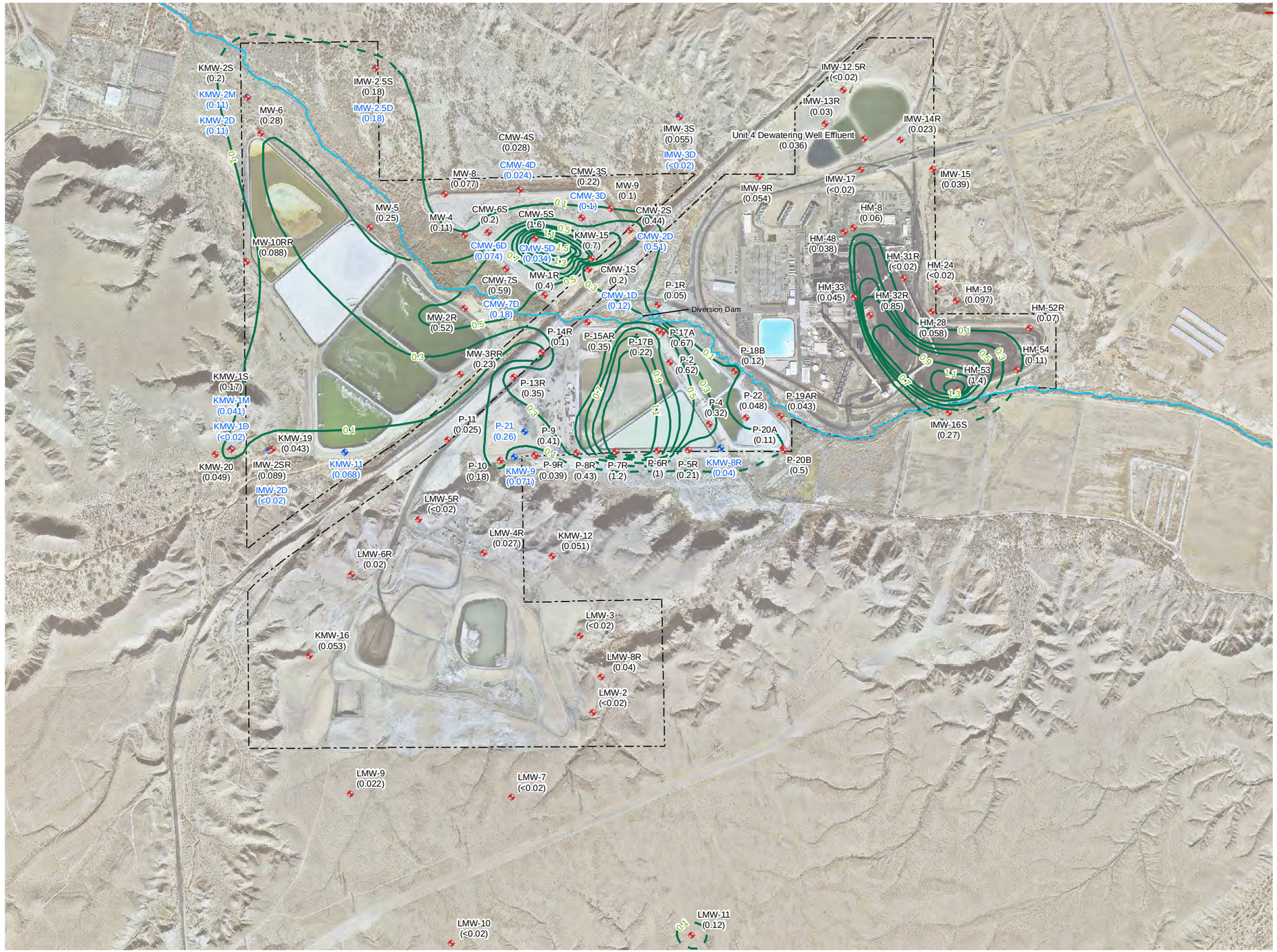
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	JO/AE	AE

0 1 in.
At full size
1 inch = 175 feet

NVEnergy

20618.06

REV. 0



Legend

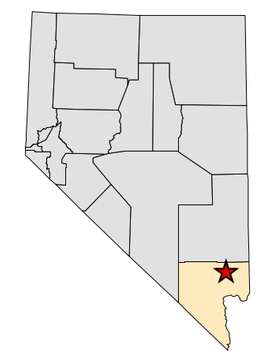
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Arsenic Concentration Contour (mg/L)
- Arsenic Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations at deep and medium wells are not included in contour analysis
6. P-9, P-9R, P-17B not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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DISSOLVED ARSENIC CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 3

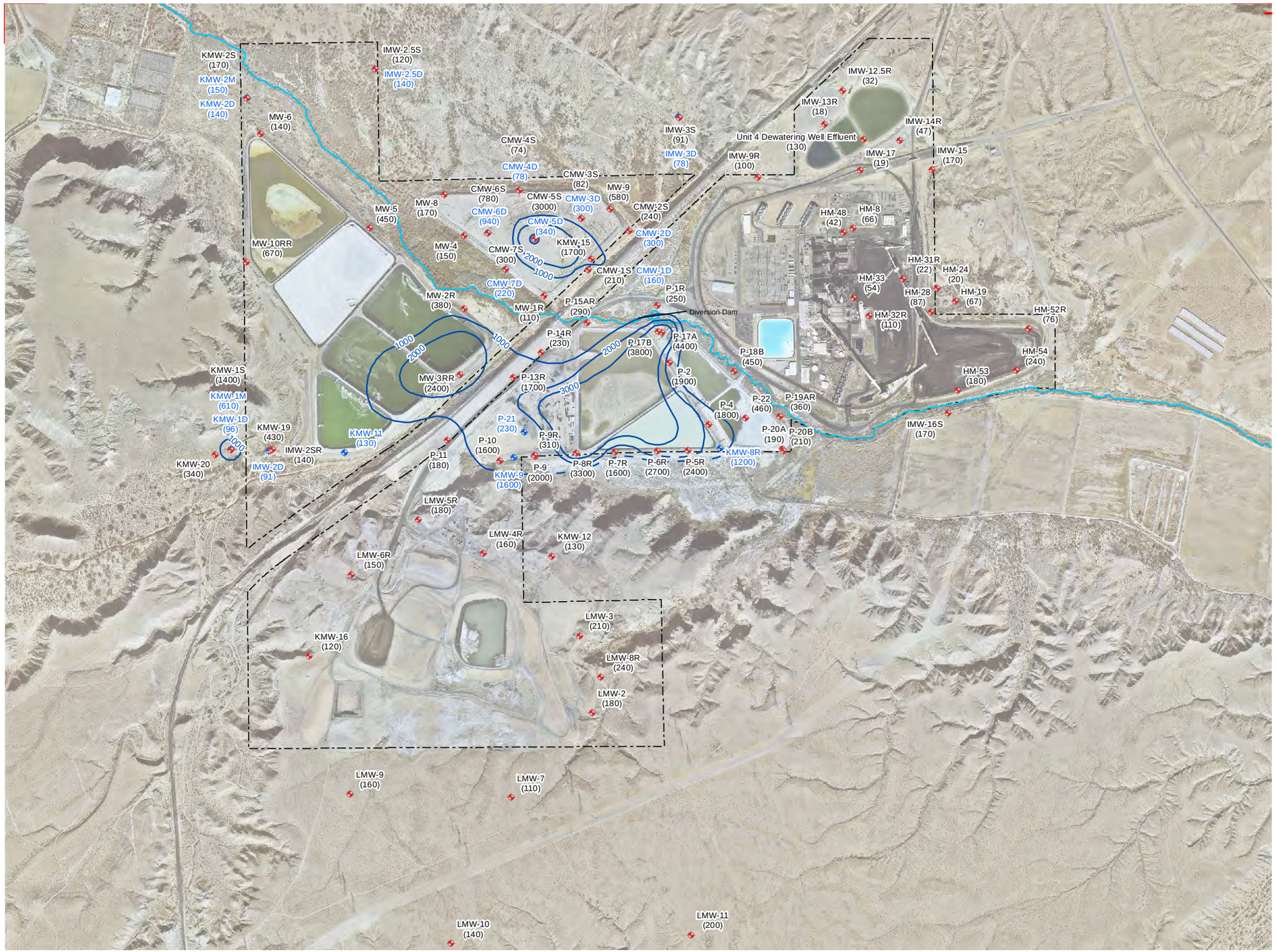
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

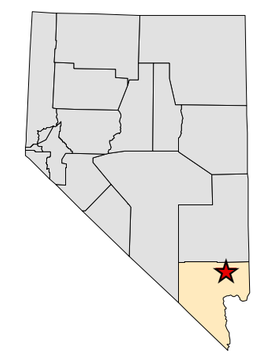
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Magnesium Concentration Contour (mg/L)
- Magnesium Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations at deep and medium wells are not included in contour analysis
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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DISSOLVED MAGNESIUM CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 4

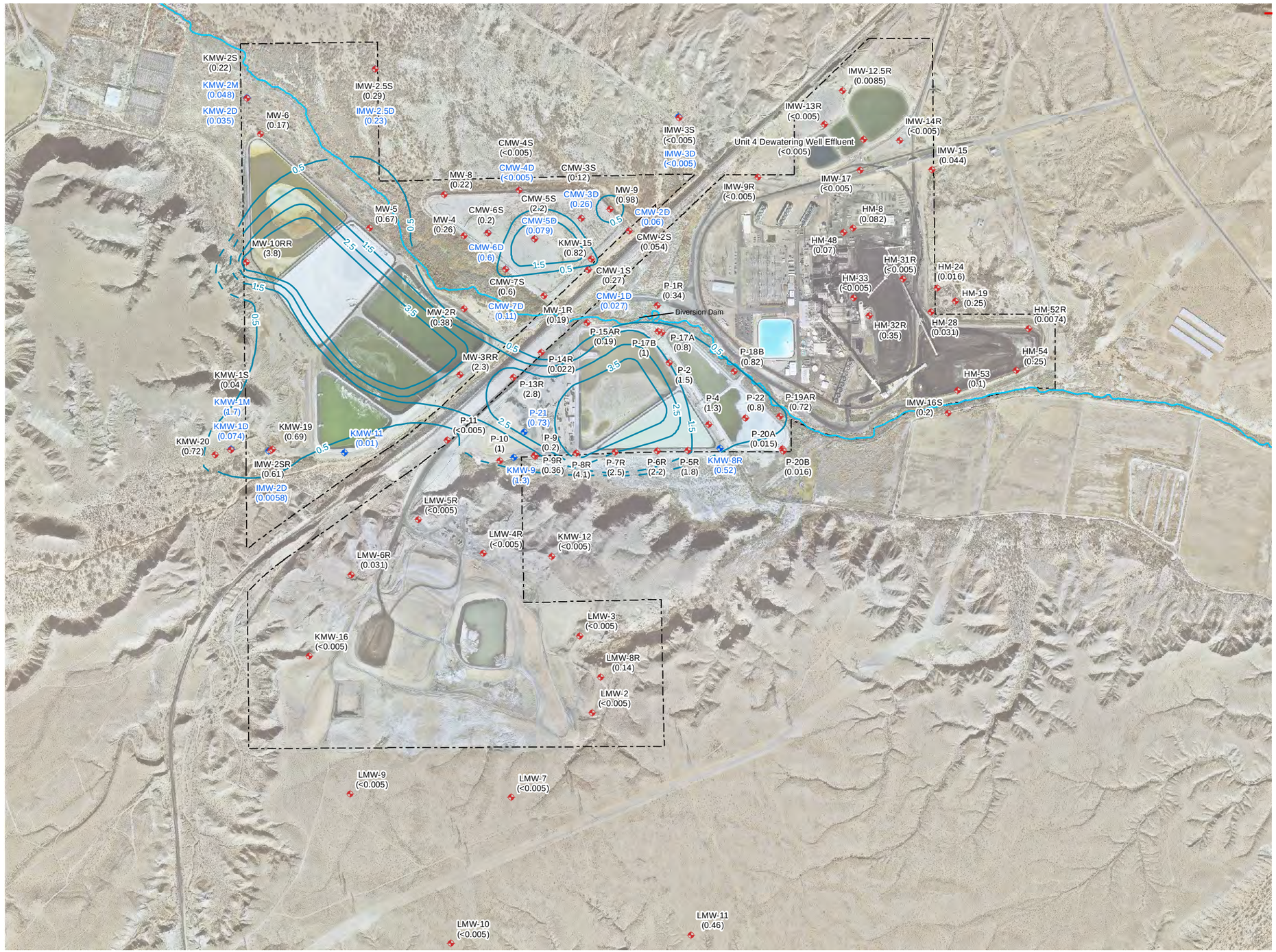
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

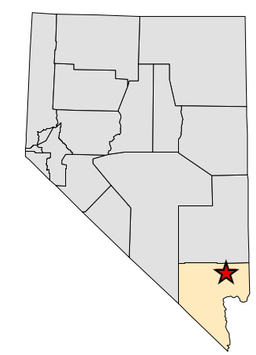
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Manganese Concentration Contour (mg/L)
- Manganese Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations at deep and medium wells are not included in contour analysis
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

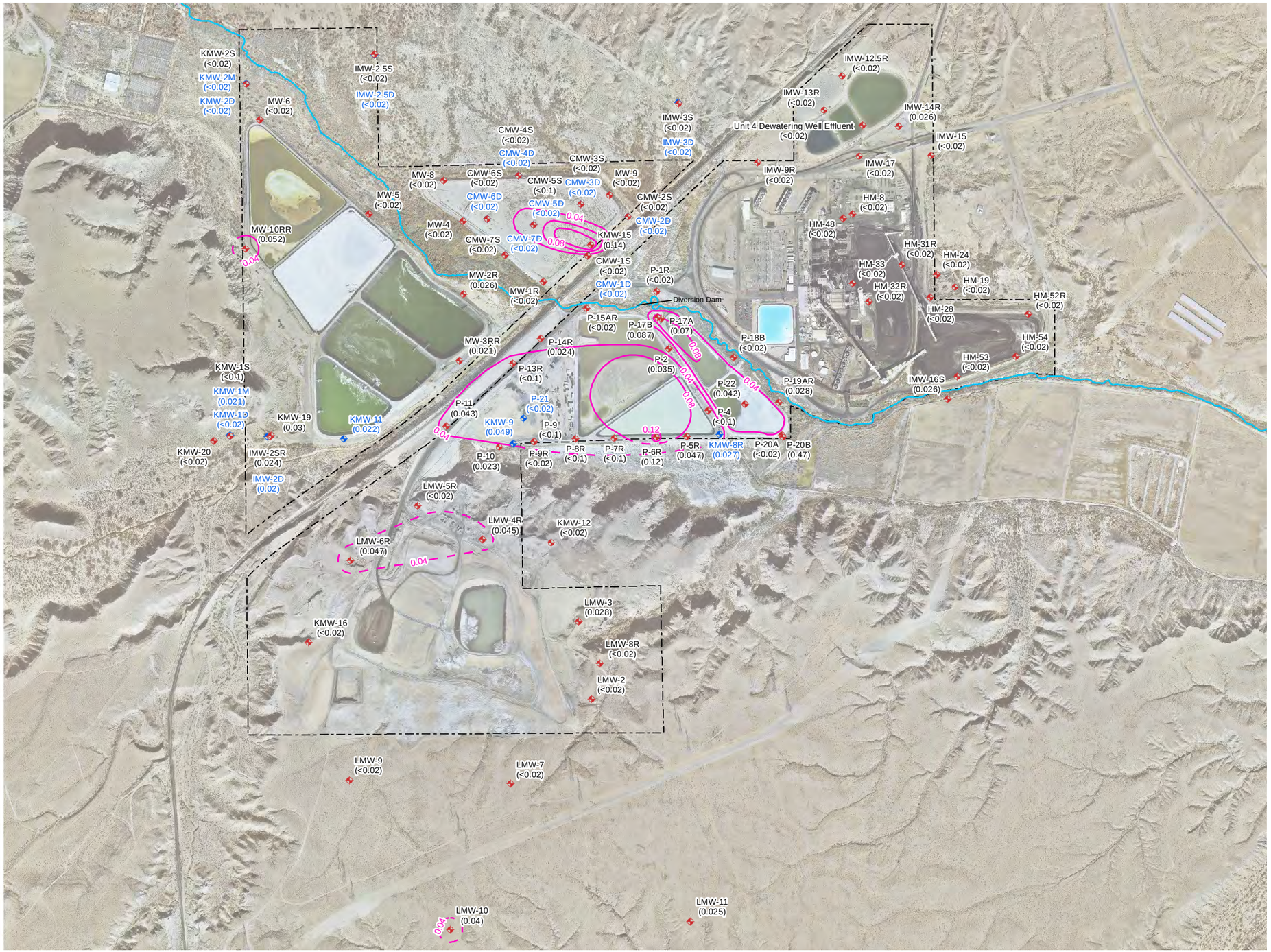
0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0

DISSOLVED MANGANESE CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 5



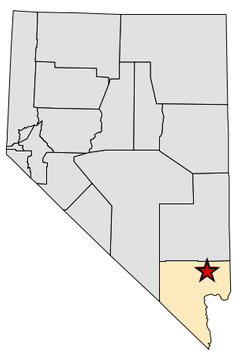
Legend

Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Selenium Concentration Contour (mg/L)
- Selenium Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2 Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations in deep and medium wells not included in contour analysis
6. P-9, P-9R, P-20B not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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February 2012

DISSOLVED SELENIUM CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 6

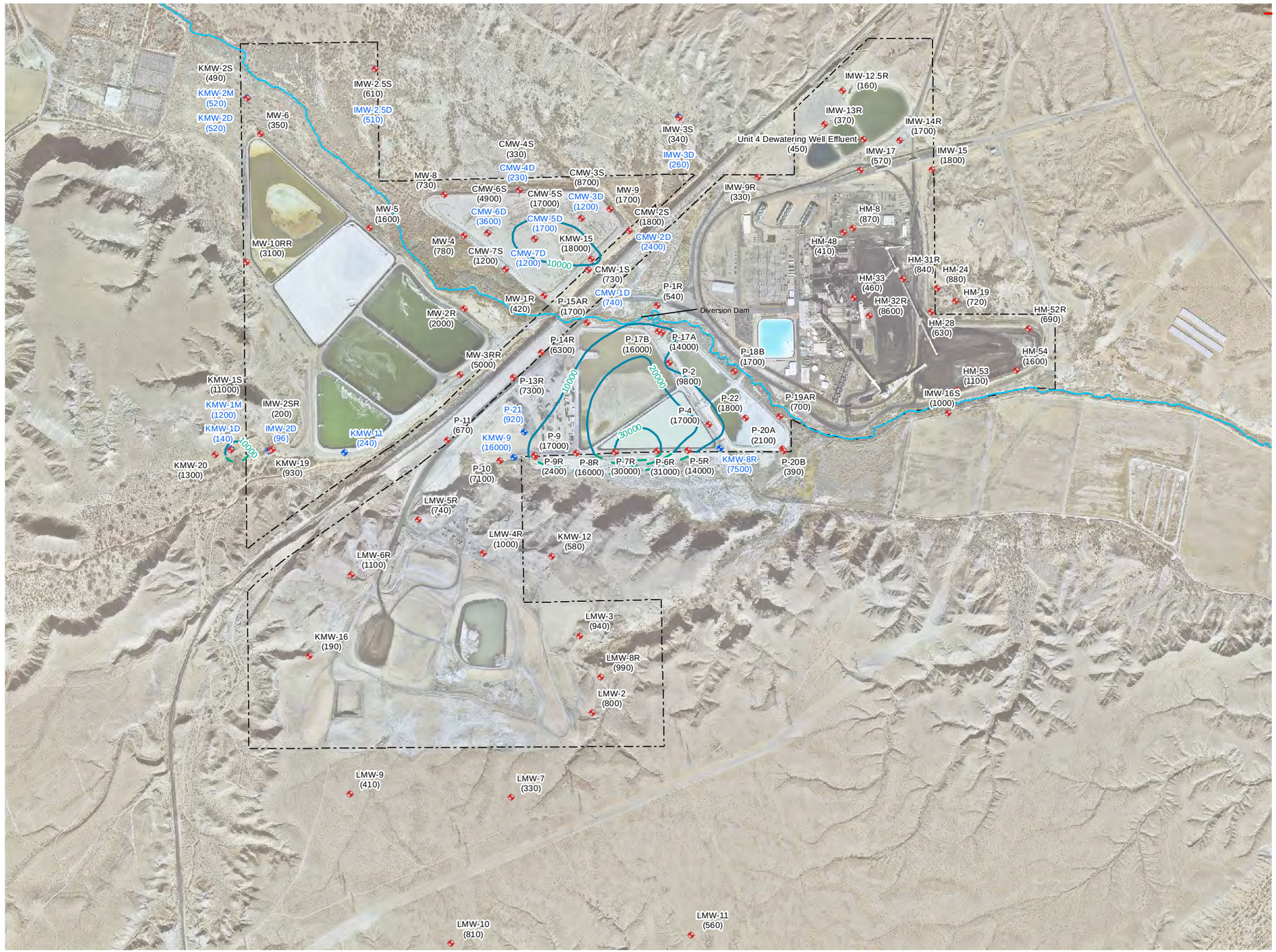
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

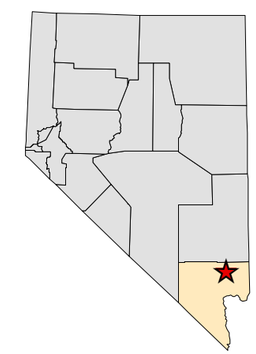
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Sodium Concentration Contour (mg/L)
- Sodium Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations in deep and medium wells not included in contour analysis
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



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DISSOLVED SODIUM CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 7

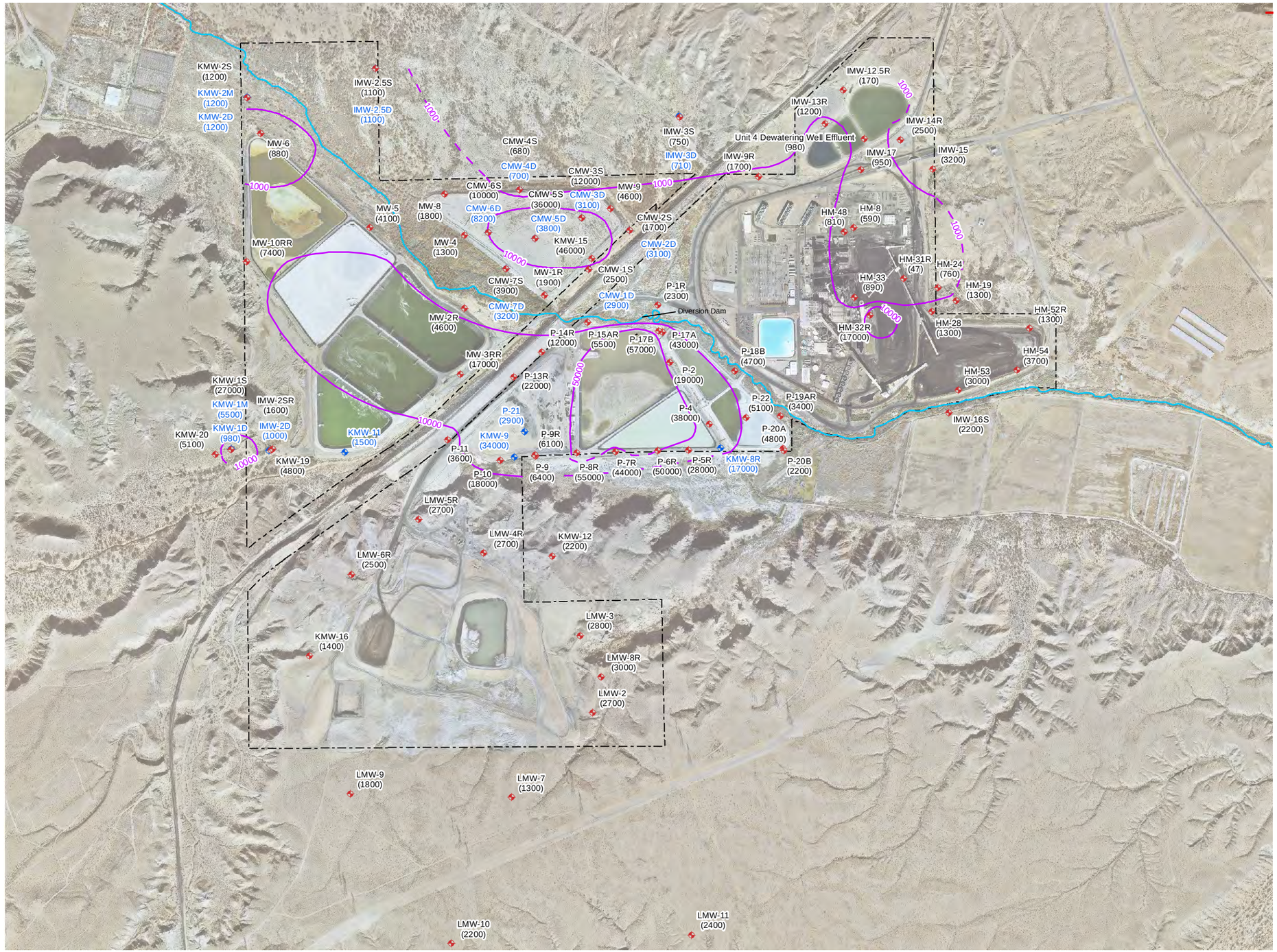
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1 in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

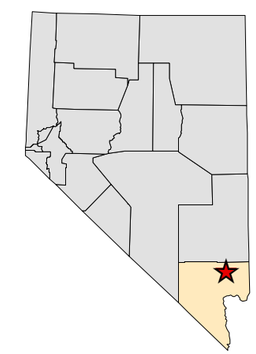
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- Sulfate Concentration Contour (mg/L)
- Sulfate Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations of deep and medium wells not included in contour analysis
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



Stanley Consultants INC.

February 2012

DISSOLVED SULFATE CONCENTRATION CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 8

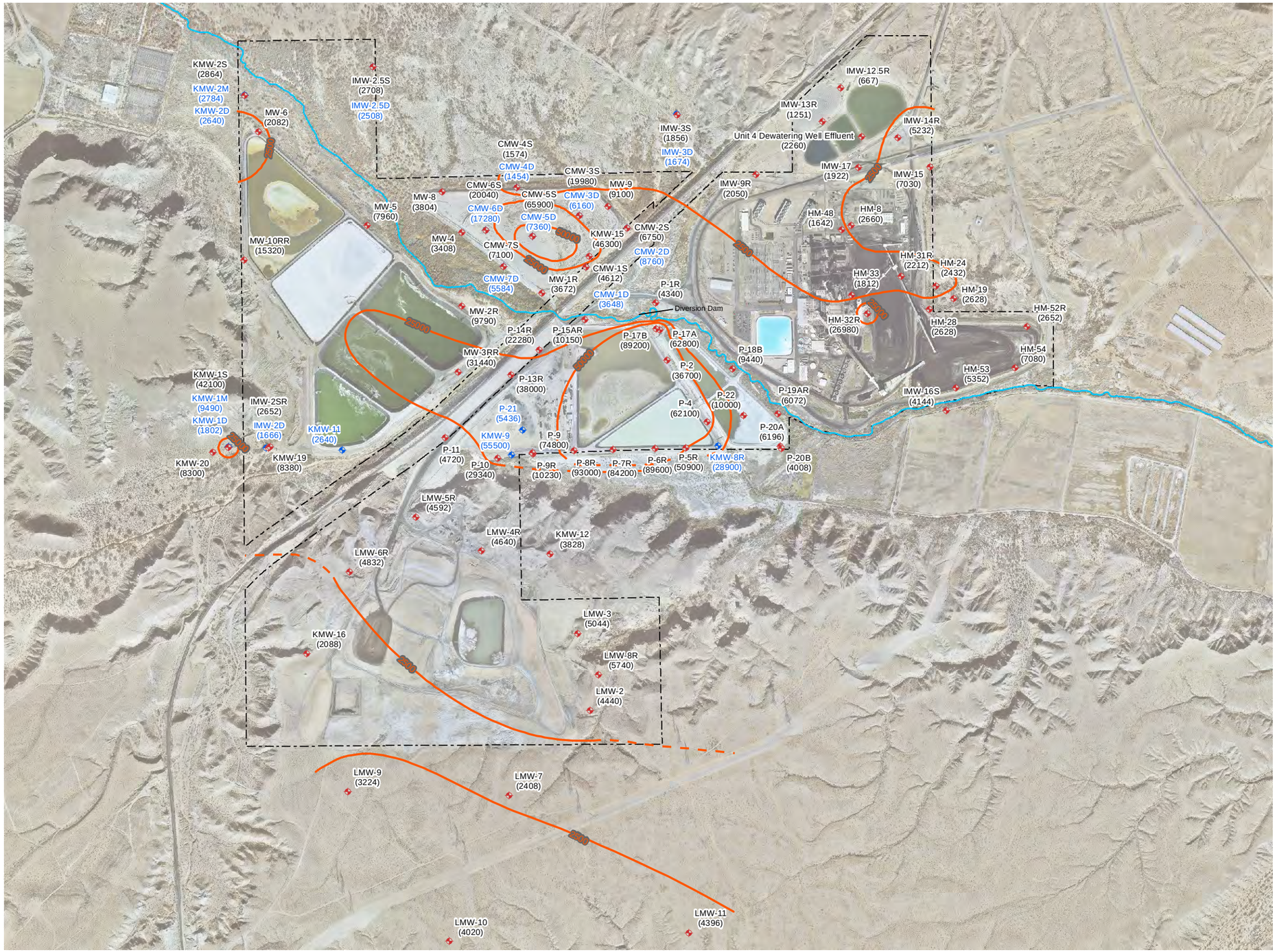
REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0



Legend

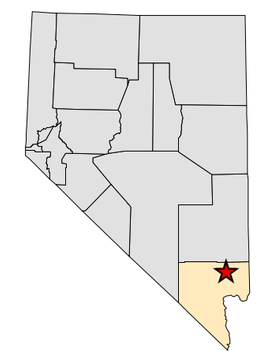
Monitoring Wells (2011 Q4)

- Deep or Medium
- Shallow
- TDS Concentration Contour (mg/L)
- TDS Concentration Contour (mg/L) (Inferred)
- Muddy River
- Property Boundary

1,000 500 0 1,000 2,000 Feet

Notes:

1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2. Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. When concentration value is less than the laboratory detection limit, the value used for contouring is 1/2 the laboratory detection limit
4. Shallow and deep well classifications are subject to change
5. Concentrations of deep and medium wells not included in contour analysis
6. P-9, P-9R not considered for contouring
7. KMW-8R, KMW-9, KMW-11, P-21 not considered for contouring as they are not classified as shallow wells



Stanley Consultants INC.

February 2012

TOTAL DISSOLVED SOLIDS (TDS)
CONCENTRATION - CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 9

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	TK	AE

0 1in.
At full size
1 inch = 1,000 feet

NVEnergy

20618.06

REV. 0

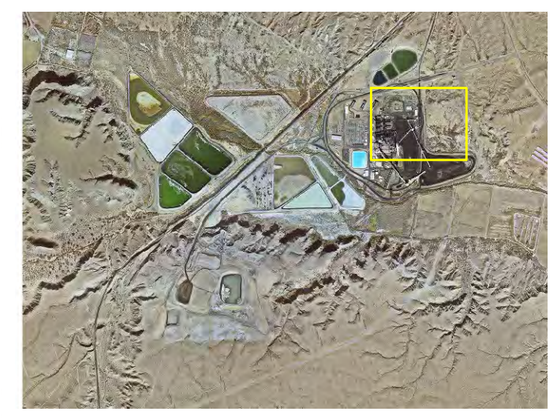
Legend

Diesel Area Well Types (Active)

- Dewatering
- Free Product / Other Monitoring
- Passive Recovery
- Vapor Extraction
- Diesel Area Well with Product (2011 Q4)
- Product Thickness Contour (ft)
- Property Boundary

175 87.5 0 175 350 Feet

Notes:
1. Aerial flown January 2, 2009 by AeroTech Mapping and updated September 2010
2 Wells surveyed March 9-25, 2009 by NV Energy using state plane 1983, NAVD 1988
3. Area shown in this figure is outlined on Figure 1A
4. Remediation system did not operate during 4th Quarter 2011



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February 2012

PRODUCT THICKNESS
CONTOUR MAP
4th Quarter 2011 GMR
NV Energy
Reid Gardner Station
Moapa, NV
Figure 10

REV	No.	REVISION DESCRIPTION	DATE	DRWN	CHKD	APVD
0		Submittal to NDEP	2/14/12	CC	JO/AE	AE

0 1 in.
At full size
1 inch = 175 feet

NVEnergy

20618.06

REV.
0

Appendix C

Encyclopedia of Supporting Documentation

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 1	8/1/2006	2nd Quarter 2006 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 2	8/11/2005	2nd Quarter 2005 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE, NDEP	
AOC- 3	11/10/2005	3rd Quarter 2005 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE, NDEP	
AOC- 4	11/7/2006	3rd Quarter 2006 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 5	5/3/2006	1st Quarter 2006 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 6	2/22/2006	4th Quarter 2005 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE, NDEP	
AOC- 7	5/9/2005	1st Quarter 2005 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE, NDEP	
AOC- 8	3/14/2005	4th Quarter 2004 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 9	8/10/2004	2nd Quarter 2004 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE, NDEP	
AOC- 10	5/25/2004	1st Quarter 2004 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 11	3/3/2003	4th Quarter 2003 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 12	1/16/2007	Discharge Monitoring Report, 4th Quarter 2006 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 13	1/24/2006	Discharge Monitoring Report, 4th Quarter 2005 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 14	10/1/2006	Discharge Monitoring Report, 3rd Quarter 2006 (Volume 1 and 2)	Ninyo and Moore	Monitoring well, river, and pond sampling results. Contour maps and tables. Includes annual sampling record.	pond, river, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 15	7/10/2006	Discharge Monitoring Report, 2nd Quarter 2006 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 16	11/25/2003	Reid Gardner Diesel Recovery System - NPC Reid Gardner Station 3rd Quarter 2003	NPC	Summary of free product measurement results. Free product thickness data tables and contour maps	diesel recovery, free product	Monitoring Report	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 17	4/10/2007	Discharge Monitoring Report, 1st Quarter 2007 to NPC	Ninyo and Moore	Monitoring well, river, spring and pond sampling results. Contour maps and tables.	pond, river, monitoring wells	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 18	1/10/2007	Discharge Monitoring Report, 4th Quarter 2006 to NPC (Two Volumes)	Ninyo and Moore	Monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, monitoring wells, spring	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 19	10/20/2005	Discharge Monitoring Report, 3rd Quarter 2005 to NPC (Two Volumes)	Ninyo and Moore	Monitoring well, river, and pond sampling results. Contour maps and tables. Annual sampling table.	pond, river, monitoring wells, spring	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 20	12/24/2003	Final Grading and Quality Control Quality Assurance Report - Reconstruction of Ponds D & E	Converse	Geotechnical pond D &E field testing results and SAC	Pond D, Pond E, QA/QC, geotechnical	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 21	12/21/2006	NPC Reid Gardner Pond B1 and B2 Construction Permit Application to NDEP	Stanley Consultants	Construction permit application for ponds B1 and B2 using NDEP guidance	Pond B1, Pond B2, construction permit	Permit Application	Pond B1, Pond B2	Unit 4 ponds	Design and Construction	NVE	
AOC- 22	5/7/81-2/21/94	Various Reid Gardner Fly ash Laboratory Reports	Various	Fly ash laboratory data results for metals	fly ash metals	Data	NA	Plant	Waste Characterization	NVE	
AOC- 23	10/14/1998	Clark County Health District Inspection Form	Clark County	General environmental inspection report	inspection	Inspection report	Site-wide	Site-wide	Inspection - Health	NVE	
AOC- 24	4/1/1994	Various fly ash material safety data sheets	Various	fly ash MSDS	fly ash	MSDS	NA	Plant	Waste Characterization	NVE	
AOC- 25	1/20/2006	Discharge Monitoring Report, 4th Quarter 2005 to NPC (Volume 1 and2)	Ninyo and Moore	Monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, monitoring wells	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 26	10/25/2000	Discharge Monitoring Report, 3rd Quarter 2000 to NPC	Kleinfelder	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, discharge, monitoring wells, nodes	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 27	1/29/2004	Discharge Monitoring Report, 4th Quarter 2003	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results. Historic parameter concentration graphs.	pond, river, discharge, monitoring wells, nodes, historic concentrations	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 28	10/23/2003	Discharge Monitoring Report, 3rd Quarter 2003	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 29	4/10/2001	Addendum 1 - Reid Gardner Station - Hydrogeologic Characterization 2000 to NPC	Kleinfelder	Potential for off site migration of high TDS groundwater caused by pond seepage	TDS, pond, groundwater migration	Letter	Site-wide	Site-wide	Hydrogeologic Characterization	NVE	
AOC- 30	12/13/1994	NPC Reid Gardner Spill Prevention Control and Countermeasures Plan	NPC	Inventory of plant oil storage, spill response measures, and map	SPCC, oil	Report	Site-wide	Site-wide	SPCC	NVE	
AOC- 31	7/28/1998	Site Characterization Proposed Wastewater Ponds	Kleinfelder	Site characterization for proposed ponds in mesa area. Contains maps, groundwater data and soil boring logs.	mesa wastewater ponds, groundwater	Report	Mesa	Mesa	Site Characterization-Ponds	NVE	
AOC- 32	9/2/1998	Geotechnical Pre-Design Report - Proposed New 27 and 14 Acre Discharge Ponds	Kleinfelder	Geotechnical data and report for two proposed ponds in the mesa area.	mesa wastewater ponds, geotechnical	Report	Mesa A, Mesa B	Mesa	Design and Construction	NVE	
AOC- 33	3/5/1998	Freeboard Requirements for Wastewater Storage Ponds	Kleinfelder	Freeboard calculation methods and results used as pre-design of two wastewater ponds	freeboard, wastewater ponds	Report	Mesa A, Mesa B	Ponds	Design and Construction	NVE	
AOC- 34	1/10/1997	Lysimeter and Monitor Well Installation	Kleinfelder	Installations methods for monitoring well MW-1 and two lysimeters, L1 and L2	monitoring well, lysimeter	Report	Mesa	Mesa	Monitoring Well Development	NVE	
AOC- 35	1/1/1997	Summary of 1996 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley, Nevada	Mifflin and Associates	General water study and hydrological impacts in the river and groundwater. No laboratory data.	Muddy River, hydrogeological, groundwater	Report	NA	Muddy River Basin	Water Resources	NVE	
AOC- 36	6/3/1996	Reid Gardner Diesel Recovery System - NPC Reid Gardner Station to Nevada Department of Conservation and Natural Resources	NPC	Diesel recovery system letter to NDEP by NPC. Missing Groundwater analytical data for HM wells for diesel plume analysis. BTEX and TPH	diesel plume, monitoring wells, HM wells, BTEX, TPH	Letter with Data	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 37	3/22/1995	Comprehensive Site Assessment Report to NPC	NDEP	Response to comprehensive site report submitted by NPC to NDEP on February 8th, 1995. Request more discussion on diesel free product thickness and removal.	diesel plume, free product, monitoring wells	Letter	Site-wide	Site-wide	Site Assessment	NVE	
AOC- 38	6/28/1994	Modification of Laboratory Analytical Requirements	NDEP	Letter confirms only contaminants of concern associated with diesel plume are BTEX and TPH	diesel plume, BTEX, TPH	Letter	Central Plant	Plant	Diesel	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 39	2/18/1994	Interoffice Memo for Project Justification	NPC	Discusses NDEP requiring NPC to conduct a remedial study addressing the diesel plume. Diesel plume discovered in 1985. Remediation began in 1986 and 1987. Between '87 and '94 recovered 190,000 gallons of diesel. Free product thickness up to 6 feet in some	diesel plume, free product, remediation	Interoffice Memo	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 40	1/27/1994	Reid Gardner Diesel Recovery, 1993 4th Quarter Report to NDEP	NPC	Summarizes free product recovery in diesel plume during quarter and to date. Product thickness and water level data attached.	diesel plume, free product	Letter	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 41	7/21/1993	Reid Gardner Diesel Recovery, 1993 2nd Quarter Report to NDEP	NPC	Summarizes free product recovery in diesel plume during quarter and to date. Product thickness and water level data attached.	diesel plume, free product	Letter	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 42	4/26/1993	Reid Gardner Diesel Recovery, 1993 1st Quarter Report to NDEP	NPC	Summarizes free product recovery in diesel plume during quarter and to date. Product thickness and water level data attached.	diesel plume, free product	Letter	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 43	1/27/1994	Interoffice Memo for 1994 Additional Budget Requirements for NDEP Mandated Diesel Recovery at Reid Gardner	NPC	Request $180,000 budget	diesel plume	Interoffice Memo	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 44	12/22/1993	Modification of Task Schedule for Reid Gardner Station Diesel Remediation	NDEP	Acceptance of revised task schedule for diesel remediation	diesel plume, remediation	Letter	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 45	11/10/1993	Summary of November 1993 NPC/NDEP Diesel Fuel Recovery Meeting	NDEP	General comments regarding progress of diesel recovery system	diesel plume, recovery	Letter	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 46	1987-1993	Diesel Plume Regulatory Correspondence	Various	Various letters, memos, and short reports regarding diesel plume recovery and remediation. Topics include design, schedule, and monitoring data	diesel plume, recovery, remediation	Various	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 47	2/7/1995	Comprehensive Site Assessment Report (Volume 1 and 2)	Converse	Chronological summary of past environmental investigations. Additional focus on hydrocarbon and free product impacts on groundwater and soil. Discusses pilot trench free product recovery system. Contains maps, tables, laboratory data, and boring logs.	diesel plume recovery and remediation	Report	Site-wide	Site-wide	Site Assessment	NVE	
AOC- 48	1/24/2001	Discharge Monitoring Report, 4th Quarter 2000 to NDEP (Volume 1 and 2)	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, monitoring wells, spring	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 49	7/8/1991	Notification for Underground Storage Tanks to NDEP	NPC	UST registration includes 5 USTs containing diesel and gasoline ranging in size from 1000-2500 gallons	pond, river, discharge, monitoring wells, nodes	Letter report	Plant	Plant	Underground Storage Tank	NVE	
AOC- 50	6/1/1999	Phase II Environmental Assessment Report	Black and Veatch	Contains soil and groundwater sampling results from several areas of concern throughout Reid Gardner site. Identified impacts include TPH in soil and groundwater. Includes laboratory data, figures, and boring logs.	phase II, TPH	Report	Site-wide	Site-wide	Phase II - Site-wide	NVE	
AOC- 51	4/1/2005	Discharge Monitoring Report, 1st Quarter 2005, Volume 1 and 2	Ninyo and Moore	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 52	9/15/1986	Hydrogeologic Study	Intellus Corporation	site-wide hydrogeologic study. Includes groundwater gradient and background groundwater quality information, boring logs, contour map, and groundwater level graphs. May be a draft report.	hydrogeology, groundwater, boring logs	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 53	4/16/1999	Wildlife and Botanical Resources Report	Converse	Assessment of threatened, endangered, or candidate species of concern identified no species. State of Nevada protected species identified.	endangered species	Report	Mesa	Mesa	Fish and Wildlife	NVE	
AOC- 54	1/28/2000	Discharge Monitoring Report, 4th Quarter 1999 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, monitoring wells, spring	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 55	2/3/1989	NPC Project Manual for Reid Gardner Units 1,2,3 Seepage Cut-Off Wall for Evaporation Ponds	Converse	Contains construction and site work specifications for pond cut off walls	pond, cut off wall	Report	Pond F, Pond G	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 56	6/16/1995	Muddy River Regional Environmental Impact Alleviation Committee	Various	Various muddy river water quality documents including presentation slides, fish survey report, aerials, and topos.	Muddy River, water quality, fish	Report	Muddy River	Moapa Valley	Fish and Wildlife	NVE	
AOC- 57	2/1/2006	NPC Reid Gardner Pond B3 Construction Permit Application to NDEP	Stanley Consultants	Construction permit application for ponds B3 using NDEP guidance	Pond B3, construction permit	Permit Application	Pond B3	Unit 4 Ponds	Design and Construction	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 58	4/13/1993	Testing of Above Ground Diesel Fuel Storage Tank	NPC	Synopsis of the background and current status of above ground diesel fuel storage tank. Includes integrity testing	diesel tank, product recovery, integrity testing	Monitoring Report	Plant	Plant	Integrity Testing	NVE	
AOC- 59	4/7/2006	Discharge Monitoring Report, 1st Quarter 2006, Volume 2 (Volume 2 of 2)	Ninyo and Moore	Laboratory data sheets for pond, river, and spring samples.	evaporation pond, muddy river,	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 60	5/14/1993	Report of Professional Engineering Services	Converse	Summary of monitoring well installation services. MW Wells and P Wells including select boring logs and well development logs.	monitoring wells, construction , MW Wells, P Wells, boring logs	Report	Site-wide	Site-wide	Monitoring Well Development	NVE	
AOC- 61	7/8/1998	Hydrogeologic Assessment	Kleinfelder	Assessment in accordance to NDEP order. Focus on soil impact by salts. Includes groundwater monitoring data for TDS and other water quality parameters. Also includes boring logs.	TDS, groundwater, boring logs	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 62	8/13/1986	Solids Disposal System Operations Manual	Black and Veatch	General summary of site-wide solid waste storage and disposal . Includes fly ash rehabilitation and disposal report. Boring logs included	solid waste, fly ash, boring logs	Report	Site-wide	Site-wide	Solid and Hazardous Wastes	NVE	
AOC- 63	6/1/2005	Discharge Monitoring Report, 2nd Quarter 2005 (Volume 1 and 2)	Ninyo and Moore	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 64	10/16/2006	Discharge Monitoring Report, 3rd Quarter 2006 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 65	7/25/2000	Discharge Monitoring Report, 2nd Quarter 2000	Kleinfelder	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 66	4/27/2000	Discharge Monitoring Report, 1st Quarter 2000	Kleinfelder	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 67	1/25/2002	Discharge Monitoring Report, 4th Quarter 2001	Kleinfelder	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables. Includes historical parameter concentration graphs.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 68	10/30/2002	Discharge Monitoring Report, 3rd Quarter 2002	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 69	1/28/2003	Discharge Monitoring Report, 4th Quarter 2002	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results. Includes historical parameter concentration graphs.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 70	7/26/2002	Discharge Monitoring Report, 2nd Quarter 2002	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 71	4/30/2002	Discharge Monitoring Report, 1st Quarter 2002	Kleinfelder	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 72	9/27/2001	Discharge Monitoring Report, 3rd Quarter 2001	Kleinfelder	Monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 73	7/23/2001	Discharge Monitoring Report, 2nd Quarter 2001	Kleinfelder	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 74	5/9/2001	Discharge Monitoring Report, 1st Quarter 2001	Kleinfelder	Flow discharge, monitoring well, river, and pond sampling results. Contour maps and tables.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 75	4/1/2003	Discharge Monitoring Report, 1st Quarter 2003	Westmark Environmental Services	Monitoring well, river, and pond sampling results.	pond, river, monitoring wells, nodes	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 76	7/31/2003	Discharge Monitoring Report, 2nd Quarter 2003	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 77	10/27/1999	Discharge Monitoring Report, 3rd Quarter 1999	Kleinfelder	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results	pond, river, monitoring wells, spring	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 78	4/23/2004	Discharge Monitoring Report, 1st Quarter 2004	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 79	7/27/2004	Discharge Monitoring Report, 2nd Quarter 2004	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 80	10/10/2004	Discharge Monitoring Report, 3rd Quarter 2004	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results. Includes annual sampling schedule	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 81	1/27/2005	Discharge Monitoring Report, 4th Quarter 2004	Westmark Environmental Services	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results. Includes historical parameter concentration graphs.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 82	11/1/1986	Product Recovery Testing at the Reid Gardner Power Plant	Intellus Corporation	Field investigation for the development of a diesel recovery plan. Includes, integrity testing, hydraulic testing, recovery well testing, water quality sampling, and recovery system design.	diesel recovery system, integrity testing	Report	Central Plant	Plant	Diesel Recovery	NVE, NDEP	
AOC- 83	1/18/1990 - 1/27/1994	Diesel recovery correspondence	Various	Various letters, memos, and short reports regarding diesel plume recovery and remediation	diesel plume, recovery, remediation	Various	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 84	4/24/1996	Monitoring well correspondence	Mifflin and Associates	Various memos regarding spring monitoring well damage inventory groundwater levels, and spring inventory	monitoring wells, springs, groundwater	Memo	Upper Muddy River	Moapa Valley	Monitoring Well Development	NVE	
AOC- 85	6/21/2000	Supplemental Phase II Environmental Site Assessment - Task Reports - Tasks1A-1E	Kleinfelder	Includes soil, groundwater, and surface water sampling results for unit 1,2,3 settling pond and wash rack, unit 4 treated water pond and unit 4 cooling tower basin. Contains maps, figures, data. No appendices available.	soil, groundwater, surface water, sampling	Report	Site-wide	Site-wide	Phase II - Unit 4	NVE, NDEP	
AOC- 86	12/7/2000	Hydrogeological Characterization 2000	Kleinfelder	Marked up copy. Background characterization, conceptual hydrogeological model, evaluation of potential receptors and evaluation of office impacts. Includes topo maps, contour maps. Graphs showing contaminant concentrations in Pond G to Area 5	hydrogeology, boring logs, receptors	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 87	9/15/1999	Hydrogeologic Assessment; Principle Components and Data Needs.	NDEP	Requesting additional information like background determination, conceptual hydrogeologic ,model and receptor survey. Administrative order # NV05275W1. Document also includes Land Use Application # N-66494.	hydrogeology, Land Use Permit N-66494	Letter	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 88	5/12/1993	Sanitary Landfill Closure Plan	NPC	Discuss plan for closing on-site sanitary landfill. Contains maps.	sanitary landfill	Report	WMU 1	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 89	6/5/2000	Supplemental Phase II Environmental Site Assessment - Task 13 Report - Vehicle Maintenance Area	Kleinfelder	Includes VOC, TPH, and metal soil and groundwater sampling results in the vicinity of the vehicle maintenance area. Contains maps, figures, data.	VOC, TPH, metals, groundwater	Report	Central Plant	Plant	Phase II - Vehicle Maintenance	NVE, NDEP	
AOC- 90	8/21/2000	Supplemental Phase II Environmental Site Assessment - Task 18 Report - Landfills and Storage Yards	Kleinfelder	Visual assessment and determination for additional landfill area sampling	landfills	Report	Site-wide	Site-wide	Phase II - Landfills	NVE, NDEP	
AOC- 91	8/22/2000	Supplemental Phase II Environmental Site Assessment - Task 19 Report - Solid Waste Landfill	Kleinfelder	Installed down gradient monitoring well for metals analysis. Contains maps, figures, and data.	solid waste landfill	Report	WMU 1	Mesa	Phase II - Solid Waste Landfill	NVE	
AOC- 92	10/17/2000	Supplemental Phase II Environmental Site Assessment - Task 25 Report - Waste Management Unit Assessment	Kleinfelder	Soil and groundwater sampling results for VOC, TPH, metals, and general water quality criteria. Contains boring logs, laboratory data, and maps.	VOC, TPH, metals, WMU, groundwater	Report	Site-wide	Site-wide	Phase II - Waste Management Units	NVE, NDEP	
AOC- 93	7/1/2003	Stormwater Pollution Prevention Plan	NPC	Potential SW pollution sources and inventory, pollution prevention, and spill procedures	SWPPP, stormwater	Report	Site-wide	Site-wide	SWPPP	NVE	
AOC- 94	10/1/2004	Spill Prevention Control and Countermeasures Plan	NPC	Inventory of plant oil storage, spill response measures, and map	SPCC, oil	Report	Site-wide	Site-wide	SPCC	NVE	
AOC- 95	12/10/1993	Stormwater Pollution Prevention Plan	Black and Veatch	Potential SW pollution sources and inventory, pollution prevention, and spill procedures	SWPPP, stormwater	Report	Site-wide	Site-wide	SWPPP	NVE	

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AOC- 96	1/12/2000	Waste Management Units	Kleinfelder	Identifies and describes waste management unit locations and historical use practices	WMU, waste	Report	Site-wide	Site-wide	Site Characterization - WMUs	NVE, NDEP	
AOC- 97	9/2001-5/2007	NPC/NDEP Correspondence	Various	Topics include disposal site permitting, hydrogeologic characterization, Pond F/G corrective action plan, site characterization, 2005 turbine oil release, diesel remediation, pond and diesel recovery system inspection report	correspondence	Letter	Site-wide	Site-wide	Regulatory Correspondence - Various	NVE	
AOC- 98	2/16/2001	Fly ash Landfill Groundwater Monitoring Plan	NPC	General landfill groundwater sampling protocol	fly ash, landfill, groundwater	Report	M-1, M-2, KMW-12, KMW-13, KMW-16, LY-2	Mesa	Sampling Procedures	NVE	
AOC- 99	2/1/2001	Solids Disposal Landfill Operation Manual	Kennedy Jenks	Waste disposal quantities for the year 2000. General landfill operating procedures	landfill, solid waste	Report	Site-wide	Site-wide	Solid and Hazardous Wastes	NVE, NDEP	
AOC- 100	8/2004-3/2006	Waste Management Unit 7 Correspondence	Various	Agency correspondence regarding WMU 7. Topics include delineation and characterization, laboratory data reports.	WMU 7	Report	WMU 7	Mesa	Site Characterization - WMU 7	NVE	
AOC- 101	3/2005-12/2005	Additional Site Characterization, WMU-12 Area of Total Dissolved Solids and other WMU-12 correspondence	Various	One monitoring well installed and sampled. Results indicated concentrations in excess of action levels for several metals and water quality parameters. Includes laboratory data, maps, and boring logs. NPC/NDEP correspondence regarding WMU 12, area of total dissolved solids. Miscellaneous data tables, laboratory data packages, and site maps	TDS, WMU 12, groundwater, monitoring wells	Various	WMU 12	Plant	Site Characterization - WMU 12	NVE	
AOC- 102	3/25/2005	Limited Site Characterization, Waste Management Unit 8	Converse	Soil borings and map. No laboratory analysis. No evidence of debris or impacted soil.	WMU 8, ground penetration radar, TPH, VOCs, PCBs, dioxins, RCRA metals	Letter report	WMU 8	Plant	Site Characterization - WMU 8	NVE, NDEP	
AOC- 103	3/22/2005	Limited Site Characterization, Dissolved Chlorinated Solvents, Area 6, to NDEP	NPC	Summarizes monitoring well installation and groundwater sampling. Includes laboratory data, graphs, boring lots.	chlorinated solvents, monitoring wells	Letter report	Warehouse #1, Maintenance Shop	Plant	Site Characterization - Chlorinated Solvents	NVE	
AOC- 104	4/7/2005	Dissolved Chlorinated Solvents Area Response Letter	NDEP to NPC	Request to increase quarterly monitoring of chlorinated solvents using newer groundwater wells.	chlorinated solvents	Letter report	Warehouse #1, Maintenance Shop	Plant	Regulatory Correspondence - Groundwater Monitoring	NVE	
AOC- 105	3/22/2005	Limited Site Characterization, Area Surrounding Former HP-12 (Former ASP-1,2,3 Area)	NPC	Discusses installation of new monitoring wells, groundwater sampling activities, metals and TDS analytical data and general water quality parameters. Contains laboratory data, boring logs, and map.	metals, TDS, monitoring wells	Letter	ASP-1,2,3	North Plant	Site Characterization - former ASP-1,2,3	NVE	
AOC- 106	7/21/2005	Additional Site Characterization, Former ASP-1,2,3 Area	NPC	Discusses installation of new monitoring wells, groundwater sampling activities, metals and TDS analytical data, general water quality parameters. Contains laboratory data, boring logs, and map.	metals, TDS, monitoring wells	Letter	ASP-1,2,3	North Plant	Site Characterization - former ASP-1,2,3	NVE	
AOC- 107	9/19/2005	Additional Site Characterization Report Response Former ASP-1,2,3 area and Other Correspondence	NDEP	Request that new wells be added to quarterly monitoring reports. States sampling had not been completed although requested in particular areas. Response to ASP 1,2,3 workplan	metals, TDS, monitoring wells	Letter	ASP-1,2,3	North Plant	Site Characterization - Monitoring	NVE	
AOC- 108	4/2006-8/2007	Reid Gardner Landfill Expansion	Various	Correspondence with Southern Nevada Health District and BALM for later expansion of a class III landfill. Includes schedules, meeting sign-in sheets, photographs, maps, meeting notes, landfill inspection reports	solid waste landfill	Various	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 109	2/20/2002	Revised Hydrogeologic Characterization Report, Volume 1 and 2	NPC	Identifies and discusses eight areas of potential groundwater contamination. Waste management unit discussion. Includes contour maps and groundwater laboratory data	groundwater, contour maps, concentration contour maps, TDS, metals, chloride	Report	Site-wide	Site-wide	Hydrogeologic Characterization	NVE	
AOC- 110	7/14/2004	Geotechnical and Dewatering Investigation for Pond 4A Closure	Converse	Discusses dewater analysis and recommendations. Pond water hydraulic testing results. Subsurface pond water quality. Includes maps, geotechnical data, and boring logs	Pond 4A, dewatering	Report	Pond 4A	Unit 4 Ponds	Remediation and Closure	NVE, NDEP	
AOC- 111	2/1/2006	Pond B3 Construction Progress Report	Stanley Consultants	Daily project reports and construction pictures	Pond B3, construction	Report	Pond B3	Unit 4 Ponds	Design and Construction	NVE	
AOC- 112	10/19/2005	NPDES Permit No.: NEV91022	NDEP	Authorization to discharge expires Oct 18, 2010. Effluent limits, monitoring, and pond management requirements. Schedule of compliance includes when ponds should be relined or closed.	NPDES permit, effluent limits, Pond F, Pond G, Pond B1, Pond B2, Pond B3	Permit	Site-wide	Site-wide	Permits - Discharge	NVE	
AOC- 113	8/13/2001	Water Balance Block Flow Diagrams	Duke/Fluor Daniel	Water balance diagrams based on monthly usage. Approved for design.	water balance	Data	Site-wide	Site-wide	Water Resources	NVE	
AOC- 114	12/19/2005	Environmental Services - Above Ground Storage Tank	Converse	Investigation into 840,000 gallon diesel secondary containment adequacy. Secondary containment system appears to be adequate.	diesel, secondary containment	Report	Diesel Tank	Plant	Secondary Containment Evaluation	NVE	

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AOC- 115	2/15/2006	Limited Site Characterization - Waste Management Unit 7	Converse	Ground penetrating radar survey, soil boring and soil samples for VOCS, SVOCS, PCBS, Dioxins, and metals. TPH and dioxin detected above regulatory levels.	dioxin, PCB, VOC, SVOC,	Report	WMU 7	Mesa	Site Characterization - WMU 7	NVE, NDEP	
AOC- 116	5/21/2004	Revised Hydrogeologic Characterization Report Response to NDEP comments letters dated August 11, 2003	NPC to NDEP	Discusses additional monitoring activities at the Mesa, northwest ponds, Hogan Wash, dairy, Muddy River, and off-site wells. Includes monitoring well map.	hydrogeology, monitoring wells, groundwater	Letter	Site-wide	Site-wide	Hydrogeologic Characterization	NVE	
AOC- 117	10/1/2003	Additional Background Water Quality Data	NPC to NDEP	Provides background groundwater data for beryllium, cadmium, and nickel. Concludes these metals were not detected in background sampling.	metals, background levels	Letter	Site-wide	Site-wide	Regulatory Correspondence - Background	NVE	
AOC- 118	1/29/2001	Supplemental Report, Pond 4C-2 Liner Tear	NPC to NDEP	Discusses sludge and water management during liner repair.	ponds, liner, sludge	Letter	Pond C2	Unit 4 Ponds	Regulatory Correspondence - Ponds	NVE	
AOC- 119	11/25/1996 - 9/8/1998	General Septic Tank Correspondence	NDEP	Septic Tank General Discharge Permit #GNEV9201-40070 dated 12/10/1996 approves two proposed septic systems. Also includes agency correspondence, maps, drawings, photos, and discharge monitoring reports associated with on-site septic tanks.	septic tank, discharge, permit	Permit	Administration Building, Unit No. 4, Coal Handling Equipment	Plant	Permits - Discharge	NVE	
AOC- 120	9/26/1999	Temporary Discharge Permit #TNEV99004	NPC to NDEP	Includes discharge monitoring report for the desludging pond, MW-2, and lysimeters LW-2 and LW-4. Contains metals data.	discharge, monitoring wells, metals	Letter	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 121	7/22/1999	Temporary Discharge Permit #TNEV99004	NPC to NDEP	Includes discharge monitoring report for the desludging pond, MW-2, and lysimeters LW-3 and LW-4. Contains metals data.	discharge, monitoring wells, metals	Letter	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 122	4/11/1994 - 1/27/1997	Temporary Discharge Permit #TNEV96016 Monitoring Reports	NPC to NDEP	Discharge monitoring reports for unknown pond(s). Contains metals and general water quality data.	discharge, ponds, metals	Letter	Ponds	Ponds	Discharge Monitoring - Quarterly Report	NVE	
AOC- 123	5/24/74 - 9/25/1993	Plan for Leaking Monitoring Effluent Solar Evaporation Ponds	AIM, Inc.	Discusses leaking rates of ponds and potential environmental impacts. Recommends installation of piezometers. Qualitatively indicates environment already charged with salts. Includes potassium, sodium, magnesium, and sulfate data. Includes correspondence from NDEP which requires the plan for leakage monitoring.	ponds, leak, salts, NDEP	Report	Ponds	Ponds	Site Investigation	NVE	
AOC- 124	9/18/1985 - 1/27/1989	Groundwater Sampling Results from December 1988 sampling event	NPC to NDEP	Groundwater sampling results from site-wide sampling event. No map or interpretation. Parameters includes general water quality. Provides groundwater elevations	groundwater, water quality	Letter with Data	Site-wide	Site-wide	Monitoring Data - Groundwater	NVE	
AOC- 125	1985-1987	Pond Well Monitoring, 1985-1987	Various	Sampling results from site-wide pond and well sampling event. Parameters includes general water quality. Provides groundwater elevations and pond levels. Muddy River surface water quality data. Maps of ponds and monitoring wells.	pond, groundwater, water quality	Letter with Data	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	
AOC- 126	9/30/1986	Waste Pond Monitor Wells	NPC	States high level of strontium found in almost all monitoring wells indicating pond leakage. Includes various sampling events from 1985 and 1986 as well as level data from the scrubber ponds	strontium, pond, leak, sampling, scrubber ponds	Interoffice Memo	Pond D, Pond E, Pond B, Pond A, Pond C	Ponds	Internal Correspondence - Water Quality	NVE	
AOC- 127	1973-1983	Pond Well Monitoring, 1973-1983	Various	Pond and monitoring well data, water levels, general water quality parameters	pond, monitoring well, water quality, groundwater	Data	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	
AOC- 128	10/2/1991	Reid Gardner Water Quality Database from 1974-1991	NPC to NDEP	Pond and monitoring well data from 1974-6/30/1991. General water quality parameters. Includes notes dated 10/3/1991.	pond, monitoring well, water quality, groundwater	Letter with Data	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	
AOC- 129	10/30/1987	Nevada Power Company Expanded Groundwater Monitoring Program	NPC to NDEP	Data from 9/15/1987 shows expansion of groundwater monitoring program to include additional parameters. Includes monitoring well location map.	groundwater, monitoring well	Monitoring Report	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	
AOC- 130		Deleted: Document replaced with more legible scan, see NDEP-114									
AOC- 131	8/11/1999	July 31, 1999 Cooling Tower Water Release to the Muddy River	NPC to NDEP	Estimated 5000 gallons spilled into stormwater settling basin which empties into muddy river. TDS levels before reaching river were 5070 mg/L in basin, 6768 below dam, 4480 by culvert. Immediately vacuum pumped spill effected water before reaching dam. Contains map.	spill, TDS, cooling tower	Letter	Central Plant	Muddy River	Spill Report	NVE	
AOC- 132	1/12/1987 - 7/20/1987	Oxidation in Scrubbers	Codane Associates to NPC	Discusses analytical results of scrubber slurry samples from Units 2,3,4. Units 2 and 3 had significantly higher cobalt than Unit 4. High iron also found in Unit 2.	scrubber, slurry, cobalt	Letter	Plant	Plant	Waste Characterization	NVE	
AOC- 133	1/16/1989 - 1/22/1990	Pond Well Monitoring, 1989	Various	Pond and monitoring well data, water levels, general water quality parameters, monitoring well logs	pond, monitoring well, water quality, groundwater	Data	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	

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AOC- 134	4/16/1990 - 1/28/1992	Pond Well Monitoring, 1990-1991	Various	Pond and monitoring well data, water levels, general water quality parameters	pond, monitoring well, water quality, groundwater	Data	Site-wide	Site-wide	Monitoring Data - Groundwater and Pond	NVE	
AOC- 135	11/28/1983	Conclusions Regarding Seepage, RG 1,2,and 3 Evaporations Ponds	Converse	Field notes regarding seepage through toe of berm, southern portion of Unit 1,2,3 Ponds, east dike. Chemical analysis of seepage compared to within pond available.	pond, water quality, leak	Letter	Pond D, Pond E	Unit 1,2,3 Ponds	Ponds - Field Notes	NVE	
AOC- 136	9/3/1982	Reid Gardner Units 1,2, and 3 Report of Investigations and Recommendations for Refurbishments of Existing Evaporation Ponds	URS	Investigation into seepage from evaporation ponds. Recommends slurry trench rehabilitation	pond, leak, slurry trench	Report	Unit 1,2,3 Ponds	Unit 1,2,3 Ponds	Site Investigation	NVE	
AOC- 137	9/27/1988 - 7/20/1992	Hydrogen Sulfide Incident of June 12 1992, Ponds F and G	NPC	Gives dates and quantities of chemical additions to the ponds in order to control order. Chemicals into potassium permanganate and hydrogen peroxide.	pond, odor control, potassium permanganate, hydrogen peroxide	Interoffice Memo	Pond F, Pond G	Unit 1,2,3 Ponds	Internal Correspondence - Pond	NVE	
AOC- 138	2/19/2004	Renewal of Authorization to Discharge Permit #NEV91022	NPC to NDEP	NPC requests reduction in monitoring frequency due to lining of ponds and improved monitoring procedures. Includes table of ponds and respective monitoring wells. Includes proposed monitoring schedule and historical groundwater data from 1996-11/2003	monitoring well, pond, groundwater, water quality	Letter	Site-wide	Site-wide	Permits - Discharge Correspondence	NVE	
AOC- 139	1995	Legal Review 1995	Fabian and Clendenin	Various correspondence regarding NDEP legal authority over site permitting. Cites statues and regulations.	ponds, permits	Various	Site-wide	Site-wide	Legal Review - Permits	NVE	
AOC- 140	1993-1996	Pond Ash Removal Correspondence	Various	Boring logs and geological information in the Mesa fly ash storage area. Pond G desludging letter includes decant water and sludge analysis. Includes maps and lab data. Temporary permit for fly ash slurry disposal into on-site landfill.	pond, ash, sludge	Various	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 141	1990-1992	Pond Ash Removal Correspondence	Various	Subsurface studies of Mesa area for pond ash disposal. Discusses ash removal activities from ponds F and G. Cost estimates. No correspondence with NDEP. No lab data.	pond, ash	Various	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 142	2/14/1980	Nevada Pow er Reid Gardner Response to Nevada Pow er's Request for Approval of Unit 4 Excavation Re-compaction Project	NDEP to NPC	State will approve Nevada Power's request under certain conditions which include the installation of additional groundwater piezometer and additional water analysis.	unit 4, construction permit, recompaction, excavate	Letter	Unit 4	Plant	Monitoring Well Development	NVE	
AOC- 143	7/15/1982	Unit 4 Dewater System Effluent and Permits	NPC, Various	Includes general water chemistry analysis for the Muddy River, Units 1,2,3,4 raw water, dewatering system water, mixed water 3 and 4, and piezometers. Pond permits and correspondence between engineers supporting pond location.	water quality, ponds, Muddy River, groundwater, unit 4, construction	Interoffice Memo	Plant	Plant	Monitoring Data - Muddy River, raw water	NVE	
AOC- 144	10/22/1996	Temporary Discharge Permit #TNEV96080 for Fly Ash Slurry/Sludge Disposal	NDEP	Indicates monitoring well sampling requirements for general water quality parameters	monitoring well, water quality	Permit	Site-wide	Site-wide	Permits - Discharge	NVE	
AOC- 145	1986	Oil and Chemical Spill Study 1986	Various	Memos and correspondence between consultants and contractors regarding implementation of diesel fuel plume remediation. Methylene chloride was also identified as a potential chemical of concern.	diesel fuel, spill, remediation, methylene chloride	Various	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 146	2/27/2002	4C-1 Pond Liner Installation Quality Control/Quality Assurance	NPC to NDEP	QAQC report of HDPE liner system in pond 4C-1. QAQC procedures followed in the field were in general accordance with installation guidelines.	Pond 4C1, liner, QAQC	Report	Pond C1	Unit 4 Ponds	Design and Construction	NVE	
AOC- 147	7/31/2001	Unit 4 Evaporation Pond Relining Project - Compliance Status	NDEP to NPC	Confirms NPC is in substantial compliance with the schedule for ponds 4C3 and 4C2	Pond 4C2, Pond 4C3	Letter	Pond C2, Pond C3	Unit 4 Ponds	Design and Construction	NVE	
AOC- 148	9/30/2002	Discharge Permit #91022 and Administrative Order #NV083199W1	NPC to NDEP	Provides chronology of events pursuant to administrative order. Includes sludge disposal, relining ponds. Administration order issued 1997. Discusses past and future activities through 2010.	ponds, timeline, administrative order	Letter	Site-wide	Site-wide	Permits - Discharge	NVE	
AOC- 149	8/6/2002	Unit 3 Evaporation Pond Relining Pond E Close D	NDEP to NPC	NDEP finds it acceptable to eliminate the proposed Mesa pond and reline the existing ponds F, G, 4B and 4C.	ponds, lining	Letter	Pond F, Pond G, Pond B, Pond C	Ponds	Regulatory Correspondence - Ponds	NVE	
AOC- 150	8/31/1999	Formal Enforcement Action for Water Pollution Violations	NDEP to NPC	Indicates groundwater is contaminated by NPC provided analysis of up gradient and down gradient TDS and sulfate concentrations. Provides relining/closure schedule for on-site ponds.	groundwater, contamination, ponds, TDS, sulfate	Letter	Site-wide	Site-wide	Regulatory Correspondence - Enforcement Action	NVE	
AOC- 151	1974-1990	Evaporation Pond 1 2 3 Pond/Dike Upgrade	NPC	Data tables of background concentrations and water quality compiled by NPC. Date of first noticeable increase in water quality concentration table.	groundwater, water quality, background	Various	Site-wide	Site-wide	Monitoring Data - Background water quality	NVE	
AOC- 152	7/6/1990	Geotechnical Investigation Seepage Condition Evaporation Pond E	Converse	Contains geological information, boring logs, and pond drawings of seepage study.	leak, geology, ponds	Report	Pond E	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond E	NVE	

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AOC- 153	2/11/1999	Hydrogeological Assessment	Kleinfelder	Discusses monitoring well, surface impoundment, and river sampling data. No data tables. Appendices not attached to report.	hydrogeology	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 154	1997-1998	NOV Pond Discharge 1997	Various	Correspondence between NDEP and NPC regarding administration order #NV052797W1. Includes review of regional water quality data. Also includes Pond E geological study with boring logs.	ponds, discharge, pond E	Various	Ponds	Ponds	Notice of Violation	NVE	
AOC- 155	2/21/1992 - 7/14/1992	NOV RG4 Scrubber Discharge 1992	Various	Correspondence between NDEP and NPC regarding evaporation pond leak discharge rates.	ponds, line, permeability	Various	Unit 4 Ponds	Unit 4 Ponds	Notice of Violation	NVE	
AOC- 156	1991	NOV Water Discharge 1991	Various	NPC receives violation for unauthorized discharge to groundwater from NDEP. NDEP states unlined ponds are problem. Includes maps, process diagrams, request for appeals.	groundwater, lining, ponds, process water	Various	Ponds	Ponds	Notice of Violation	NVE	
AOC- 157	9/23/1994	NOV September 1994	Various	Discharge to Muddy River from pipeline. Pipeline replaced March 1995. Includes figures.	Muddy River, discharge	Various	Railroad at Muddy River - NE Corner	Muddy River	Notice of Violation	NVE	
AOC- 158	4/15/1998	Administration Closure of Appeal SEC-067 (Water Pollution Control Order #NEV0527997WI)	Nevada State Environmental Commission	Appeal not necessary since matter has been resolved.	violation	Letter	Ponds	Site-wide	Regulatory Order	NVE	
AOC- 159	4/23/1993	Groundwater Analysis Report 1st Quarter 1993	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 160	1/26/1993	Groundwater Analysis Report 4th Quarter 1992	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 161	11/12/1992	Groundwater Analysis Report 3rd Quarter 1992	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 162	7/28/1992	Groundwater Analysis Report 2nd Quarter 1992	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 163	4/1/1992	Groundwater Analysis Report 1st Quarter 1992	Lockheed Analytical Laboratory	Raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Data	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 164	1/20/1981	Reid Gardner Unit 4 Evaporation Pond	NDEP to NPC	The State has no objection in relocating the Unit 4 pond. Response to December 1st, 1980 and January 13, 1981 letters	pond relocation	Letter	Unknown	Unit 4 Ponds	Design and Construction	NVE	
AOC- 165	4/13/1984 - 7/30/1987	Lay-down Area Evaporation Ponds Leakage	NPC	Letter to Ron Luis Construction stating leakage was noted in June 1988 in the northeast area of the northerly pond at Units 1,2, and 3 new lay-down area evaporation ponds.	ponds, leak	Letter	Pond F, Pond G	Unit 1,2,3 Ponds	Internal Correspondence - Pond	NVE	
AOC- 166	4/25/1986	Environmental Assessment	Intellus Corporation	EA for groundwater monitoring well. Includes proposed monitoring well locations, diagrams. Land use, cultural resources, biological resources. Impacts.	EA, monitoring wells, groundwater	Letter report	Site-wide	Site-wide	Environmental Assessment - Monitoring Wells	NVE	
AOC- 167	1991	NOV 11/23/91 Release to Muddy River	Various	Contains NDEP and NPC correspondence regarding Unit 4 flue gas desulfurization bleed line rupture resulting in 11, 250 gallon release to river. Installed alarm system to prevent future occurrences.	Muddy River, spill	Various	Unit 4	Muddy River	Notice of Violation	NVE	
AOC- 168	1996	NOV 6/17/96 Release to Muddy River	Various	Contains NDEP and NPC correspondence regarding 19,000 gallon process water release to river caused by break in 8" fiberglass pipeline.	Muddy River, spill	Various	Haul Road and Muddy River	Muddy River	Notice of Violation	NVE	
AOC- 169	1997-1998	NOV Cooling Tower Discharge 12/97	Various	Contains NDEP and NPC correspondence regarding 1,000 gallon cooling tower blow down release to river caused by line rupture. June 4, 1998 NDEP says it does not intend to proceed penalties pursuant to spill.	Muddy River, spill, cooling tower	Various	Cooling Tower	Muddy River	Notice of Violation	NVE	
AOC- 170	1992	NOV Oil and Scrubber Discharges 10/92	Various	Contains NDEP and NPC correspondence regarding 100 gallons of #2 fuel oil that impacted soil. Impacted soil was removed.	fuel oil, spill	Various	Scrubber Effluent Line at Muddy River Crossing	Plant	Notice of Violation	NVE	
AOC- 171	7/27/1993	Groundwater Analysis Report 2nd Quarter 1993	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	

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AOC- 172	10/28/1993	Groundwater Analysis Report 3rd Quarter 1993	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 173	1/26/1994	Groundwater Analysis Report 4th Quarter 1993	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 174	4/27/1994	Groundwater Analysis Report 1st Quarter 1994	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 175	8/5/1994	Groundwater Analysis Report 2nd Quarter 1994	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 176	10/27/1994	Groundwater Analysis Report 3rd Quarter 1994	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 177	1/18/1995	Groundwater Analysis Report 4th Quarter 1994	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 178	4/14/1995	Groundwater Analysis Report 1st Quarter 1995	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 179	7/13/1995	Groundwater Analysis Data 2nd Quarter 1995	Nevada Environmental Laboratory	Raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Data	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 180	10/20/1995	Groundwater Analysis Report 3rd Quarter 1995	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 181	1/25/1996	Groundwater Analysis Report 4th Quarter 1995	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 182	4/24/1996	Groundwater Analysis Report 1st Quarter 1996	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 183	7/10/1996	Groundwater Analysis Data 2nd Quarter 1996	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 184	10/25/1996	Groundwater Analysis Report 3rd Quarter 1996	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 185	1/30/1997	Groundwater Analysis Report 4th Quarter 1996	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 186	5/8/1997	Groundwater Analysis Report 1st Quarter 1997	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 187	7/24/1997	Groundwater Analysis Data 2nd Quarter 1997	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 188	10/20/1997	Groundwater Analysis Report 3rd Quarter 1997	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 189	1/2/1998	Groundwater Analysis Report 4th Quarter 1997	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 190	5/22/1998	Groundwater Analysis Data 1st Quarter 1998	NEL Laboratories	Raw laboratory water quality data for pond, river, and groundwater. No interpretation. KMW wells added to monitoring network	water quality, ponds, Muddy River, groundwater	Data	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	

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AOC- 191	7/20/1998	Groundwater Analysis Data 2nd Quarter 1998	NPC to NDEP	Contains raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 192	10/19/1998	Groundwater Analysis Report 3rd Quarter 1998	NPC to NDEP	Contains water level data, raw laboratory water quality data for pond, river, and groundwater. No interpretation.	water quality, ponds, Muddy River, groundwater	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 193	3/3/2004	4th Quarter 2003 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 194	11/5/1992 - 8/17/1994	Muddy River Transects	Various	Corps of Engineers and Fish and Wildlife Service Correspondence with NPC regarding proposed muddy river infiltration gallery and the Moapa Dace	Muddy River, Moapa Dace	Various	Muddy River	Muddy River	Fish and Wildlife	NVE	
AOC- 195	1991-1994	Muddy River Intake 1991-1994	Various	Corps of Engineers and Fish and Wildlife Service Correspondence with NPC regarding proposed muddy river infiltration gallery and the Moapa Dace	Muddy River, Moapa Dace	Various	Muddy River	Muddy River	Fish and Wildlife	NVE	
AOC- 196	10/25/1988 - 12/26/1990	Muddy River Intake through 1990	Various	Corps of Engineers and Fish and Wildlife Service Correspondence with NPC regarding proposed muddy river infiltration gallery and the Moapa Dace	Muddy River, Moapa Dace	Various	Muddy River	Muddy River	Fish and Wildlife	NVE	
AOC- 197	4/25/1984	Lewis Well Field Water Rights	NPC	Memo and various correspondence regarding water rights and water supply. Includes yields , e-coli data, water supply well locations, hydrographs.	water supply, water rights, hydrographs	Interoffice Memo	Site-wide	Site-wide	Water Resources	NVE	
AOC- 198	2/14/1983	Moapa Dace Recovery Plan	US Fish and Wildlife Services	Provides habitat requirements and recovery objectives	Moapa Dace	Report	NA	Moapa Valley	Fish and Wildlife	NVE	
AOC- 199	5/1985 - 10/25/1991	Muddy River Intake Reports and Assessments	Various	Various reports regarding river intake alternatives and impacts on Moapa Dace	Muddy River, Moapa Dace	Various	Muddy River	Muddy River	Fish and Wildlife	NVE	
AOC- 200	1994-1996	Muddy River Intake 1994-1996	Various	Various reports and correspondence regarding Muddy River water intake and impacts on Moapa Dace	Muddy River, Moapa Dace	Various	Muddy River	Muddy River	Fish and Wildlife	NVE	
AOC- 201	11/1/1999	Site Characterization Workplan	Kleinfelder	Site characterization workplan in response to NDEP letter dated September 15, 1999 requesting additional characterization. Plan includes development of conceptual hydrogeological model, background characterization, evaluation of potential receptors, development of site-specific sampling protocols, evaluation of plant site, evaluation of mesa, evaluation of KMW-1, evaluation of off-site impacts, evaluation of Muddy River, and final report. Cover page missing.	groundwater, monitoring wells, contamination,	Report	Site-wide	Site-wide	Site Characterization	NVE	
AOC- 202	1991-1993	Hydrogeological Study 1991-1993	Various	Internal and agency correspondence regarding hydrogeological site data. Includes historical data tables, monitoring well maps, contour maps.	groundwater, hydrogeology	Various	Site-wide	Site-wide	Hydrogeologic Assessment	NVE	
AOC- 203	1989-1995	Diesel Recovery Reports to NDEP	NPC to NDEP	Quarterly reports regarding free product recovery	diesel fuel, remediation, recovery	Monitoring Report	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 204	1992-1993	Diesel Recovery Upgrade 1993	Various	Various correspondence regarding diesel recovery system between NDEP and NPC.	diesel fuel, remediation, recovery	Various	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 205	1991-1993	Effluent Reduction Study	Various	Interoffice and consultant correspondence regarding effluent reduction alternatives based on hydrological assessments and water balances	process water, effluent, pond	Various	Site-wide	Site-wide	Water Resources	NVE	
AOC- 206	3/23/1998	Administrative Order #NV052797W1	NPC to NDEP	Provides interim report on status of tasks required by NDEP order. Evaluate liner materials, prepare work plan, installation of off-site monitoring wells, historical review. Includes several letters and memos including NDEP response	liner, monitoring wells	Letter	Ponds	Site-wide	Regulatory Order	NVE	
AOC- 207	2/25/1999	Technical Design Submittal for a Fly Ash Storage Reservoir to Receive Slurry from Ponds F and G	NDEP to NPC	State approves NPC design	fly ash, storage	Letter	WMU-10	Mesa	Regulatory Correspondence - Ponds	NVE	
AOC- 208	1999-2003	Diesel Recovery Reports to NDEP	NPC to NDEP	Quarterly reports regarding free product recovery	diesel fuel, remediation, recovery	Letter with Data	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
AOC- 209	1988-1989	Diesel Recovery 1988-1989	Various	Internal memos and correspondence with NDEP regarding diesel recovery. Includes laboratory data and maps	diesel fuel, remediation, recovery	Various	Central Plant	Plant	Diesel Recovery	NVE	

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AOC- 210	12/30/1987	RG Product Recovery Project	NPC to NDEP	Startup of product recovery system to be delayed until late February 1988.	diesel fuel, remediation, recovery	Letter	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 211	9/10/2004	Corrective Action Plan for Ponds F & G	NPC to NDEP	Provides discussion of plume contaminants, dimensions, and proposed corrective actions. Includes groundwater contour map and data tables.	Pond F, Pond G, groundwater	Letter	Pond F, Pond G	Unit 1,2,3 Ponds	Corrective Action Plan - Pond F and G Groundwater Plume	NVE	
AOC- 212	5/6/1997	Minutes of NDEP/Dairy/NPC Pond Walk	NPC	Dairy alleges NPC activities impacted water supply for livestock. Walk-through revealed seeps on Pond G, salts on soils adjacent to diversion channel, areas of dead vegetation near Ponds G and E, and Hogan Springs water quality changes. Lab data and letter from dairy attached.	dairy, leak, Pond G	Interoffice Memo	Site-wide	Site-wide	Internal Correspondence - Pond	NVE	
AOC- 213	10/28/1993	Unit 4 Dewatering 1993 3rd Quarter Report	NPC to NDEP	Includes water quality analysis reports from the Unit 4 dewatering well. Also includes Muddy river sampling.	unit 4, dewatering well, Muddy River	Monitoring Report	Unit 4 Dewatering Well	Plant	Monitoring Data - Muddy River, Unit 4 dewatering well	NVE	
AOC- 214	1987-1997	Diesel Plume Lab Analysis	Nevada Environmental Laboratory	Contains miscellaneous laboratory data packages	diesel fuel, remediation, plume, lab	Data	Plant	Plant	Diesel	NVE	
AOC- 215	3/26/1992 - 1/26/1993	Unit 4 Dewatering Quarterly Reports	NPC to NDEP	Includes water quality analysis reports from the Unit 4 dewatering well. Also includes Muddy river sampling.	unit 4, dewatering well, Muddy River	Monitoring Report	Unit 4 Dewatering Well	Plant	Monitoring Data - Muddy River, Unit 4 dewatering well	NVE	
AOC- 216	8/7/1986 - 1/27/1992	Unit 4 Dewatering Quarterly Reports	NPC to NDEP	Includes water quality analysis reports from the Unit 4 dewatering well. Also includes Muddy river sampling.	unit 4, dewatering well, Muddy River	Monitoring Report	Unit 4 Dewatering Well	Plant	Monitoring Data - Muddy River, Unit 4 dewatering well	NVE	
AOC- 217	9/3/2003	Corrective Action Plan for Ponds D & E, Response to NDEP Comments Letter Dated December 16th, 2002 and As-Built Drawings	NPC to NDEP	Provides response to comments regarding quarterly sump sampling, analytes, pond capacity, and piping depth	Pond D, Pond E, capacity	Letter	Pond D, Pond E	Unit 1,2,3 Ponds	Corrective Action Plan - Pond D and E	NVE	
AOC- 218	9/27/2000 - 10/2/2000	Closure for 1,2,3 Ash Settling Ponds	NDEP to NPC	Division approves schedule for closure of ponds	ash pond	Letter	ASP-1,2,3	North Plant	Regulatory Correspondence - Ponds	NVE	
AOC- 219	9/24/2004	Limited Site Characterization Workplan Area of Total Dissolved Solids Near HM-27 (Area 6)	NPC to NDEP	Discusses plan to further delineate extent of TDS plume in the area of HM-27. In April 2000, 15400 mg/L at HM-27.	Area 6, TDS	Letter	HM-27	Plant	Site Characterization - Area 6	NVE	
AOC- 220	6/28/1994 - 7/14/1994	Ash System Line Break and MR Release	Various	Approximately 650 gallons of process water was released to soils surrounding pipelines near auxiliary bleed line. Several cubic yards of soil slump was observed in river. Includes laboratory surface water data for general water quality parameters.	spill, ash system	Various	Railroad at Muddy River	Muddy River	Spill Report	NVE	
AOC- 221	8/31/1999	Authorization to Discharge Permit #NEV91022	NDEP	Contains monitoring requirements and permit limits for plant discharge to floodplain and mesa ponds. Expired August 31,2004. Also includes 1994 and 2002 landfill permits.	permit, discharge	Permit	Site-wide	Site-wide	Permits - Discharge	NVE	
AOC- 222	6/25/2003	Background Water Quality Data for the Reid Gardner Generating Station	NPC to NDEP	Provides analyte concentrations in background wells and proposed remediation goals for several metals and water quality parameters.	background, water quality, remediation, monitoring wells	Letter	Site-wide	Site-wide	Regulatory Correspondence - Background	NVE	
AOC- 223	1986	Clear well Overflow 1986	Various	Correspondence regarding cooling tower catch basin or clear well overflow into the Muddy River. Potential spill chemicals include hydroxyethylenediaminephosphonate, polycarboxylic acid, sulfuric acid, tolytriazol	cooling tower, spill, Muddy River	Various	Muddy River	Muddy River	Spill Report	NVE	
AOC- 224	3/4/2003 - 5/21/2003	Water Spill 3/2/2003	Various	Approximately 1000 gallons of cooling tower water was released to the Muddy River due to a power outage. Includes internal and NDEP correspondence. NPC receives violation but NDEP did not seek penalties.	cooling tower, spill, Muddy River	Various	Unit 4 Cooling Tower	Muddy River	Spill Report	NVE	
AOC- 225	12/18/1995	December 16th 1995 Spill	NPC to NDEP	Unknown amount of pond F water was discharged through a utility access culvert to the Muddy River. Salt encrustation was observed on soil.	pond F, spill, Muddy River	Letter	Pond F, Muddy River	Unit 1,2,3 Ponds	Spill Report	NVE	
AOC- 226	3/27/1992	Water Well Survey 1992	NPC	Provides list of all permitted water wells within a 5 mile radius. Includes domestic, commercial, industrial, and irrigation wells. Section and township information available.	wells	Report	NA	Moapa Valley	Water Resources	NVE	
AOC- 227	1979-2000	Ash Disposal	Various	Internal and NDEP correspondence regarding ash disposal landfill. Includes fly ash laboratory data, fly ash material safety data sheets, undated environmental assessment, maps and borings logs. Discussion of wildlife issues and landfill permitting.	ash pond	Various	Fly Ash Pond	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 228	10/5/1992 - 2/18/1993	Boiler Cleaning	Various	Boiler sludge laboratory data sheet including TCLP metals resulting in non detect.	boiler sludge	Various	Boiler	Plant	Waste Characterization	NVE	

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AOC- 229	11/15/1992-1/9/1995	CERCLA Audit	Various	NDEP conducted a preliminary site assessment in 1992. Discusses chemical use and waste generation at the site. Methylene chloride may be present due to vehicle maintenance. Drum of methyl ethyl ketone (MEK) found on-site. In 1994, NDEP requests analysis for soil and sludge samples near warehouse 2, soil and groundwater samples. Acetone and chloroform found in wells HM-25 and HM-28.	CERCLA, laboratory data, waste	Various	Site-wide	Site-wide	Audit - CERCLA	NVE	
AOC- 230	1987-1993	Chemical Inventory	Various	Internal and agency correspondence. Identified on-site chemical storage includes sulfuric acid, sodium hydroxide, chlorine, diesel fuel, lime, soda, coal	chemicals, inventory	Various	Site-wide	Site-wide	Tier II	NVE	
AOC- 231	2/14/1986	Disposal of Redwood from Unit 1 Cooling Tower	NPC	Memo indicates that arsenic treated redwood is specifically exempt from hazardous waste regulations	arsenic, cooling tower, waste	Interoffice Memo	Unit 1 Cooling Tower	Plant	Waste Disposal	NVE	
AOC- 232	2/25/1986	Empty Barrel Control	NPC	Indicates that empty barrels to be periodically crushed and buried in the sanitary landfill.	drum, sanitary landfill	Interoffice Memo	WMU 1	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 233	4/1/1986	Central Receiving Yard	NPC	Used oil and chemical storage in central receiving yard has led to soil contamination , extent of contamination unknown. No laboratory data included.	soil, chemical, used oil, storage, contamination	Interoffice Memo	Receiving Yard	Plant	Solid and Hazardous Wastes	NVE	
AOC- 234	10/28/1986	Storage Barrels	NPC	Several leaking drums of oil were identified in the Unit 4 storage area	drum, oil, leak	Interoffice Memo	Unit 4 Storage Area	Plant	Solid and Hazardous Wastes	NVE	
AOC- 235	3/10/1988	1987 Hazardous Waste Report	NPC to NDEP	Hazardous wastes include waste petroleum distillate solution, wastewater, and contaminated dust. No specific description available.	hazardous waste	Report	Plant	Plant	Solid and Hazardous Wastes	NVE	
AOC- 236	6/19/1989	Disposal of Corrtrol 778 (Betz 778) at Reid Gardner	NPC	Directs disposal of Corrtrol 778 (Betz 778) into Pond 4A because non-hazardous. MSDS included with two potentially hazardous chemicals; hydroquinone and methoxypropylamine, 3-	corrtrol 778, betz 778, hazardous	Interoffice Memo	Pond 4A	Unit 4 Ponds	Waste Disposal	NVE	
AOC- 237	1990-1994	Waste Correspondence	Various	Includes hazardous wastes manifests, waste characterization reports, and disposal invoices.	wastes	Various	Plant	Plant	Solid and Hazardous Wastes	NVE	
AOC- 238	8/25/1999	Temporary Discharge Permit #TNEV99004	NPC to NDEP	Includes discharge monitoring report for the desludging pond, MW-2, and lysimeters LW-2 and LW-4. Contains metals data.	discharge, monitoring wells, metals	Letter	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	
AOC- 239	5/7/1999	Diesel Fuel Release	Various	Diesel fuel line located west of the pumping station ruptured and released around 500 gallons. Impacted oil adjacent to the trench, Impacted soil excavated. During excavation a large quantity of a historic spill was encountered. It was determined that this historic spill was a result of cracks in the secondary containment for the fuel pumps at the pumping station and from buried underground fuel lines that were abandoned in the 1980s.	diesel, spill, secondary containment	Various	Fuel Pumping Station	Plant	Spill Report	NVE	
AOC- 240	2000-2003	HazMat Permit and SARA III/Tier II	Various	Tier II chemical inventories. Over 20 chemicals included such as cesium 137. Locations not included	tier II, cesium 137	Various	Plant	Plant	Tier II	NVE	
AOC- 241	1995	HazMat Permit and SARA III/Tier II	Various	Tier II chemical inventories. Over 20 chemicals included such as cesium 137. Locations not included	tier II, cesium 137	Various	Plant	Plant	Tier II	NVE	
AOC- 242	1992-1995	Hazardous Wastes Manifests	Various	Manifests include disposal tracking for waste flammable liquids, waste corrosive liquids, waste paints, hazardous waste solids. Also includes waste characterization data and drum tracking table.	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 243	2004	Hazardous Wastes Manifests-Clean Harbors	NPC	Manifests include disposal tracking for waste flammable liquids (monoethylamine), non-hazardous waste solids (tri-sodium phosphate), waste corrosive liquid (sulfuric acid), and tetrabromoethane.	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 244	2003	Hazardous Wastes Manifests-Clean Harbors	NPC	Manifests include disposal tracking for waste flammable liquids (methyl ethyl ketone - MEK, carbon tetrachloride, toluene, methanol), waste paint related materials	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 245	1999-2001	Hazardous Wastes Manifests	NPC	Manifests include disposal tracking for waste flammable liquids (monoethylamine), oil and grease, waste paint, hydraulic fluid, hazardous waste liquid (containing arsenic and chromium)	manifests, wastes, arsenic, chromium	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 246	1998	Hazardous Wastes Manifests	NPC	Manifests include disposal tracking for combustible liquids (i.e. monobutylether), used anti-freeze, pesticides, mercury	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 247	1997	Hazardous Wastes Manifests	NPC	Manifests include disposal tracking for non-hazardous phosphate esther, anti-freeze, waste ammonia solution, water treatment chemicals, mercury, xylene, methyl ethyl ketone (MEK), isocyanates, waste bromine solution, waste zinc dust, potassium cyanide, phenol	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	

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AOC- 248	1996	Hazardous Wastes Manifests	NPC	Manifests include disposal tracking for waste flammable liquids (monoethylamine), sodium peroxide, sodium hypochlorite, waste paint, citric acid, mercury, waste oxidizing liquid (chromium trioxide, silver nitrate)	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 249	2002	Hazardous Wastes Manifests - Safety Kleen	NPC	Manifests include disposal tracking for waste flammable liquids (monoethylamine), hypochlorite, petroleum naptha, sulfuric acid	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 250	2002-2004	Hazardous Wastes Manifests - US Ecology	NPC	Manifests include disposal tracking for non-hazardous waste. Oil and grease, oil filters.	manifests, wastes	Manifests	Plant	Plant	Hazardous Waste Manifests	NVE	
AOC- 251	1994	Lab Wastes	Various	Data and internal correspondence regarding laboratory wastes. Includes list of over 30 chemicals.	wastes, laboratory	Various	Central Plant	Plant	Waste Disposal	NVE	
AOC- 252	6/8/2004	Clark County Health District Inspection Form	Clark County	Landfill inspection report indicates compliance with the except of additional signing requirements	landfill, inspection	Inspection report	Landfill	Mesa	Inspection - Health	NVE	
AOC- 253	10/5/1998-9/2/1999	Landfill Permit Modification	Various	NPC requests removal of groundwater monitoring requirements around Class III landfill. Request denied by NDEP. Clark County Health District allowed temporary covering around a portion of the landfill with synthetically lined surface impoundments.	landfill, groundwater, monitoring	Various	Unknown	Mesa	Landfill Permit	NVE	
AOC- 254	8/16/1993	Borrow Area Evaluation Proposed Sanitary Landfill Cover	Kleinfelder	Contains geotechnical information on borrow areas 1 and 2.	borrow, landfill, sanitary	Report	Landfill	Mesa	Geotechnical Investigation	NVE	
AOC- 255		Deleted: Same document as AOC-301									
AOC- 256	6/25/1998	NDEP RCRA Inspection	NDEP	No action was required. One drum of xylenes and two drums of bug spray were identified. No location noted.	RCRA, inspection	Inspection report	Site-wide	Site-wide	Solid and Hazardous Wastes	NVE	
AOC- 257	1994	NDEP RCRA Audit	Various	NDEP found violations that include primarily paper work violations.	RCRA, audit	Various	Site-wide	Site-wide	Audit - RCRA	NVE	
AOC- 258	8/19/1996	Temporary Discharge Permit #TNEV96016	NDEP	Authorizes discharge of fly ash sludge and slurry from Ponds 4B1, 4B2, and G via pipeline to on-site landfill. Includes monitoring requirements. .	discharge, Pond 4B1, Pond 4B2, Pond G, fly ash, landfill	Permit	Ponds	Ponds	Permits - Discharge	NVE	
AOC- 259	1987-1999	Sara III - Tier II	Various	Contains agency and internal correspondence and Tier II reports. Includes maps of chemical storage.	Tier II, chemical, storage	Various	Plant	Plant	Tier II	NVE	
AOC- 260	12/10/1996	Septic System Drawings	Various	Includes detailed septic system drawings and site plan. NDEP permit included. Includes discharge permit GNEV9201-40070.	septic, permit, discharge permit	Various	Northeast of Warehouse #1	Plant	Septic System - Engineering drawings	NVE	
AOC- 261	10/10/1994	Unlawful Discharge of a Pollutant Without a Permit	NDEP to NPC	On September 23, 1994 a wastewater forwarding line was damaged with a backhoe during excavation of Units 1,2,3 ash system blow down line. Following the rupture, wastewater filled the excavation, ponded in the road, and flowed to the river. Quantity unknown. Finding of violation.	spill, Muddy River	Letter	Unit 1,2,3 blow down line	Muddy River	Spill Report	NVE	
AOC- 262	3/15/1993	Diesel Fuel Release on February 15th, 1993 Closure Request	NPC to NDEP	Spill cleaned up. Post-clean up samples were analyzed for TPH and were not detected.	spill, diesel	Letter	Fuel Oil Tank Berm	Plant	Spill Report	NVE	
AOC- 263	10/7/1992	Scrubber Effluent Line Leak at Muddy River	NPC to NDEP	Scrubber effluent with non-hazardous concentrations of sulfur, sodium, sulfite, sulfate, and chloride released into Muddy River from a cracked t-fitting at Unit 3. Total discharge to river estimated at 100 gallons.	spill, Unit 3, Muddy River	Letter	Muddy River	Muddy River	Spill Report	NVE	
AOC- 264	10/6/1992 - 8/19/1993	Spill 10-2-92	Various	100 gallons of fuel oil was discharged from a temporary holding tank inside the containment area for the large aboveground fuel tank. 100 square feet of surface soil staining noted. Impacted soil was removed. Analysis for TPH with concentrations from 769 - 880 mg/kg. Based on the fact that the area was within the on-going diesel plume area, this incident was closed.	spill, diesel	Various	Diesel Tank	Plant	Spill Report	NVE	
AOC- 265	5/29/1992	5/28/92 Scrubber Bleed Line from Unit 4	NPC	Bleed line was hit with a backhoe and started leaking. Ash water pooled in an excavation area. No release of liquid to the river occurred.	spill, bleed line	Interoffice Memo	Unknown	Unknown	Spill Report	NVE	
AOC- 266	2005	Toxic Release Inventory 2005	NPC	Contains form R reports for mercury, dioxin and dioxin like compounds, barium compounds, chromium compounds, copper compounds, lead compounds, manganese compounds, and zinc compounds. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 267	2004	Toxic Release Inventory 2004	NPC	Contains form R reports for arsenic, barium, chromium, copper, dioxin and dioxin like compounds, hydrochloric acid, hydrogen fluoride, lead, manganese, mercury, nickel, selenium, sulfuric acid, and zinc. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	
AOC- 268	2002	Toxic Release Inventory Calculations	NPC	Calculations to determine with chemicals exceed reporting thresholds. Forms not included.	TRI	Data	Site-wide	Site-wide	TRI	NVE	
AOC- 269	2001	Toxic Release Inventory 2001	NPC	Contains form R reports for hydrogen fluoride, hydrochloric acid, sulfuric acid, mercury, dioxin and dioxin like compounds, barium compounds, chromium compounds, copper compounds, lead compounds, manganese compounds, and zinc compounds. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	
AOC- 270	2000	Toxic Release Inventory 2000	NPC	Contains form R reports for hydrochloric acid, sulfuric acid, dioxin and dioxin like compounds, barium compounds, chromium compounds, copper compounds, lead compounds, manganese compounds, and zinc compounds. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	
AOC- 271	1999	Toxic Release Inventory 1999	NPC	Contains form R reports for hydrogen fluoride, hydrochloric acid, sulfuric acid, barium compounds, chromium compounds, copper compounds, lead compounds, manganese compounds, and zinc compounds. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	
AOC- 272	1998	Toxic Release Inventory 1998	NPC	Contains form R reports for hydrogen fluoride, hydrochloric acid, barium compounds, chromium compounds, copper compounds, lead compounds, manganese compounds, and zinc compounds. Quantity stored on-site, quantity generated or processed on-site, and total releases to air, land, and water included.	TRI, form R,	Report	Site-wide	Site-wide	TRI	NVE	
AOC- 273	1986	Transformer Retrofit/Replacement	NPC	Contains internal correspondence regarding quantities of PCB containing oil located within at least 15 transformers.	PCB, transformer	Various	Unit 1,2,3	Plant	Solid and Hazardous Wastes	NVE	
AOC- 274	1987-1999	Underground Storage Tank	Various	Includes leak detection documents and agency correspondence regarding underground storage tanks within the site. Gasoline and diesel underground storage tanks identified.	UST, gasoline, diesel	Various	Plant	Plant	Underground Storage Tank	NVE	
AOC- 275	2000-2007	Underground Storage Tank	NPC	Contains leak testing reports and annual throughputs for gasoline and diesel tanks	UST, gasoline, diesel	Various	Plant	Plant	Underground Storage Tank	NVE	
AOC- 276	11/18/2004	Revised Delineation and Characterization Workplan Waste Management Unit 7	NPC to NDEP	Waste management unit 7 is believed to be located on BLM property and adjacent to archeologically sensitive areas. It was the primary landfill for Reid Gardner wastes prior to 1985. Propose ground penetrating radar and additional soil samples.	WMU 7, landfill, archeology	Letter	WMU 7	Mesa	Site Characterization - WMU 7	NVE	
AOC- 277	11/18/2004	Revised Delineation and Characterization Workplan Waste Management Unit 8	NPC to NDEP	Revised workplan based off 9/24/2004 letter. Includes more detail on groundwater penetration radar and omits comparison to EPA action levels.	WMU 8, ground penetration radar, TPH, VOCs, PCBs, Dioxins, RCRA metals	Letter report	WMU 8	Plant	Site Characterization - WMU 8	NVE	
AOC- 278	1987-1992	Waste Profiles and Analysis	USPCI, Inc.	Contains waste characterizations for ignitable, 200 silver stream, drained transformer, gasoline, diesel oil, methyl ethyl ketone (MEK), tar remover, sludge, Nalco 1339, Nalco anti-foam, steam cleaning solution, encapsulant, paint thinner, sand blast grit	waste, characterization	Data	NA	Plant	Waste Characterization	NVE	
AOC- 279	5/31/2001	Soil and Water Sampling	NPC to Clark County Health District	Includes analysis results of native soils used in construction of evaporation ponds. Lab data and map included.	evaporation pond, native soils	Letter report	Ponds	Ponds	Monitoring Data - Groundwater and Soil	NVE	
AOC- 280	1987-1995	Glendale/Moapa Area Property Ownership	Clark County	Includes information regarding neighborhood property owners and plat maps.	property ownership	Data	NA	Moapa Valley	Community Study	NVE	
AOC- 281	8/31/1999	Phase I Environmental Site Assessment - 240 Acre Parcel South of Reid Gardner Station	Converse	Phase 1 Environmental Site Assessment. The assessment consists of research of readily available documents, review of available aerial photographs, site reconnaissance interviews, and preparation of this report. Performed on a 240 acre vacant lot S of RGS	phase I	Report	Mesa	Moapa Valley	Phase I - Parcel South of RGS	NVE	
AOC- 282	5/11/1999	Optional EA, Fonsi, and Decision Record Form	BLM	Site type right-of-way of 240 acres south of facility for a fly-ash disposal site is granted to NPC for 30 years	BLM, fly-ash	Letter	Mesa	Moapa Valley	Solid and Hazardous Wastes	NVE	
AOC- 283	2002	Pond Complaints	Various	Tracking of neighbor complaints regarding odor	odor	Various	NA	Moapa Valley	Odor Studies	NVE	
AOC- 284	5/31/1986	Radioactive Material License	Nevada State Board of Health	Sixty sources of cesium-137 at plant. None exceed 100 millicuries.	cesium, radioactive	Permit	Site-wide	Site-wide	Radioactive Inventory	NVE	
AOC- 285	5/26/2005	As-Built Drawings Ponds C1 and C2	NDEP to NPC	As-Built Drawings Ponds C1 and C2	Pond C1, Pond C2	Drawings	Pond C1, Pond C2	Unit 4 Ponds	Design and Construction	NVE	

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AOC- 286	10/1/2005	NPC Reid Gardner Pond F and G Permit Application to NDEP	Stanley Consultants	Construction permit application for wastewater settling Ponds F and G using NDEP guidance	Pond F, Pond G, construction permit	Permit Application	Pond F, Pond G	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 287	1988-1994	RG Aerial Photos	Unknown	Black and white aerial photos of NPC Reid Gardner Station	photos	Photos	Site-wide	Site-wide	Photos	NVE	
AOC- 288	3/28/2003	Groundwater Monitoring - March 2003 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 289	2/1/1993	Report of Environmental Services	Converse	Includes geological information, boring logs. Discusses installation of new monitoring wells, provides water level data.	groundwater, monitoring well	Report	Eastern Plant	Plant	Geotechnical Investigation	NVE	
AOC- 290	10/6/1999	Preliminary Findings: Partially Completed Field Investigation, Fly Ash Disposal Landfill Expansion Project	Converse to Kennedy Jenks	Contains geological information, boring logs. Also contains 12/15/1999 memo with details regarding MW-1, MW-2, and MW-3.	landfill, fly ash, storage, geology, MW-1, MW-2, MW-3, boring logs	Memo	Mesa	Mesa	Feasibility Study	NVE	
AOC- 291	5/17/2002	Geotechnical Investigation Retrofit of Ponds D and E	Converse	Provides geological information and boring logs around ponds D and E	Pond D, Pond E, retrofit	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond D and E	NVE	
AOC- 292	2/21/2002	Dredge Pond	NPC to Clark County Health District	Plan showing exact location of planned dredge plan for fly-ash disposal attached	fly ash, storage	Drawings	Mesa	Mesa	Regulatory Correspondence - Fly-ash	NVE	
AOC- 293	7/14/2004	Preliminary Findings: Geotechnical and Dewatering Investigation Pond 4A Closure	Converse to Kennedy Jenks	Contains slug tests data, boring logs, maps	Pond 4A, dewatering	Memo	Pond 4A	Unit 4 Ponds	Remediation and Closure	NVE	X
AOC- 294	8/13/2004	General Permit to Operate and Discharge Large Capacity Septic System	NDEP	Discharge greater than 5,000 gallons/day to groundwater via leach or drain field. Does not stay where located.	septic, permit, discharge	Permit	Unknown	Plant	Permits - Discharge	NVE	
AOC- 295	1/29/2002	Operations Manual - Evaporation Ponds	NPC	Operational description, water quality sampling protocol, solids management plan, general closure plan for ponds, and liner leak location and repair plan. Process flow diagrams and general plant layout included.	operations manual	Report	Ponds	Site-wide	Operations Manual	NVE	
AOC- 296	5/24/1999	Odor Control System - Draft	Kleinfelder	Discusses costs associated with odor problems at Pond E and Mesa Ponds A and B. Aspirator Aerator, hydrogen peroxide, and floating diffuser options.	odor, hydrogen peroxide, Pond E, Mesa Pond A, Mesa Pond B	Report	Pond E, Mesa A, Mesa B,	Ponds	Odor Studies	NVE	
AOC- 297	5/26/1999	Design Basis Report and 10% Design Drawings Wastewater Pump Station	Kleinfelder	Pump station to convey effluent from Ponds F and G to new Mesa Ponds A and B. Located at the west end of the common embankment between Pond F and G. Part of an overall project to include the design and construction of two new lined surface impoundments for evaporation of wastewater., access roads, pipelines, and security measures	pump station, Pond F, Pond G, Mesa Pond A, Mesa Pond B, evaporation, wastewater	Letter report	Pond F, Pond G	Ponds	Design and Construction	NVE	
AOC- 298	10/22/1996	Seepage Observed in the Vicinity of Discharged Area	NPC to NDEP	Seepage was observed at the site of the fly ash haul road near the summit of the mesa, adjacent to the sludge discharge area. The area along the northwest corner of the discharge area was lined and discharge pipe was relocated. Includes maps.	seepage, mesa, sludge discharge	Letter	Haul road and mesa	Mesa	Spill Report	NVE	
AOC- 299	3/3/1996 - 8/6/1996	Permit #TNEV96016 period and provision updates	NPC to NDEP	NPC requests the removal of 100,000 cubic yards of fly ash slurry/salts from Ponds 4B-1, 4B-2, 4B-3, and Pond G.	fly ash, storage, disposal	Letter	Pond B1, Pond B2, Pond B3, Pond G	Ponds	Ponds - Sludge Disposal	NVE	
AOC- 300	10/7/1993	Schedule of Tasks for Evaluation of Diesel Plume and Remediation System	NDEP to NPC	NDEP requests task schedule regarding clean up of diesel plume and additional hydrogeologic modeling to define plume boundary.	diesel plume, modeling	Letter	Central Plant	Plant	Regulatory Correspondence - Diesel Recovery	NVE	
AOC- 301	2/7/1994	Solid Waste Landfill Closure	NPC to NDEP	Indicates that NPC completed installation of the final landfill cover which included placement of 40" thick infiltration layer composed of fly ash, construction of 6" thick armor cover, identification of landfill boundary markers, and development of a post-closure monitoring program	waste, landfill, closure	Letter report	WMU 1	Mesa	Solid and Hazardous Wastes	NVE	
AOC- 302	1/10/1994	Notice of Violation	NDEP to NPC	NDEP administered an inspection. Hazardous wastes violations include failure to conduct hazardous waste determination of solvent wastes generated in the machine shop, accumulation time, equipment requirements, among others. Drums found included monoethylamine and acetic acid and oil.	inspection, hazardous waste, solvents	Letter	Machine Shop	Plant	RCRA	NVE	
AOC- 303	2/23/1994	Response to Finding of Alleged Violations	NPC to NDEP	NPC determined that 1,1,1 - TCA has not been received since 2002 therefore the facility is a small quantity generator. NPC prepared a corrective action plan to address other violations.	hazardous waste, solvents	Letter	Machine Shop	Plant	RCRA	NVE	
AOC- 304	11/1/1993	Free Product Transport Modeling Report	Converse	Contains free product plume modeling diagrams. The estimated amount of fuel oil in the subsurface is 245,000 gallons	diesel plume, modeling	Report	Central Plant	Plant	Diesel Recovery - Modeling	NVE	

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AOC- 305	Unknown	Reid Gardner Diesel Fuel History	Unknown	Diesel fuel station timeline for 1964-1984. Station moved to various locations and shown in attached map. Author and date unknown,	diesel, fuel	Interoffice Memo	Central Plant	Plant	Diesel	NVE	
AOC- 306	7/17/1995 - 10/21/1998	Diesel recovery correspondence	Various	Various letters, memos, and short reports regarding diesel plume recovery and remediation	diesel plume recovery, remediation	Various	Central Plant	Plant	Diesel Recovery	NVE	
AOC- 307		Deleted: Same Document as DIV010									
AOC- 308	8/16/1991	Fly Ash Slurry Disposal	Converse	Investigates alternatives for handling, dewatering and final disposal of fly ash slurry. Includes chemical analysis of slurry heavy metals, total dissolved solids content.	fly ash, liner, Pond C	Report	Site-wide	Site-wide	Ponds - Fly Ash	NVE	
AOC- 309	9/28/2008	Pond D Restoration Evaluation	Converse	Geotechnical evaluation of Pond D restoration	Pond D, restoration	Report	Pond D	Site-wide	Ponds	NVE	
AOC- 310	12/16/2002	NDEP Letter Dec 2002	NPC	Letter to the NDEP from NPC regarding a corrective action plan for ponds D and E	Pond D, Pond E, corrective action	Letter	Pond D, Pond E	Site-wide	Ponds	NVE	
AOC- 311	12/1/2005	Pond D and E Record Drawings	Kennedy Jenks	Drawings of pond D and E reconstruction. Pond E split into two cells.	Pond D, Pond E, reconstruction	Drawings	Pond D, Pond E	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 312	2/15/1983	Unit 4-Ponds A, B, C Record Drawings	URS Corporation	Pre-retrofit Ponds A, B, and C record drawings showing alignment and depth of impervious core around Pond 4-A and 4-C. Impervious core and slurry wall around Pond 4-B.	Pond 4A, Pond B, Pond C	Drawings	Pond 4A, Pond B, Pond C	Unit 4 Ponds	Design and Construction	NVE	
AOC- 313	4/7/2000	Analytical Data - April 2000	NEL Laboratories	Analytical data from dated April 2000. Samples refer specifically to VM-SUMP.	Analytical data, VM SUMP	Data	VM-SUMP	Plant	Quarterly Report	NVE	
AOC- 314	11/2/1965	Unit No. 1 Plans	Stearns-Roger	Grading plan of ash retention area (ASP #1). Also shows paving and railroad details. Approved for construction 10-14-63	ASP-1	Drawings	ASP-1,2,3	Plant	Design and Construction	NVE	
AOC- 315	9/25/1976	Unit No. 3 Plans	Stearns-Roger	Plot plans show existing existing ash setting pond (ASP) #1 and #2. ASP #2 expanded in 10/1974.	ASP-1, ASP-2	Drawings	ASP-1,2,3	Plant	Design and Construction	NVE	
AOC- 316	8/11/2003	Reid Gardner Station, Revised Hydrogeologic Characterization Report (dated February 20, 2002)	NDEP	Letter from NDEP to NPC in response to 2002 revised hydrogeologic characterization report. NDEP outlines additional information, assessment, and conditions with which they accepted the revision.	Mesa, Hogan's Wash, Ponds D, E, F, G, Dairy, Plant, Muddy River, wells	Letter	Site-wide	Site-wide	Regulatory Correspondence - Hydrogeologic Characterization	NVE	
AOC- 317	2/23/1989	Reid Gardner Units 1,2,3 Evaporation Ponds Seepage Cut-off Wall	Converse Consultants	Pond D and E construction drawings showing alignment and depth of slurry wall around ponds. Wall is not a complete perimeter but in three sections.	Units 1, 2, & 3, Pond D, Pond E, drawings, slurry wall, cut-off wall	Drawings	Pond D, Pond E	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 318	1/27/2009	Geotechnical Evaluation Pond D	Converse Consultants	Geotechnical evaluation of Pond D restoration project. Outlines field exploration, laboratory results, and includes boring logs.	Pond D, boring logs, geotechnical	Report	Pond D	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond D and E	NVE	
AOC- 319	10/10/2008	Geotechincal Evaluation Pond D	Converse Consultants	Geotechnical evaluation of Raw Water Ponds. Outlines field exploration, laboratory results, and includes boring logs.	Raw Water Ponds, boring logs, geotechnical	Report	Raw Water Ponds	North Plant	Geotechnical Investigation - Raw Water Ponds	NVE	
AOC- 320	2/28/2007	Nevada Power Reid Gardner Spill Prevention Control and Countermeasure Plan	Arcadis	Inventory of plant oil storage, spill response measures, and map	SPCC, oil	Report	Site-wide	Site-wide	SPCC	NVE	
AOC- 321	2/28/2007	Stormwater Pollution Prevention Plan	Arcadis	Potential SW pollution sources and inventory, pollution prevention, and spill procedures	SWPPP, stormwater	Report	Site-wide	Site-wide	SWPPP	NVE	
AOC- 322	12/12/1986	Reid Gardner Units 1,2 and 3 Laydown Area Evaporation and Storage Ponds	URS Corporation	Pond F and G record drawings showing alignment and depth of impervious core and slurry wall around ponds.	Pond F, Pond G, slurry wall, settling ponds	Drawings	Pond F, Pond G	Unit 1,2,3 Ponds	Design and Construction	NVE	
AOC- 323	3/20/2002	Fly ash Monitoring Well Installation Correspondence	NPC	Correspondence regarding the installation of 6 monitoring wells. The letter refers to a Converse Consultants report from 3/11/2002 (NDEP-50).	Monitoring wells, landfill, fly ash	Letter	Landfill	Mesa	Monitoring Well Development	NVE	

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AOC- 324	1979-1997	Raw Water Pond Drawings	NPC, Fluor, Tippett, Morrison	Drawings of the raw water ponds done by various firms over a number of years. Document includes several revisions of some drawings, and some duplicates.	Raw Water Ponds, Drawings	Drawings	Raw Water Ponds	Raw Water Ponds	Drawings and Construction	NVE	
AOC- 325	5/1/2008	Final 2007 Muddy River Report	Bio-West, Inc.	Report contains conditions of the Muddy River as well as condition of current species in the Muddy River. Outlines the results of 1 year of sampling. Includes pictures and graphical data.	Muddy River, Sampling	Report	Muddy River	Site-wide	Fish and Wildlife	NVE	
AOC- 326	12/1/2008	Final 2008 Muddy River Report	Bio-West, Inc.	Report contains conditions of the Muddy River as well as condition of current species in the Muddy River. Outlines the results of 1 year of sampling. Includes pictures and graphical data.	Muddy River, Sampling	Report	Muddy River	Site-wide	Fish and Wildlife	NVE	
AOC- 327	12/7/2006	Ash and Sludge Analysis - Dec 2006	Veritas Laboratories	Analytical data from December 2006. Samples refer to Sludge and wastewater, results from metals and VOCs	Analytical data, Sludge	Data	Site-wide	Site-wide	Ponds	NVE	
AOC- 328	6/15/1992	Site Drawings - 1992 Aerial	Kenneth J Brown Associates	Site drawings created from an Aerial completed in 1992. Drawings include the entire facility, including all ponds	Drawings, All Ponds	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
AOC- 329	5/5/2009	Lime Sludge Pond Salt Lab Results	Columbia Analytical Services	Analytical results from lime sludge and pond salt sampling event in May 2009.	Analytical, Sampling, Ponds	Data	Ponds	Site-wide	Ponds	NVE	
AOC- 330	10/8/2007	Used Oil Release 17 Aug 2008	NPC	Letter to NDEP outlining details of a used oil spill at the facility. Document contains cover letter, figures of affected area, lab results/analysis, and pictures of the clean up effort	Used oil spill, August 2007	Letter report	Central Plant	Site-wide	Spill Report	NVE	
AOC- 331	5/15/2009	PSDC Soft Spot Borings	CH2M Hill	Boring logs and map of boring locations. Borings taken from a soft spot at the facility	Boring logs, map, soft spot	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
AOC- 332	2/20/2007	Geotechnical Data Report - 320 acre Mesa Fly ash Storage	Converse Consultants	Document consists of data from drilling, sampling, lab tests, and geologic reconnaissance conducted on the 320-acre Mesa Fly ash storage site. Report includes boring logs and tables	Borling logs, Fly ash, Mesa, Geotechnical Report	Letter report	Mesa	Mesa	Geotechnical Report	NVE	
AOC- 333	5/12/1983	Findings and Conclusions Seepage, Erosion and Stability Evaporation Ponds RG 1,2,3	Converse	Evaluation of potential seepage along the east dike of East Pond (Pond E). Reevaluated seepage along the south dike. Study is addendum to previous study of seepage in south dike. Includes monitoring well logs and screened intervals for P-1, P-1.5, P-2.5 and WP-1 to WP-8. Includes historical concentrations for general chemistry parameters, figure showing monitoring wells. Concludes remedial action for seepage is unwarranted.	Pond D, Pond E, seepage	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Ponds - Leaks	NVE	
AOC- 334	2/1/1979	Final Environmental Impact Report Reid Gardner Generating Station Unit No. 4	California Department of Water Resources	Contains one chapter with history of Units 1,2, 3, includes process information, general pond descriptions, topographical maps showing five evaporation ponds on the mesa, raw water reservoirs, treated water reservoir, water sludge pond (ASP 1,2,3). Also includes historical Muddy River data.	Unit 4, P ponds, ASP-1,2,3	Report	Site-wide	Site-wide	Environmental Assessment - Unit 4 purchase	NVE	
AOC- 335	8/7/1973	Report of Soils Investigation Reid Gardner Station Unit No. 3	Nevada Testing Laboratory	Foundation investigation for power plant addition of Unit 3. Contains figure showing configuration of ASP ponds and soil boring locations. Includes 40+ boring logs.	Unit 3, borings	Report	Plant	Plant	Geotechnical Investigation - Unit 3	NVE	
AOC- 336	7/3/1972	Wastewater Disposal Study Reid Gardner Station	Stearns-Roger	Theoretical water balances developed for improvement of wastewater disposal. Includes water process flow diagrams.	water balance	Report	Site-wide	Site-wide	Ponds - Water Balance	NVE	
AOC- 337	1/1/1973	Natural Evaporation of Scrubber Effluents	Arthur D. Little Incorporated	Study of scrubber water evaporation for the evaluation of pond size and solids settling.	scrubber water, pond size, evaporation, solids settling	Report	Site-wide	Site-wide	Ponds - Water Balance	NVE	
AOC- 338	4/1/1995	1994 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley Nevada	Mifflin and Associates	General water study and hydrological impacts in the river and groundwater. Includes water level data, temperature, conductivity rates, photos, maps.	Muddy River, hydrogeological, groundwater	Report	NA	Muddy River Basin	Water Resources	NVE	
AOC- 339	6/1/1995	Analysis of 1994 Groundwater Level Trends in the Upper Muddy River Valley, Nevada	Water Resource Center, Desert Research Institute	Evaluates short and long term hydraulic head conditions in the vicinity of NPC well fields to understand resource impacts.	groundwater, Muddy River Valley, wells	Report	NA	Upper Muddy River Valley	Water Resources	NVE	
AOC- 340	3/30/1992	Water Balance Current Operation	Black and Veatch	Water balance diagrams initiating at well fields through the plant and ending and ponds	water balance	Drawings	Site-wide	Site-wide	Ponds - Water Balance	NVE	
AOC- 341	5/19/1995	Soil and Foundation Investigation Coal Truck Unloading Facility	Converse	Geotechnical investigation for proposed coal truck unloading facility. Includes figure and boring logs.	boring, coal truck unloading, geotechnical	Report	Plant	Plant	Geotechnical Investigation - coal truck unloading	NVE	
AOC- 342	1/7/1997	Slope Stability Analysis Treated Water Pond	Kleinfelder	Slope stability analysis for berms surrounding treated water storage pond located south of guard shack. Seepage was noted from the outside slope toe area of the north portion of the west-facing slope of the pond. Recommendations to stop seepage and to control integrity of the pond berm were made.	treated water pond, seepage, slope stability	Report	Treated Water Pond	Plant	Geotechnical Investigation - Treated Water Pond	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
AOC- 343	5/25/1993	Water/Effluent Reduction Study	Black and Veatch	Study proposes methods to reduce water usage. Includes description of water usage facilities. Includes proposed water balance drawing however current water balance drawing is missing	water balance	Report	Site-wide	Site-wide	Ponds - Water Balance	NVE	
AOC- 344	3/1/1988	Geotechincal Investigation Storage Tank	SEA Incorporated	Geotechnical investigation of proposed slurry storage tank in the plant site. Includes map and soil borings.	borings, geotechnical	Report	Plant	Plant	Geotechnical Investigation - proposed slurry tank	NVE	
AOC- 345	7/2/1982	Interim Report No. 1 Geotechnical Evaluation of Existing Evaporation Ponds	Converse	Investigation into subsurface conditions around west and Unit 1,2,3 Ponds (Ponds D and E). Discusses possible washes under ponds. Includes figure and boring logs.	borings, Pond D, Pond E, geotechnical	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond D and E	NVE	
AOC- 346	12/15/1979	Unit No. 4 Drawings	Fluor Power Services	Select issued for bid drawings for RGS unit No 4. Grading plan shows waste pond #1 (foster wheeler), south septic system and utilities. Also includes overpass earthwork section and details, site area misc. details, road plans and profiles, and general plot plans for proposed evaporation ponds east of station. Drawing set incomplete. Raw water pump structure plan, section, and details from a different set of drawings.	foster wheeler pond, septic system, unit no. 4, raw water pond	Drawings	Unit 4	Plant	Drawings and Construction	NVE	
AOC- 347	11/29/1990	RG Pond Life	NPC	Provides calculations for pond life estimates including salt estimates in tons/year flowing to east/west ponds, 4B2, 4B3, and 4C Ponds.	Pond D, Pond E, Pond B2, Pond B3, Pond C, pond salts, flow	Memo	Pond D, Pond E, Pond B2, Pond B3, Pond C	Ponds	Ponds - flow	NVE	
AOC- 348	6/1/1995	Makeup Water Intake Study	Stanley Consultants	Report examines water surface profile after removing dam due to reduction of Moapa Dace. Recommends modifications to intake structure and stream bed for optimal intake usage. No appendices included.	Moapa Dace, Muddy River intake	Report	Warm Springs Road Crossing	Muddy River	Water Resources	NVE	
AOC- 349	5/1/1996	Geotechnical Exploration Muddy River Bank Stabilization Project	SEA Incorporated	Proposed bank stabilization geotechnical study. Four test borings to a depth of 30 feet below ground surface on the northeast side of the Muddy River and near Pond F. Contains cross-sections and boring logs.	borings, Muddy River	Report	Muddy River	Muddy River	Geotechnical Investigation - Muddy River	NVE	
AOC- 350	3/10/1980	Report of Soils Investigation Reid Gardner Station Unit No. 4	Nevada Testing Laboratory	Soils investigation for power plant addition of Unit 4. Contains figure showing raw water ponds and soil boring locations. Includes 100+ boring logs.	Unit 4, borings	Report	Plant	Plant	Geotechnical Investigation - Unit 3	NVE	
AOC- 351	6/6/1996	Geotechnical Investigation Evaporation Ponds D and E	Kleinfelder	Results from a geotechnical investigation around Ponds D and E as part of a technical update of Kleinfelder's Hydrogeologic Study dated June 1992. Includes boring logs.	geotechnical, borings, pond D, Pond E	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Geotechnical	NVE	
AOC- 352	8/11/1986	Borrow Source Study Laydown Evaporation Pond Area	Converse Consultants, Southwest Incorporated	Borrow source evaluation for the proposed laydown area (Pond F and G) ponds. Contains topographic maps showing the recommended borrow area locations on the mesa and west of Pond B. Also includes test trench logs.	test trench, Pond F, Pond G, borrow, topographic map	Report	Pond F, Pond G	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond F and G	NVE	
AOC- 353	6/1/1987	Sulfite Oxidation and Evaporation Pond System Odor Control	James M. Montgomery Consulting	Evaluates cause of odor problem through biochemistry and provides recommendations to reduce odor.	odor, sulfite oxidation, evaporation ponds	Report	Pond C	Unit 4 Ponds	Odor Studies	NVE	
AOC- 354	6/1/1985	Aeration Feasibility Study for the Reid Gardner Unit 4 Evaporation Ponds	James M. Montgomery Consulting	Includes COD, BOD, Sulfate, TDS information regarding pond 4B and 4C. Recommends pond aeration to control odor problem.	odor, Pond B, Pond C	Report	Pond B, Pond C	Unit 4 Ponds	Odor Studies	NVE	
AOC- 355	10/23/2003	Establishment of Action Levels	NDEP	Letter from NDEP to RGS establishing action levels for Be, Cd, and Ni for groundwater sampling	Action Levels, Sampling	Letter	Site Wide	Site Wide	Groundwater Sampling	NVE	
AOC- 356	2/25/2001	Groundwater Level Monitoring Program 2000 Annual Report	Converse	Summarizes area wide water level data for 2000. Includes wells EH-2, EH-3, Lewis wells among others. No analytical. Topographic maps included.	groundwater	Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
AOC- 357	1987-1995	RG Water Rights	Various	Miscellaneous correspondence between Nevada Power and State of Nevada Department of Conservation and Natural Resources Division of Water Resources. Includes applications and extension of time forms related to water rights permits. Also refers to groundwater extraction trenches related to diesel remediation	water rights, water agreement, appropriation, diesel, groundwater extraction	Letter	Site-wide	Site-wide	Water Resources	NVE	
AOC- 358	10/20/2008	Geotechnical Evaluation of Pond 4A	Converse	Geotechnical Evaluation of Pond 4A.	Pond 4A, Geotechnical Evaluation	Letter report	Pond 4A	Ponds	Geotechnical Investigation - Pond 4A	NVE	
AOC- 359	3/28/2007	Diesel Remediation Product Tank Release	NPC	Letter Report sent from NVE to NDEP regarding a weathered diesel spill that occurred Feb3-4, 2007. Report includes description and explanation of the spill event (caused by a crack in the sight glass from expansion of frozen fluid), lab results, excavation notice, and pictures of the spill.	Diesel Remediation, Spill, lab results, TPH	Letter report	Central Plant	Plant	Spill Report	NVE	
AOC- 360	10/29/2009	Follow-up Report for Spill 091022-04 - Reid Gardner Generating Station	NVE to NDEP	Approximately 3,250-gallons of 50% hydrogen peroxide was released on 10/22/2008 from a tank with enough velocity to clear the containment wall. The liquid then continued down the road turning north towards a lower elevation of soil that lies between the B1 pond dike and the Muddy River. A earthen containment was made and hydrogen peroxide was not believed to enter the Muddy River.	hydrogen peroxide, spill, Pond B1	Letter	Pond B1	Unit 4 Ponds	Spill Report	NVE	
AOC- 361	10/29/2009	Reid Gardner H202 Spill I 10/22/109	ATL	Lab report for Muddy River samples taken after 10/22/2009 hydrogen peroxide spill near Pond B1.	hydrogen peroxide, spill, Pond B1	Data	Pond B1	Unit 4 Ponds	Spill Report	NVE	

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AOC- 362	11/13/2009	NDEP Response to: Follow-up Report for Spill 091022-04 - Reid Gardner Generating Station	NDEP	NDEP finds the report is acceptable. The release should be incorporated into the Conceptual Site Model (CSM) for this facility for further evaluation. Additional characterization and remediation may be necessary based on analysis of the CSM.	hydrogen peroxide, spill, CSM	Letter	Pond B1	Unit 4 Ponds	Spill Report	NVE	
AOC- 363	4/25/2000	Sierra Pacific Resources Asset Sale - Q & A	Craig York	Question and answer regarding waste disposal practices at RGS. Answer provided by Craig York. Answer goes through a short chronology of how ash, etc. was handled at the facility from 1965 through 1993.	Fly ash, Waste disposal, landfill, Q & A	Letter	Landfill	Site-wide	Landfill	NVE	
AOC- 364	10/23/1991	Fish and Wildlife Service Correspondence October 1991	US Fish and Wildlife Services	Response from USFWS regarding the Endangered Species Act. Primarily focuses the Moapa Dave. Letter states that the proposed action to issue a permit for the diversion dam could jeopardize the dace habitat.	Moapa Dace, Muddy River, Diversion Dam	Letter Report	Muddy River	Site-wide	Fish and Wildlife	NVE	
AOC- 365	5/23/1995	Geotechnical Investigation: Fly ash Landfill Cut and Fill Engineering	Converse Consultants	Geotechnical investigation for the cut and fill engineering for the fly ash landfill. Report identifies potential borrow materials for use as cover on the landfill. Identified 360,000 cubic yards of material. Cut and Fill Plan designed to be used as part of the Landfill Operations Plan.	Landfill, Borrow Materials, Cut and Fill, Geotechnical Investigation	Report	Mesa	Site-wide	Geotechnical Investigation - Landfill	NVE	
AOC- 366	4/1/1991	Finding of Alleged Violation	NDEP	Finding of alleged violation with regards to not properly applying for and obtaining water pollution control permits for wastewater ponds and dewatering activities. Orders include: provide permit applications; pond upgrade schedule; compliance schedule; and appear to make case for no civil penalties.	Notice of Violation, Wastewater Ponds, Dewatering Activities	Letter	Ponds	Site-wide	Notice of Violation	NVE	
AOC- 367	5/16/1980	Response to Request for Approval of Excavation Recompaction	NDEP	Letter in response to NVE request for approval of the RGS excavation recompaction project, proposed new pond site for the bottom ash slurry and the proposed new evaporation ponds.	Excavation Recompaction, Bottom Ash Slurry, Evaporation Ponds	Letter	Ponds	Site-wide	Regulatory Correspondence - Ponds	NVE	
AOC- 368	1/19/1995	Waste Water Reduction Memo	NVE	Meeting notes discussing proposed methods of reducing or eliminating the RGS waste stream to the evap ponds.	evaporation pond, waste stream	Memo	Ponds	Site-wide	Interoffice Memo	NVE	
AOC- 369	8/4/1993	Court Order for Civil Penalty	NDEP	Court order from the First Judicial Court of Nevada to NVE ordering the payment of a civil penalty in the amount of $2,500.	Court Order, Civil Penalty	Court Order	Site-wide	Site-Wide	Regulatory Correspondence	NVE	
AOC- 370	10/27/1992	Finding of Alleged Violation	NDEP	Finding of alleged violation related to spill reports submitted to NDEP Oct 2 and Oct 5, 1992. NVE ordered to appear at NDEP to show cause why civil penalty should not be sought.	Notice of Violation, Spill Reports	Letter	Plant	Site-wide	Notice of Violation	NVE	
AOC- 371	5/18/1992	New Evaporation Ponds at RGS Memo	NVE	Memo discussing findings by the NDEP that the Evaporation ponds were leaking. NVE maintains that the ponds are within their permeability rates but outlines possible options for locating new ponds.	Evaporation Ponds, Siting, Memo	Memo	Ponds	Ponds	Interoffice Memo	NVE	
AOC- 372	10/3/1991	RGS Hydrological and Effluent Studies Progress Update	NVE	Letter Report to NDEP to provide a project outline and update of a pond discharge and effluent reduction study. Report provides a full project plan.	Hydrological and Effluent Study, Pond Discharge, Effluent reduction, Project Plan	Letter Report	Ponds	Ponds	Regulatory Correspondence - Ponds	NVE	
AOC- 373	3/31/1994	Pond Regulatory Compliance and Chronology of Events	NVE	Memo that provides a summary and a chronology of correspondence between NVE and others regarding the evaporation ponds. Dated from April 1974 to May 1992.	Pond Chronology, Correspondence, Memo	Memo	Ponds	Ponds	Regulatory Correspondence - Ponds	NVE	
AOC- 374	3/6/1991	Visit by NDEP Memo	NVE	Memo that summarizes a visit by NDEP to RGS regarding the facilities water systems in an effort to better assist in permitting. Memo summarizes questions and answers between NDEP and NVE.	Site Visit Water Systems	Memo	Site-wide	Site-wide	Interoffice Memo	NVE	
AOC- 375	1/21/1985	Meeting with NVE on Discharge Permit	NDEP	Letter from NDEP to NVE summarizes a meeting with the plant. Letter talks about pond leakage, permits, and past reports.	Ponds, Muddy River	Letter	Site-wide	Site-wide	Regulatory Correspondence	NVE	
AOC- 376	1/11/1980	Bottom Ash, Fly Ash, and Scrubber Filter Cake Review	CCHD to NPC	Letter in response to a waste disposal plan submitted to the CCHD from NVE. Letter gives suggestions/ recommendations for ways to improve the waste disposal plan. Addresses pond slurry and liner; solids removal; and additional sanitary waste systems.	CCHD, Waste Disposal, Ponds	Letter	Ponds	Site-Wide	Regulatory Correspondence	NVE	
AOC- 377	9/25/1973	Approval of Proposed Evaporation Pond Design	Nevada Division of Health	Letter from the Nevada Bureau of Health stating the departments approval of the design for the proposed evaporation ponds. Lists three further requirements: 1) Pond Leakage Rate Monitoring Plan and Schedule; 2) Contingency plan for Pond Repair or Modification; 3) Notification of Completion for Inspection.	Evaporation Ponds	Letter	Ponds	Ponds	Regulatory Correspondence	NVE	
AOC- 378	9/7/1973	Response to Evaporation Pond Design	Desert Research Institute	Letter to NVE in response to an inquiry of the best method of designing the evaporation ponds for scrubber effluent.	Evaporation Ponds, Effluent	Letter	Ponds	Ponds	Letter	NVE	
AOC- 379	9/8/1999	Pond Discharge Permit Compliance Items - Meeting Minutes	NVE	Minutes from a meeting to discuss the terms of a new pond permit to ensure that compliance is maintained.	Pond Permit, Meeting Minutes, Compliance	Letter	Ponds	Ponds	Interoffice Memo	NVE	
AOC- 380	3/12/1996	Pond Status Meeting Minutes	NVE	Minutes from an internal meeting that discuss current pond status and plans for dredging, etc. to make room for upcoming winter loads. Lists short and long term action items.	Pond Status, Dredging Permit	Memo	Ponds	Ponds	Interoffice Memo	NVE	

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AOC- 381	7/24/2000	Pond Lining Project Description	NVE	Letter to NDEP describing the proposed pond lining project. Includes an alternatives analysis and costs. Also proposes a revised completion schedule.	Pond Lining, Pond 4C2, Pond 4C3	Letter Report	Ponds	Ponds	Regulatory Correspondence - Ponds	NVE	
AOC- 382	1/6/2006	Wastewater Management Plan - Phase 1 Study Report	CH2M Hill	Wastewater Management Plan for evaporation ponds. Includes a preliminary investigation and conceptual evaluations. Reports results of phase 1 and provides recommendations for a phase 2 approach.	Wastewater, Evaporation Ponds, Phase 1	Report	Ponds	Ponds	Geotechnical Investigation - Ponds	NVE	
AOC- 383	12/14/2005	Pond and Wastewater Management Recommendations	NVE	Internal plan for pond closure and lining. Gives a full timeline of events as well as progress and NDEP expectations.	Ponds, Pond Closure, Pond Lining	Letter	Ponds	Ponds	Correspondence	NVE	
AOC- 384	6/21/2006	Review of Odor Control Issues - Interim Executive Summary - Draft	CH2M Hill	Analysis of odor on site. Provides findings, short term and long term measures to prevent odor, and an implementation schedule.	Odor, Executive Summary	Letter Report	Site-wide	Site-wide	Odor Studies	NVE	
AOC- 385	10/28/2005	Pond Status Meeting Presentation	NVE	PowerPoint presentation from Oct 2005 Pond Status meeting. Includes storage status, alternatives, conservation, SW Mgmt. Plan, Odor Control, Landfill Decant Status, Water Management Study overview, and Decent Decree.	Ponds, Pond Status	Presentation	Ponds	Site-wide	Interoffice Memo	NVE	
AOC- 386	11/24/1995	Pond F Effluent TCLP Data	NEL Laboratories	TCLP Metals analysis from November 1998 sampling event. Unable to locate the rest of the document.	Pond F, Analytical Data, TCLP	Report	Pond F	Pond F	Data	NVE	
CH-001	3/21/1980	Unit 4 Landfill Letter	NPC to CCHD	Letter from NVE to the CCHD outlining the proposed size and materials to be disposed in the proposed Unit 4 landfill.	Unit 4, Landfill	Letter	WMU-4, WMU-1	Mesa	Letter	NVE	
CH-002	9/4/1986	Fly Ash Disposal Meeting Minutes	NPC	Minutes from a meeting between NVE, B&V, and the CCHD regarding the fly ash disposal project. Minutes focus primarily on fugitive emissions,	Fly ash disposal, fugitive emissions, meeting minutes	Letter	WMU-4, WMU-1	Mesa	Interoffice Memo	NVE	
CH-003	9/21/1992	Sanitary Waste Landfill Closure	NPC	Internal memo discussing newly adopted state regulations for sanitary landfills. Memo states that the new regs make it more difficult and less economical to continue to operate two Class III landfills at RGS. Memo states that now may be a good time to discuss contracting out waste removal.	Sanitary landfill, Class III, Landfill Closure	Letter	WMU-4, WMU-1	Mesa	Interoffice Memo	NVE	
CH-004	7/5/1988	Baghouse Replacement Letter	NPC	Letter from NVE to the CCHD regarding bag removal from the baghouse. NVE plans to remove and bury approx. 500 bags which would contain fly ash. They are notifying CCHD because the permit did not address this type of usage.	Landfill, Fly ash, baghouse	Letter	WMU-4, WMU-1	Mesa	Letter	NVE	
CH-005	2/16/1994	RE: Solid Waste Landfill Closure	CCHD to NPC	Letter from CCHD to NVE stating that they consider the Landfill Permit #04723-CMG-01 to be satisfactorily closed.	Landfill Closure	Letter	WMU-4, WMU-1	Mesa	Letter	NVE	
CH-006	7/1/1988	Landfill Permits 1988	CCHD	Landfill permits from CHHD valid 7/1/1988-6/30/1989. Permits for Ash Disposal Site, Modified Sanitary Landfill, and the Asbestos Landfill	Landfill permits, CCHD	Permit	WMU-4, WMU-1	Mesa	Permits	NVE	
CH-007	7/1/1986	Landfill Permits 1986	CCHD	Landfill permits from CCHD valid 7/1/1986 to 6/30/1987. Permits for the Solid Waste Site and the Modified Sanitary Landfill.	Landfill permits, CCHD	Permit	WMU-4, WMU-1	Mesa	Permits	NVE	
CH-008	12/8/1980	Landfill Permit 1980	CCHD	Landfill permit from CCHD valid 12/8/80-6/30/81. Permit for the Modified Sanitary Landfill Site	Landfill Permit, CCHD	Permit	WMU-4, WMU-1	Mesa	Permit	NVE	
CH-009	2/11/1986-6/10/1987	Fly Ash Disposal and Rehabilitation Communication	NPC	Internal communication regarding the disposal and rehabilitation of the RGS fly ash disposal sites.	Fly ash, Rehabilitation	Letter	WMU-4, WMU-1	Mesa	Interoffice Memo	NVE	
DIV001	3/1/1994	Coal Supply Agreement	NPC	Confidential coal supply agreements between NVE and Commonwealth Coal Supply and Cyprus Coal to provide coal to NVE via rail for a period of 10 years and 13 years respectively.	Coal Supply Agreement, Contract, Confidential	Letter	Plant	Plant	Contract	NVE	
DIV002	Unknown	Description of Reid Gardner Station	NPC	Description of the Reid Gardner Station including fuel facilities, water facilities, transmission facilities, and potential additions. Document references all 4 units so it must have been authored post-Unit 4.	Description, Reid Gardner	Letter	Site-wide	Site-wide	Site Description	NVE	
DIV003		Deleted: Same Document as AOC-32									
DIV004	2/9/1987	Solids Disposal System - Landfill Construction and Operation	Lewis Construction	Document contains scope, contract, and report regarding Landfill construction and operation.	Landfill, Contract	Letter report	Landfill	Site-wide	Contract	NVE	

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DIV005	2/18/1997	Radioactive Material License Device Inventory	Nevada Bureau of Health Protection Services	Radioactive Material License #03-11-0143-01 Amendment 20 including a list of radioactive material containing equipment at RGS	Radioactive Material License, 03-11-0143-01	Permit	Plant	Site-wide	Radioactive Inventory	NVE	
DIV006	Unknown	Unit 2 Description	NPC	General description of Unit 2 including recent enhancements and piping drawings	Unit 2	Report	Unit 2	Plant	Site Description	NVE	
DIV007	Unknown	Unit 3 Description	NPC	General description of Unit 3 including recent enhancements	Unit 3	Report	Unit 3	Plant	Site Description	NVE	
DIV008	7/11/1979	Deeds and Easement	Clark County	Document is a series of Deeds and outlines the easements of various land parcels that are now NVE property.	Deeds, Easements, Parcels	Deed	Site-wide	Site-wide	Regulatory Correspondence	NVE	
DIV009	Unknown	Unit 4 Description	NPC	General description of Unit 4 including recent enhancements	Unit 4	Report	Unit 4	Plant	Site Description	NVE	
DIV010	5/28/1997	Finding of Alleged Violation	NDEP	Letter of alleged violation at RGS for discharging to waters of the state. Letter states that ponds are not properly lined and leaking at a rate higher than approved. Contains a chronology of correspondence between NVE and NDEP between 1983 and 1992.	Alleged Violation, Ponds	letter	Plant	Plant	Regulatory Order	NVE	
DIV011	10/7/1998	Coal Analysis	NVE/ Wyoming Analytical Labs	Chemical analysis results of coal from various coal vendors. Analyses include moisture, ash, and sulfur content; and chemical composition	Coal Analysis, lab reports	Data	Plant	Plant	Data	NVE	
DIV012	7/21/1999	Water Balance at 87% Capacity	C.S. Trantham	Water balance for RGS at 100% load and 87% capacity. Flow diagram that shows discharge, precip., and runoff contributions.	Water Balance, Flow Diagram	Report	Plant	Plant	Report	NVE	
DIV013	7/21/1999	Water Balance at 100% Capacity	C.S. Trantham	Water balance for RGS at 100% load and 100% capacity. Flow diagram that shows discharge, precip., and runoff contributions.	Water Balance, Flow Diagram	Report	Plant	Plant	Report	NVE	
DIV014	12/29/1994	Muddy River Intake Corps of Engineers Permit	US Army COE	Permit from the USACOE to remove an existing Diversion Dam in the Muddy River and build a new infiltration gallery intake.	Muddy River, Diversion Dam, Corps of Engineers	Permit	Muddy River	Site-wide	Permit	NVE	
DIV015	8/5/1998	Petroleum Fund Registration Fee	NDEP	State of Nevada Petroleum Fund registration Fee form for 1999. fee includes 2,550 gal Gasoline tank and 2,550 gal Diesel tank	Petroleum, Fee	Permit	Plant	Plant	Permit	NVE	
DIV016	Unknown	Site Abstract	NPC	Lists all property, easements, agreements, and permits associated with RGS.	Abstract	Report	Site-wide	Site-wide	Report	NVE	
DIV017	8/19/1992	Plot Plan	NPC	Plot plan of plant site including topographical data. Primary structures and features labeled.	Plot Plan, Topo	Drawings	Plant	Plant	Drawings and Construction	NVE	
DIV018	5/14/1993	General Stormwater Discharge Permit GNV0022233	BWPC	General Stormwater Discharge Permit #GNV0022233	Discharge Permit, Storm water	Permit	Site-wide	Site-wide	Permit	NVE	
DIV019	11/12/1986	License Agreement between UPRR and NVE	UPRR	License agreement between the UPRR and NV Energy to allow NVE to pass fiber-optic cable through land owned by the UPRR for a fee of $250	UPRR, Agreement, Contract	Contract	Site Wide	Site Wide	Contract	NVE	
DIV020	Unknown	Unit 1 Description	NVE	General description of Unit 1 including recent enhancements	Unit 1	Report	Unit 1	Plant	Site Description	NVE	
DIV021	12/13/1990	Vapor Recovery Permit	CCHD	Vapor Recovery Operating permit for a 2,550 Gal gasoline storage tank issued by the Clark County Health District. Permit #VR49001.	Vapor recovery Permit, Storage Tank, Gasoline, #VR49001	Permit	Plant	Plant	Permit	NVE	
DIV022	Unknown	Water Balance Flow Description	NPC	RGS Water balance flow description and flow diagram including boiler condensate make-up system, circulating water make-up system, scrubber and FGD make-up system, and evap/inventory pond system.	Water Balance, Flow Diagram	Report	Plant	Plant	Report	NVE	
DIV023	8/5/1988	Unit 4 Water Supply System	NPC	Complete overview of the Unit 4 Water Supply system including wells, sources, and a flow diagram.	Unit 4, Flow Diagram, Water Supply System	Report	Unit 4	Plant	Report	NVE	

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DIV024	6/10/1998	Sufco Coal Blend Firing Engineering Study	Foster Wheeler Energy Corp	Report outlining procedure and results of a coal firing engineering study performed on Unit 2. Contains procedure and data in the form of graphs and tables.	Unit 2, Coal Study, Data	Report	Unit 2	Plant	Report	NVE	
DP-01	10/4/1994	Solid Waste Disposal Site Permit	Clark County	Permit authorizing disposal of industrial and special wastes in Class III disposal site. Permitted design parameters are given..	landfill, solid waste	Permit	Unknown	Mesa	Solid and Hazardous Wastes	NVE	
DP-02	12/19/2001	Damage to Pond 4C-2 Liner, Discharge Permit #NEV91022	NPC to NDEP	Pond C2 liner damage report. Gives details of incident and resolution.	Pond C2, liner, damage	Letter	Pond C2	Unit 4 Ponds	Regulatory Correspondence - Ponds	NVE	
DP-03	7/17/2003	SWPPP Plant Area Details	NPC	Drawing showing plant, outfalls, stormwater drainage, potential pollutant sources	SWPPP, outfalls, drainage	Drawings	Plant	Plant	SWPPP	NVE	
DP-04	2/18/2004	Table 1 Pond Size Data	NPC	Provides liner type, leak detection, size and dimensions, monitoring wells, installation dates, relining/closure schedule ponds D, E, E-1, E-2, F, G, 4-A, 4-B-1, 4-B-2, 4-B-3, 4-C, 4-C-1, 4-C-2, 1-2-3 ASP, and "new pond"	ponds, liner, leak, capacity, monitoring	Data	Ponds	Site-wide	Ponds - General	NVE	
DP-05	7/29/2003	Reid Gardner Hydrogeologic Report Summary History	NPC	Provides timeline and list of site characterization reports from 1986-2003.	hydrogeology, site characterization	Report	Site-wide	Site-wide	Site Characterization	NVE	
DP-06	9/24/2004	Delineation and Characterization Workplan Waste Management Unit 7	NPC to NDEP	Outlines scope of work to delineate and characterization WMU 7. Discusses groundwater penetration radar investigation as well as soil borings samples for TPH, VOCs, SVOCs, PCBs, dioxins, and RCRA metals.	WMU 7, dioxin, ground penetrating radar	Letter report	WMU 7	Mesa	Site Characterization - WMU 7	NVE	
DP-07	9/24/2004	Delineation and Characterization Workplan Waste Management Unit 8	NPC to NDEP	Waste management unit 8 may have been a borrow area located near the railroad. May have received wastes from plant wash downs, petroleum impacted soil, and drums of unknown contents. NPC proposes 16 soil borings on the eastern side of the railroad and 200 north of the coal unloading facility for TPH, VOC, SVOC, PCB, and metals analysis	WMU 8, ground penetration radar, TPH, VOCs, PCBs, Dioxins, RCRA metals	Letter report	WMU 8	Plant	Site Characterization - WMU 8	NVE	
DP-08	11/18/2004	Revised Delineation and Characterization Workplan Waste Management Unit 7	NPC to NDEP	Outlines scope of work to delineate and characterization WMU 7 based off 9/24/2004 letter. Discusses groundwater penetration radar investigation into more detail.	WMU 7, ground penetrating radar	Letter report	WMU 7	Mesa	Site Characterization - WMU 7	NVE	
DP-09	11/18/2004	Revised Limited Site Characterization Workplan, Area of Total Dissolved Solids Near HM-27 (Area 6)	NPC to NDEP	Conduct additional assessment of the area surrounding former monitoring well HM-27, near the southern boundary of Unit 4 Coal Storage Pile for TDS. Proposed analysis for metals, TDS and other water quality parameter.	HM-27, TDS, Area 6	Letter	Unit 4 Coal Storage	Plant	Site Characterization - Area 6	NVE	
DP-10	3/22/2005	Request for Modification to Discharge Permit #NEV91022	NPC to NDEP	Requests approval to allow the use of diesel/groundwater recovery system treated water for dust control. Gives water quality concentrations. Figures and analytical results missing.	dust control, diesel recovery	Letter	Central Plant	Plant	Diesel Recovery - Water Reuse	NVE	
DP-11	3/22/2005	Limited Site Characterization, Area of Total Dissolved Solids Near HM-27 (Area 6)	NPC to NDEP	Investigation to better define the lateral extent of TDS concentrations east and southeast of former monitoring well location HM-27 near the Unit 4 Coal Storage Pile. Provides a laboratory data table with metals and water quality criteria concentrations. Numerous exceedances of action levels.	HM-27, TDS, Area 6	Letter	Unit 4 Coal Storage	Plant	Site Characterization - Area 6	NVE	
DP-12	4/14/2005	Hydrogeology Investigation Summary	Converse	Summarizes investigation activities at Pond 4 A. Shows cross sections and boring logs, provides permeability testing results, shows groundwater contours at low and deep intervals, TDS iso-contours, pump test data, proposed trench design, and model scenario.	Pond 4A, permeability, wells, cross sections, groundwater gradient, TDS, contours, trench, MODFLOW, MODPATH	Presentation	Pond 4A	Unit 4 Ponds	Remediation and Closure	NVE	
DP-13	4/29/2005	NPC RGS Conceptual Planning Document	NPC to NDEP	Provides revised schedule for lining Pond F and G. Missing attached planning document.	Pond F, Pond G, lining	Letter	Pond F, Pond G	Unit 1,2,3 Ponds	Regulatory Correspondence - Pond F and G	NVE	
DP-14	5/10/2005	Workplan for Additional Site Characterization Waste Management Unit 12 - Area of Total Dissolved Solids	NPC to NDEP	Focus was to define lateral extent of TDS concentrations on the northeast boundary and southern boundary of Unit 4 coal storage pile. Groundwater samples contained elevated concentrations of TDS and dissolved metals.	TDS, dissolved metals, groundwater	Letter	WMU 12	Plant	Site Characterization - WMU 12	NVE	
DP-15	6/20/2005	C1 and E1 Evaporation Pond Repair Plans	NPC to NDEP	NPC discovered C1 and E1 pond leaks on May 26, 2005. Plans for additional investigation includes leak testing and liner repair. Pond C1 leak rate is 5 gpm and Pond E1 leak rate varies from 0.6-2 gpm.	Pond C1, Pond E1, leak, liner	Letter	Pond C1, Pond E1	Ponds	Ponds - Leaks	NVE	
DP-16	7/6/2005	Geomembrane Leak Location Survey for Pond E-1 and Pond C-2	Leak Location Services, Inc.	Leak locations performed on the upper side slope of Pond E-1 and a limited area of Pond C-2. One 0.5" puncture was found upon visual inspection of Pond E-1 liner and one leak signal was detected after flooding Pond C-2. Includes leak location figures.	Pond E1, Pond C2, leak, liner	Letter report	Pond E1, Pond C2	Ponds	Ponds - Leaks	NVE	
DP-17	7/19/2005	NDEP Compliant/Spill Report Number 050714-01	NPC	100,000 gallons of cooling tower blow down was pumped to the Unit 1-2-3 coal pile stormwater catch basin for temporary storage to prevent overflow. The next day the water was pumped out by trucks and removed from the site.	cooling tower, spill, stormwater	Letter	Unit 1,2,3 Stormwater Catch Basin	Plant	Spill Report	NVE	
DP-18	8/11/2005	95% Design Submittal - Mesa Decant Pond	NDEP to NPC	NDEP completed 95% submittal review, which addressed all concerns from the 50% design review.	decant fly ash, Mesa, construction	Letter	Mesa Decant Pond	Mesa	Design and Construction	NVE	

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DP-19	9/1/2005	NPC RGS Ponds F and G Liner Design Schedule	NPC to NDEP	Delays in Pond F and G lining schedule. Proposes revised design schedule.	Pond F, Pond G, lining	Letter	Pond F, Pond G	Unit 1,2,3 Ponds	Regulatory Correspondence - Pond F and G	NVE	
DP-20	9/8/2005	30 Day Public Notice Period for Renewal of Water Pollution Control Discharge Permit NEV91022	NDEP	Notifies NPC that groundwater discharge permit renewal application is complete and public notice was published. Fact sheet and public notice available as separate files.	groundwater, permit, discharge	Letter	Site-wide	Site-wide	Regulatory Correspondence - Groundwater Discharge Permit	NVE	
DP-21	9/8/2005	NDEP Fact Sheet, Nevada Power Company	NDEP to NPC	Fact sheet reviews facility background, process, receiving water characteristics, permit requirements, and schedule of compliance.	fly ash, ponds, groundwater, action levels, muddy river, permit	Report	Site-wide	Site-wide	Regulatory Correspondence - Site Wide	NVE	
DP-22	9/9/2005	E2 Evaporation Pond Repair Plan Permit No. NEV91022	NPC to NDEP	States plan to repair leak in Pond E2. Plan includes hiring Leak Location Services, Inc. to identify the leak location Course of action depends on the location (primary or secondary liner).	Pond E2, liner, repair, leak	Letter	Pond E2	Unit 1,2,3 Ponds	Ponds - Leaks	NVE	
DP-23	9/9/2005	Corrective Action Plan for Pond 4A	NPC to NDEP	Provides background on Pond 4A construction and water quality. Reviews site hydrogeology. Proposes correction action plan including interceptor trench, fly ash removal, pumping well, pumped water management, and remedial system pulsing. Reviews post-trench groundwater monitoring. Gives remediation goals and schedule for completion. No figures included.	Pond 4A, hydrogeology, remediation, trench, pump	Letter report	Pond 4A	Unit 4 Ponds	Corrective Action Plan - Pond 4A Trench	NVE	
DP-24	11/4/2005	Workplan for Additional Site Characterization, Former ASP-1,2,3 Area	NPC	Further characterize and define lateral extent of contamination in groundwater south and southeast of the former ASP -1,2,3 area. Elevated concentrations of dissolved metals, sulfate, TDS, and TPH were identified.	metals, TDS, TPH, groundwater	Letter	ASP-1,2,3	North Plant	Site Characterization - former ASP-1,2,3	NVE	
DP-25	1/13/2006	Pond 4A Trench Chemical Lab Water Analysis Report	NPC	Hardness and water quality analysis for "A Pond Remediation". File name indicates sample is from Pond 4A trench.	Pond 4A, hardness, water quality	Data	Pond 4A	Unit 4 Ponds	Remediation and Closure	NVE	
DP-26	2/16/2006	Request for Waiver, NPC RGS Class III Landfill	NPC	Request for waiver and approval to utilize fly ash and bottom ash as an alternate daily cover on the landfill	landfill, fly ash	Letter	WMU 4	Mesa	Solid and Hazardous Wastes	NVE	
DP-27	2/22/2006	Limited Site Characterization, Waste Management Unit 7	NPC to NDEP	Cover letter for report. Performed a ground radar penetration survey and soil borings. Waste materials (debris) were encountered including fly ash. TPH was detected in soil borings above Nevada action levels of 100 mg/kg. Dioxin was detected in two soil samples above EPA's remediation goal of 0.000016 mg/kg.	WMU 7, dioxin, TPH, fly ash	Letter	WMU 7	Mesa	Site Characterization - WMU 7	NVE	
DP-28	4/9/2006	April 9th, 2006 Release	Various	Correspondence regarding scrubber blow down spill 50 yards NE of Pond B1. Estimated 3,800 gallons spilled onto ground and diverted by a berm. May have reached Muddy River. River water samples were taken and analyzed for sulfate, sodium, and specific conductivity.	spill, scrubber blow down,	Various	Pond B1	Unit 4 Ponds	Spill Report	NVE	
DP-29	4/19/2006	Operations Manual - Evaporation Ponds	NPC	Operational description, water quality sampling protocol, solids management plan, general closure plan for ponds, and liner leak location and repair plan. Process flow diagrams and general plant layout included.	operations manual	Report	Ponds	Site-wide	Operations Manual	NVE	
DP-30	5/30/2006	MW Coordinates.xls	NPC	Northern and Eastern coordinates, ground elevator, top of casing elevation, total depth, water level for approximately 75 wells throughout the site.	monitoring wells, groundwater	Data	Site-wide	Site-wide	Monitoring Data - Well Locations	NVE	
DP-31	12/27/2006	Pond 4A Trench Laboratory Report	Silver State Analytical Laboratories	Laboratory results for metals, oil/grease, and general water quality parameters. Two sampling dates in December. Location is not specific on chain on custody. File name indicates it is from the Pond 4 A trench.	Pond 4A, metals, water quality, trench	Data	Pond 4A	Unit 4 Ponds	Remediation and Closure	NVE	
DP-32	7/26/2007	Application for approval for a lateral expansion to NPC Class III landfill at RGS	Southern Nevada Health District	Memo regarding NPC solid waste landfill lateral expansion. Provides background on previous applications, discusses current application, and recommends permit. Includes attachments.	landfill, expansion, solid waste	Memo	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
DP-33	8/3/2007	Application for approval for a lateral expansion to NPC Class III landfill at RGS	Southern Nevada Health District	Approved copy of 7/26/2007 landfill expansion application.	landfill, expansion, solid waste	Letter	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
DP-34	8/28/2007	Damaged Monitoring Well Repair/Replacement Report	NPC to NDEP	Notifies NDEP of damage or destroyed wells. List well id and resolution for each.	monitoring well, well repair	Letter	Site-wide	Site-wide	Monitoring Well Development	NVE	
DP-35	9/20/2007	September 20th, 2007 Release	Various	Approximately 2500-3000 spilled. Caused by contractor turning valve wrong way during Pond B1 rough grading. Estimated amount to river 100 gallons. River water samples taken for several water quality parameters	spill, scrubber blow down,	Various	Pond B1	Unit 4 Ponds	Spill Report	NVE	
DP-36	10/15/2007	Diesel Recovery Project Groundwater Elevation Data	NPC	Provides groundwater elevation and product thickness data for HM wells	TPH, diesel recovery, monitoring wells	Data	Central Plant	Plant	Monitoring Data - Diesel Recovery	NVE	
DP-37	10/16/2007	Discharge Monitoring Report, 3rd Quarter 2007 to NDEP	NPC	Flow discharge quantities to ponds. Monitoring well, river, and pond sampling results. Groundwater contour map.	pond, river, discharge, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NVE	

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DP-38	10/19/2007	Monitoring Well Data	NPC	Summary of site-wide groundwater, muddy river, and pond sampling data from 1996 - 2007 depending on well. Parameters include water quality parameters, metals, and TPH. HM wells include VOC data	groundwater, muddy river, ponds, metals, water quality, TPH	Data	Site-wide	Site-wide	Monitoring Data - Water Quality, Metals, TPH, VOCs	NVE	
DP-39	8/20/2007	Replacement Well Logs	Dave Phillips	Boring Logs for various replacement wells created by Dave Phillips, borings drilled by Elite drilling.	Boring, well	Data	Site-wide	Site-wide	Monitoring Well Development	NVE	
DP-40	2/24/2006	Draft Proposal for Limited Site Characterization - RGS WMU-7	Converse Consultants	Proposal to NVE from Converse to conduct further soil sampling at WMU-7 and excavation oversight during removal of impacted soils. Includes scope, fee estimate, and time table.	WMU-7, Proposal, Limited Site Characterization	Report	WMU 7	Mesa	Proposal	NVE	
MHOE001	2/11/1975	Flow Sheet - Steam and Condensate Fuel Oil Addition	Stearns-Roger	Flow diagram outlining the steam and condensate fuel oil addition.	Steam, Condensate, Fuel oil addition, Drawing	Drawings	Plant	Plant	Drawings and Construction	NVE	
MHOE002	1/2/1976	43,000 BBL lease Tank Unloading Facility drawing	NPC	Plan view of pipe support locations for the UPRR 43,000 BBL Tank Unloading Facility	UPRR, Unloading Facility, drawing	Drawings	Central Plant	Plant	Drawings and Construction	NVE	
MHOE003	6/27/1974	Ash Haul Road Plans and Profile	Stearns-Roger	Plan and profile drawings of Ash Haul Roads associated with Unit 3.	Unit 3, Ash Haul Road, Drawing, WMU-6	Drawings	WMU-6	Plant	Drawings and Construction	NVE	
MHOE004	8/25/1976	Unit 3 Civil Layout Plan (Sheet 1)	Stearns-Roger	Civil layout plans for Unit 3.	Unit 3, drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE005	5/6/1992	Units 1 and 2 Operations During Ash System Modifications	Stearns-Roger	Flow diagram outlining the temporary operations of Units 1 and 2 during Ash System modifications.	Unit1, Unit 2, Ash System, Drawing, Flow Diagram	Drawings	Units 1, 2	Plant	Drawings and Construction	NVE	
MHOE006	3/13/1975	Muddy River Diversion and Pumping Station Drawing	Stearns-Roger	General arrangement drawing for the Muddy River Diversion and Pumping Station.	Muddy River, Diversion, Pumping Station, Drawing	Drawings	Muddy River	Site-wide	Drawings and Construction	NVE	
MHOE007	2/19/1976	Unit 3 Plot Plan	Stearns-Roger	Unit 3 Plot Plan	Unit 3, Plot Plan, Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE008	7/13/1979	Unit 4 Soil Boring Location Plan	Fluor Power Services	Unit 4 soil boring location map	Unit 4, Soil Boring location map, Drawing	Drawings	Unit 4	Plant	Drawings and Construction	NVE	
MHOE009	2/6/1976	Unit 3 Water Flow Diagram	Stearns-Roger	Flow diagram of the Unit 3 water flow	Unit 3, Water Flow, Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE010	12/12/1967	Unit 2 Water Flow Diagram	Stearns-Roger	Flow diagram of the Unit 2 water flow	Unit 2, Water Flow, Drawing	Drawings	Unit 2	Plant	Drawings and Construction	NVE	
MHOE011	12/31/2009	Units 1 and 2 Yard Piping Plan	Stearns-Roger	Units 1 and 2 yard piping plan	Unit 1, Unit 2, Yard Piping, Drawing	Drawings	Units 1 and 2	Plant	Drawings and Construction	NVE	
MHOE012		Deleted: Document not pertaining to RGS									
MHOE013	2/1/1974	Units 1 and 2 Grading Plan	Stearns-Roger	Grading Plan for Units 1 and 2	Unit 1, Unit 2, Grading Plan, Drawing	Drawings	Units 1 and 2	Plant	Drawings and Construction	NVE	
MHOE014	1/17/1967	Unit 2 Underground Piping Plan	Stearns-Roger	Underground piping plan for turbine and boiler areas for Unit 2	Unit 2, Underground Piping, Drawing	Drawings	Unit 2	Plant	Drawings and Construction	NVE	
MHOE015	9/14/1976	Unit 3 Civil Layout Plan (Sheet 4)	Stearns-Roger	Unit 3 Civil layout plan	Unit 3, Civil Layout Plan, Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE016	10/8/1974	Unit 3 Civil Grading Plan (Sheet 1)	Stearns-Roger	Unit 3 Civil Grading Plan	Unit 3, Civil Grading Plan, Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	

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MHOE017	12/14/1973	Unit 3 Civil Grading Plan (Sheet 4)	Stearns-Roger	Unit 3 Civil Grading Plan	Unit 3, Civil Grading Plan, Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE018	4/22/1976	Unit 3 Waste Ponds Sections and Details Drawing	Stearns-Roger	Unit 3 waste pond sections and details civil drawing	Unit 3, Waste Pond, Civil Drawing	Drawings	Unit 3	Plant	Drawings and Construction	NVE	
MHOE019	3/30/1969	Unit 2 Plant Plan	Stearns-Roger	Unit 2 plot plan	Unit 2, Plot Plan, Drawing	Drawings	Unit 2	Plant	Drawings and Construction	NVE	
MHOE020	11/29/1972	Topographic Map of Reid Gardner Station, Sheet 6 of 7	American Aerial Surveys, Inc.	RGS topo map showing part of mesa area including P ponds and WMU-7 area.	Topo,WMU-7, P Ponds	Drawings	Mesa	Mesa	Drawings and Construction	NVE	
MHOE021	6/15/1992	1992 Topographic Map - Scale 1-100	Cooper Aerial of Nevada	RGS topo map from 1992 with a scale of 1-100, contour interval equals 1'.	Topo	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE022	4/3/1984	1984 Topographic Map - Unit 4	Cooper Aerial of Nevada	RGS topo map from 1984 of Unit 4 common site, showing Parcels A & B with a scale of 1-100.	Topo, Unit4	Drawings	Unit 4	Plant	Drawings and Construction	NVE	
MHOE023	12/15/1987	1984 Topo Map - Soda Ash Unloading	Cooper Aerial of Nevada	RGS topo map from 1987 of soda ash unloading station with a scale of 1-100.	Topo, Soda Ash Unloading	Drawings	Plant	Plant	Drawings and Construction	NVE	
MHOE024	4/3/1984	1984 Topo Map - Units 1,2 & 3 Water Treatment System Plot Plan	Cooper Aerial of Nevada	RGS topo map of the water treatment system for Units 1, 2, &3 with a scale of 1-100.	Topo, Unit 1, Unit 2, Unit 3, Water Treatment System	Drawings	Unit 1, 2, and 3	Plant	Drawings and Construction	NVE	
MHOE025	4/3/1984	1984 Topo Map of Reid Gardner Plant	Cooper Aerial of Nevada	RGS topo map from 1984 of the plant with a scale of 1-100.	Topo, Plant	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE026	4/1/1987	1984 Topographical Map	Cooper Aerial of Nevada	RGS topo map from 1984 of the plant with a scale of 1-200.	Topo, Plant	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE027	4/3/1984	1984 Topographic Map - Present Common Site Area	Cooper Aerial of Nevada	RGS topo maps from 1984 of the common site area with a scale of 1-400. Shows proposed ponds and solid waste disposal areas	Topo, Common Site	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE028	4/3/1984	Preliminary Study for New Evaporation Ponsa (Units 1,2 &3)	Cooper Aerial of Nevada	RGS topo maps from 1984 of the evaporation ponds for Units 1, 2, & 3 with a scale of 1-400.	Topo, Unit1, Unit 2, Unit 3, evaporation ponds	Drawings	Unit 1, 2, and 3	Plant	Drawings and Construction	NVE	
MHOE029	4/3/1984	Topographic Map of Reid Gardner Station	Cooper Aerial of Nevada	RGS topo map from 1984 of the plant with a scale of 1-400. Several topos provided each logged with different RGS identification numbers	Topo, Plant	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE030	4/12/1985	Regional Topographic Map	Unknown	Topo map of a large area encompassing RGS from 1985.	Topo	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE031	4/1/1987	Topographic Map of Reid Gardner Station	Cooper Aerial of Nevada	RGS topo map from 1987 of the plant with a scale of 1-100. Map focuses on plant area.	Topo, plant	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE032	4/1/1987	Topographic Map of Reid Gardner Station	Cooper Aerial of Nevada	RGS topo map from 1987 of the plant with a scale of 1-400. Shows plant area, ponds, and mesa	Topo, plant, ponds, mesa	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE033	2/23/1989	Reid Gardner Units 1,2,3 Evaporation Ponds Site Plan	Converse Consultants, Southwest Incorporated	Shows proposed slurry cut-off walls at Pond D and Pond E, also shows raw water reserviors, laydown areas for new Pond F and Pond G and borrow sources	slurry walls, lay down area, Pond D, Pond E, Pond F, Pond G, borrow	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE034	6/15/1992	1992 Topographic Map	Cooper Aerial of Nevada	RGS topo map from 1992 of the plant with a scale of 1-100. Includes several topos covering the entire site	Topo	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE035	5/10/1963	Map to Accompany Application	Unknown	Map of Moapa Valley showing land use in vicinity of RGS	moapa valley, land use	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	

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MHOE036	6/27/1985	Reid Gardner Station Fuel Oil Piping Modification	NPC	RGS fuel oil piping modification drawing.	Fuel Oil Piping, Diesel	Drawings	Plant	Plant	Drawings and Construction	NVE	
MHOE037	2/9/1989	Unit 4 New Retention Basin Pipeline Details	NPC	RGS Unit 4 retention basin pipeline details.	Unit 4, pipe	Drawings	Unit 4	Plant	Drawings and Construction	NVE	
MHOE038	4/4/1991	Pond Pumping and Air/H2O2 Distribution System	URS	Pond pumping and air/H2O2 distribution system drawings	peroxide, pond, pump	Drawings	Plant	Plant	Drawings and Construction	NVE	
MHOE039	6/5/1986	Reid Gardner Station Evaporation Ponds & Pumps Plan	NPC	RGS evaporation ponds piping and pumps plan, shows site features and topography. Does not include the mesa	Pond, piping, pumps	Drawings	Plant	Ponds	Drawings and Construction	NVE	
MHOE040	11/23/1983	Reid Gardner Site Plan - Evaporation Pond Water Lines	NPC	RGS evaporation pond water lines drawings, elevations, and details.	Pond, Water Lines, elevation	Drawings	Plant	Ponds	Drawings and Construction	NVE	
MHOE041	10/14/1986	Reid Gardner Unit 4 Evaporation Pond Part Plot Plan	NPC	RGS Unit 4 evaporation pond part plot plan. Shows Pond 4B and part of Pond 4C	Unit 4, Pond 4C, Pond 4B	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE042	6/25/1987	Reid Gardner Unit 4 Evaporation Pond Abatement - Header Support & Valve Box Details	NPC	RGS Unit 4 old evaporation pond abatement - header support and valve box details.	Unit 4	Drawings	Unit 4	Plant	Drawings and Construction	NVE	
MHOE043	6/18/1987	Reid Gardner Unit 4 Evaporation Pond Abatement - Peroxide Tank Plan, Details, & Sections	NPC	RGS evaporation pond abatement - peroxide tank plan, details, and sections (Pond 4B-1).	Unit 4, peroxide, Pond 4B-1	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE044	6/12/1987	Reid Gardner Unit 4 Evaporation Pond Abatement - Pond 4A Plan, Sections, aand Detail	NPC	Contains Pond 4A plan, section , and details.	Unit 4, Pond 4A	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE045	10/14/86 - 7/14/87	Reid Gardner Unit 4 Piping Arrangement & Details	NPC	Pond 4B and 4C piping arrangement and evaporation pond abatement plans. Contains map showing Pond 4A, 4B1, 4B2, 4B3, 4C1, 4C2, 4C3	Unit 4, Pond 4A, 4B1, 4B2, 4B3, 4C1, 4C2, 4C3	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE046	6/4/87 -6/11/87	Reid Gardner Unit 4 Evaporation Pond Abatement - Ponds 4B1 & $c1 Valve Station Piping Plan	NPC	Ponds 4BI and 4CI valve station piping, sections, and concrete sections, details.	Unit 4, Pond 4BI, Pond 4CI	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE047	6/24/1987	Reid Gardner Unit 4 Evaporation Pond Abatement - Pump & Valve Station Details	NPC	Pump and valve station details, boat ramp and guard post details.	Unit 4, Evaporation Pond, Pipeline	Drawings	Ponds	Plant	Drawings and Construction	NVE	
MHOE048	5/19/88-2/9/89	Reid Gardner Unit 4 Evaporation Pond New Retention Basin Pipeline Plan	NPC	RGS Unit 4 old retention basin pipeline detail plans.	Unit 4, Evaporation Pond, Pipeline	Drawings	Plant	Ponds	Drawings and Construction	NVE	
MHOE049	7/9/1989	Old Units 1,2,3 Evaporation Ponds Scrubber Effluent Pipeline Plot Plan	NPC	RGS Units 1, 2, and 3 old evaporation ponds scrubber effluent pipeline plot plan.	Unit 1, Unit 2, Unit 3, Evaporation Ponds, Scrubber	Drawings	Unit 1, 2, and 3	Plant	Drawings and Construction	NVE	
MHOE050	4/3/1984	1984 Topographic Map	Cooper Aerial of Nevada	RGS topo map of SE section of NPC property line.	topo	Drawings	Plant	Plant	Drawings and Construction	NVE	
MHOE051	3/24/1988	Units 1,2,3 Diesel recovery System - 1988	NPC	RGS Units 1, 2, and 3 diesel recovery system details.	Unit 1, Unit 2, Unit 3, diesel recovery system	Drawings	Unit 1, 2, and 3; diesel recovery system	Plant	Drawings and Construction	NVE	
MHOE052	8/10/1989	Units 1,2,3 Diesel recovery System - 1989	NPC	RGS Units 1, 2, and 3 diesel recovery system diesel water discharge piping.	Unit 1, Unit 2, Unit 3, diesel recovery system	Drawings	Unit 1, 2, and 3; diesel recovery system	Plant	Drawings and Construction	NVE	
MHOE053	6/15/1992	1992 Aerial Photo	Cooper Aerial of Nevada	RGS aerial photo from 1992. Scale of 1-300.	aerial	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
MHOE054	NA	Waste Management Units (WMUs) on Aerial Photo	Unknown	RGS WMU aerial photo	WMU, aerial	Drawings	Mesa	Mesa	Drawings and Construction	NVE	

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MHOE055	4/7/1987	1987 Aerial Photo	American Aerial Surveys, Inc.	RGS aerial photo from 1987. Scale of 1-400.	aerial	Drawings	Site-wide	Site-wide	Drawings and Construction	NVE	
NDEP-001	6/25/1966	Groundwater in Upper Muddy River Basin	Water Resource Center, University of Nevada	Provides NPC well pump rates, 1962 Muddy River analytical data for metals and water quality criteria. Contains geological, hydrogeological background.	groundwater, muddy river, metals	Report	NA	Muddy River Basin	Water Resources	NDEP	
NDEP-002	1/1/1976	Inventory and Chemical Quality of Groundwater in White River - Muddy River - Meadow Valley Wash Area, Southeastern Nevada. Prepared for BLM	Water Resource Center, University of Nevada	TDS, salinity, and arsenic quantities in Moapa River and Moapa Valley groundwater	TDS, Muddy River, groundwater	Report	NA	Muddy River Basin	Water Resources	NDEP	
NDEP-003	4/12/1985	Draft Development of Permit Limitations	JRB Associates	Provides proposed discharge limitations and monitoring requirements.	discharge, monitoring, unit 4 dewatering	Letter	Site-wide	Site-wide	Permits - Discharge Correspondence	NDEP	
NDEP-004	7/1/1986	Environmental Characterization of the Chemical Storage Area at Reid Gardner Power Plant	Intellus Corporation	Field investigation identified diesel and methylene chloride as chemicals of concern in chemical storage area. Soil and groundwater data, local geologic, and hydrogeologic information from boring logs.	diesel, methylene chloride, hydrogeology	Report	Chemical Storage Area	Plant	Site Characterization - Chemical Storage	NDEP, NVE	
NDEP-005	7/29/1986	NPC Reid Gardner Pond Monitoring Study	Water Resource Center, University of Nevada	Contains pond water laboratory data, water level and flow direction data, contour map	pond, water quality	Report	Ponds	Ponds	Monitoring Data - Groundwater and Pond	NDEP	
NDEP-006	8/18/1986	Construction, Development, and Testing of NPC Wells EH-2 and EH-2A	Water Resource Center, University of Nevada	Discusses activities associated with the installation of two new test wells. Contains boring logs and recharge rate testing.	monitoring wells	Report	Mesa	Mesa	Monitoring Well Development	NDEP	
NDEP-007	9/1/1986	Plume Characterization at the Reid Gardner Plant	Intellus Corporation	Provided characterization of diesel fuel at site. Includes laboratory data, boring logs, contour maps.	diesel, plume	Report	Central Plant	Plant	Diesel	NDEP	
NDEP-008	10/1/1986	Summary of Deep Drilling Activities, October 1985 - May 1986	Water Resource Center, University of Nevada	Provides geological information to depths between 300 - 1300 ft below surface.	geology	Report	NA	Meadow Valley, Moapa Valley	Water Resources	NDEP	
NDEP-009		Deleted: Document replaced with more legible scan, see AOC312									
NDEP-010	2/1/1987	Hydrogeologic Study of Reid Gardner Power Plant - Final	Intellus Corporation	site-wide hydrogeologic study. Includes groundwater gradient and background groundwater quality information, boring logs, contour map, and groundwater level graphs.	hydrogeology, groundwater	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NDEP, NVE	
NDEP-011	4/1/1987	Product Recovery and Investigation of a Weathered Diesel Plume Adjacent to the Reid Gardner Station	Intellus Corporation	Additional diesel recovery well was installed and investigation of off-site free product migration and soil contamination was conducted. Identifies off-site soil diesel contamination however not off-site groundwater contamination. Includes laboratory data, boring logs, contour maps.	diesel, soil, groundwater, diesel recovery system, recovery well, BTEX, migration	Report	Central Plant	Plant	Diesel	NDEP, NVE	
NDEP-012	4/20/1987	Water Chemistry Reconnaissance and Geochemical Modeling in the Meadow Valley Wash Area, Southern Nevada	Water Resource Center, University of Nevada	Provides general water chemistry overview of the Meadow Valley Wash area. Discusses sources of dissolved salts. Includes timeline of historical groundwater and surface water data from Muddy River.	geology, hydrogeology, chemistry, muddy river, groundwater, surface water	Report	NA	Meadow Valley	Water Resources	NDEP	
NDEP-013	9/18/1987	Phase I Product Recovery Project Completion Report	The Mark Group	Update of ongoing free product removal. Recommend additional recovery wells.	diesel recovery	Report	Central Plant	Plant	Phase I - Diesel Recovery	NDEP	
NDEP-014	1/1/1988	Hogan Spring Drilling Project	Water Resource Center, University of Nevada	Groundwater exploration program near Hogan Spring for additional cooling and process water source. Includes map and water quality data.	spring, water source	Report	NA	Moapa Valley	Water Resources	NDEP	
NDEP-015	3/7/1988	Reid-Gardner Station Diesel Fuel Recovery System Operations, Maintenance and Monitoring Manual - Draft	The Mark Group	O & M manual for diesel recovery system. Includes preventative maintenance, trouble shooting, and operational guidelines	diesel, diesel recovery	Report	Central Plant	Plant	Diesel Recovery - O &M Manual	NDEP	
NDEP-016	6/1/1992	Hydrogeological Study of Surface Impoundments, Volume 1 and 2	Kleinfelder	Describes soil stratigraphy, geology of exposed slope surrounding site, and hydrogeology. Indicates surficial salt encrustation may be a naturally occurring feature,. Includes iso-contour maps for various water quality parameters, laboratory data, boring logs.	hydrogeology, soil, groundwater	Report	Ponds	Site-wide	Hydrogeologic Assessment	NDEP	
NDEP-017	5/16/1995	Hydrogeologic Assessment Report	Converse	Focus on diesel free product thickness in subsurface, radius of influence, and optimum groundwater pumping rates	diesel, free product, groundwater	Report	Plant	Plant	Hydrogeologic Assessment	NDEP, NVE	
NDEP-018	7/26/1995	Remediation of Non-PCB Mineral Oil Releases from Electrical Distribution Equipment to Surface Soil	NPC	Study on non-PCB containing mineral oil and whether small spills need to be reported to the NDEP.	mineral oil, remediation	Report	Plant	Plant	Solid and Hazardous Wastes	NDEP	X

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
NDEP-019	1/6/1998	Administrative Order #NV052579W1 - NDEP Response to NPC Proposed Plan and Schedule of December 18th 1997	NDEP	Acceptance of proposed plan and schedule for pond liner design projects	ponds	Letter	Ponds	Ponds	Regulatory Order	NDEP	
NDEP-020	1/8/1998	December 18th, 1997 Water Release to Muddy River	NPC	NPC discusses cause, duration, and quantity of release.	cooling tower, spill	Letter	Unit 4 Cooling Tower	Muddy River	Spill Report	NDEP	
NDEP-021	2/9/1998	Unlawful Discharge of 500-1000 gallons of Cooling Tower Blow down Water into the Muddy River	NDEP	Internal memo stating an underground fiberglass line broke and spilled due to age and deterioration. NDEP indicates that upgrading of all deteriorating pipelines and valves is a must.	Muddy River, cooling tower, spill	Interoffice Memo	Unknown	Muddy River	Spill Report	NDEP	
NDEP-022	2/23/1998	December 18th 1997 Water Release to the Muddy River	NPC	Additional information requested at Feb 9th NDEP meeting. Removed 26,000 gallons of sediment and liquid from south gate ditch. Will install high level alarm at Southgate ditch.	Muddy River, cooling tower, spill	Letter	Unit 4 Cooling Tower, Southgate Ditch	Muddy River	Spill Report	NDEP	
NDEP-023	6/4/1998	Penalty Determination for Water Pollution Violation at Reid Gardner Plant on December 18th, 1997	NDEP	NDEP will not seek civil penalties	cooling tower, spill	Letter	Unit 4 Cooling Tower, Southgate Ditch	Muddy River	Spill Report	NDEP	
NDEP-024		Deleted: Same Document as AOC-32									
NDEP-025	10/1/1998	Phase I Environmental Site Assessment	CH2M Hill	Discusses identified site-wide recognized environmental conditions (RECs)	phase I, environmental	Report	Site-wide	Site-wide	Phase I - Site-wide	NDEP, NVE	
NDEP-026	12/1/1998	Request for Information on Reid Gardner Station Power Plant	NDEP	Follow-up letter from NDEP site inspection requesting additional information. Additional information includes base maps with all WMUs, groundwater map, naturally occurring spring documentation, fly ash land fill documentation.	NDEP inspection	Letter	Site-wide	Site-wide	Inspection - Groundwater, Waste	NDEP	
NDEP-027	12/15/1998	Laboratory Data Package	NEL Laboratories	Laboratory data for groundwater and soils samples collected on Dec 1st 1998 by Black and Veatch. Analyzed for PCBs, metals, VOCs. No map.	PCBs, metals, VOCs	Data	Unknown	Site-wide	Monitoring Data - Groundwater and Soil	NDEP	
NDEP-028	1/20/1999	Reid Gardner Quarterly Report - 1985-1998	NDEP	Compilation of groundwater analytical results. No reports found for 1991 or 1992	groundwater, quarterly reports	Memo	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-029	2/12/1999	Supplemental Data and Recommendations - Hydrogeologic Assessment, Volumes 1 and 2	Kleinfelder	Includes ground quality data, groundwater elevations, parameter concentration graphs, laboratory data. Recommendations include constructing new line wastewater ponds on the mesa, closing Pond D, evaluating necessity of Pond E, and continued monitoring activities.	groundwater	Report	Site-wide	Site-wide	Hydrogeologic Assessment	NDEP	
NDEP-030	4/5/1999	Final Design Basis Submittal 10% Design	Kleinfelder	Describes investigation regarding two proposed ponds on the Mesa and the retrofit of Pond E. Includes cost estimates and maps.	pond construction	Report	Mesa A, Mesa B, Pond E	Mesa	Design and Construction	NDEP, NVE	
NDEP-031	4/10/1999	Complaint/Spill Report Form	NDEP	800 gallons of scrubber water released from water transfer line north of evaporation pond and into the muddy river	spill	Form	Unknown	Muddy River	Spill Report	NDEP	X
NDEP-032	6/22/1999	90% Design Submittal - Construction Specifications, Mesa Ponds A and B	Kleinfelder	Specifications for mesa ponds A and B construction	pond construction, Mesa Pond A, mesa, Pond B	Report	Mesa A, Mesa B	Mesa	Design and Construction	NDEP	
NDEP-033	10/21/1999	Operations Manual - Evaporation Ponds - Draft	NPC	Operational description, water quality sampling protocol, solids management plan, general closure plan for ponds, and liner leak location and repair plan	operations manual	Report	Ponds	Site-wide	Operations Manual	NDEP	
NDEP-034	11/4/1999	Contract Terms and Construction Specifications for Mesa Evaporation Ponds A and B, Pipeline and Pump Station	Kleinfelder	Contains contract documents, construction specification for construction bids	Mesa Pond A, Mesa Pond B, construction	Report	Mesa A, Mesa B	Mesa	Design and Construction	NDEP	
NDEP-035	5/9/2000	Laboratory Data Package	Alpha Analytical	Laboratory data requested by NPC. Soil and groundwater samples collected 4/17/00 -4/21/00. Analyzed for PCBs, metals, VOCs.	PCBs, metals, VOCs	Data	Unknown	Site-wide	Monitoring Data - Groundwater and Soil	NDEP	
NDEP-036	5/17/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 10A - Power Block Area	Kleinfelder	Soil samples were collected and analyzed for PCBs. PCBs were detected but below regulatory limits. Location map available.	phase II, PCBs	Report	Power block	Plant	Phase II - PCBs	NDEP, NVE	
NDEP-037	6/5/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 5- Diesel Unloading Area	Kleinfelder	No samples taken. Reviewed documentation pertaining to soil removal from hydrocarbon release. Information submitted to NDEP in August 1999.	phase II, hydrocarbon, diesel	Report	Diesel Unloading Area	Plant	Phase II - Diesel Unloading	NDEP	

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NDEP-038	6/5/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 3- Unit 4 Settling Pond	Kleinfelder	Pond water and pond sediment samples were collected and tested for metals. Results were below regulatory action levels.	phase II, metals	Report	Unit 4 Settling Pond	Plant	Phase II - Unit 4 Settling Pond	NDEP	
NDEP-039	6/5/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 16 - Emergency Generator	Kleinfelder	Five soil samples were collected in an area of petroleum staining for TPH analysis. Concentration were detected above regulatory action levels. Impacted soil is not anticipated to exceed 3 cubic yards.	diesel, TPH, phase II	Report	Emergency Generator	Plant	Phase II - Emergency Generator	NDEP, NVE	
NDEP-040	6/19/2000	Monitoring Well Rehabilitation Report to NPC	Kleinfelder	Discusses repairing, replacing, and abandoning damaged wells. Also cleaned out several wells.	monitoring wells, monitoring well repair	Letter	Site-wide	Site-wide	Monitoring Well Development	NDEP	
NDEP-041	6/21/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 15 - Warehouse Drum Storage Area	Kleinfelder	One soil boring performed. Soil samples were collected for VOC analysis. VOC were detected, likely due the historical diesel fuel release. Groundwater sample not collected due to the presence of free product on the water table.	diesel, phase II	Report	Warehouse	Plant	Phase II - Warehouse Drum Storage	NDEP	
NDEP-042	7/13/2000	Contract Terms and Construction Specifics - Unit 4 Evaporation Ponds C2 and C3, Pipeline and Pump Station - 50% submittal	NPC	Contains specifications and drawings for Pond C2 and C3, pipeline, and pump station construction	Pond C2, Pond C3, construction	Report	Pond C2, Pond C3	Unit 4 Ponds	Design and Construction	NDEP	
NDEP-043	7/14/2000	Human Health Risk Assessment	Kleinfelder	Conducted risk assessment based on supplemental Phase II. Identifies several chemicals of concern.	risk assessment, chemicals of concern	Report	Site-wide	Site-wide	Risk Assessment	NDEP, NVE	
NDEP-044	7/28/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Tasks 11-13-14-17-20-21-22-23-24	Kleinfelder	Visually assessed areas, reviewed available records and determined areas do not require additional assessment. Areas: Ash Pump Yard, Unit 4 Salvage Yard, Sandblast Grit Disposal, Unit 4 Lube Oil Rack, Salvage Equipment Storage Yard, Hazmat Storage Area, Soil Treatment Disposal Area, Unit 4 Drum Storage Area, and Unit 4 Equipment Storage Yard.	phase II, visual assessment	Report	Plant	Plant	Phase II - Various Plant Areas	NDEP	
NDEP-045	8/28/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Tasks 7-9	Kleinfelder	Soil and groundwater samples were collected near the lube oil rack 1,2,3 warehouse and lube oil shop. Analyzed for TPH, VOCs, and TCLP metals. TPH and VOCs were detected in groundwater. Could be linked to historical fuel release from the nearby above ground storage tank. Fire suppression system waterline traversing area may have provided a migration pathway.	phase II, TPH, VOCs, metals, diesel	Report	Lube Oil Rack, 1,2,3 Warehouse, Lube Oil Shop	Plant	Phase II - Lube Oil	NDEP	
NDEP-046	9/11/2000	Supplemental Phase II Environmental Site Assessment - Task Reports- Task 4- Diesel Fuel Plume	Kleinfelder	Free product appears to be thinner than previous measurements. Two distinct plumes.	phase II, diesel	Report	Central Plant	Plant	Phase II - Diesel Recovery	NDEP	
NDEP-047	9/18/2000	Geotechnical Investigation - Retrofit of 4B and 4C Ponds	Converse	Evaluated site conditions, suitability of existing ponds and embankments for retrofit with a proposed liner system. Includes geotechnical data and boring logs.	Pond 4B, pond 4C	Report	Pond B, Pond C	Unit 4 Ponds	Geotechnical Investigation - Pond B and C	NDEP, NVE	
NDEP-048	9/18/2000	Contract Terms and Construction Specifics - Unit 4 Evaporation Ponds C2 and C3, Pipeline and Pump Station - 75% submittal	NPC	Contains specifications and drawings for Pond C2 and C3, pipeline, and pump station construction	Pond C2, Pond C3, construction	Report	Pond C2, Pond C3	Unit 4 Ponds	Design and Construction	NDEP, NVE	
NDEP-049	11/6/2000	95% Submittal Unit 4 Evaporation Ponds 4C2 and 4C3 Pipeline and Pump Station	NPC	Contains operation procedures for Unit 4 and free board calculations. No drawings attached.	Pond 4C2, Pond 4C3	Letter report	Pond C2	Unit 4 Ponds	Design and Construction	NDEP	
NDEP-050	3/11/2002	Results of Monitor Wells Installation and Development - Fly Ash Landfill	Converse	Describes installation and sampling of new monitoring wells around the fly ash landfill. Includes maps, boring logs, and laboratory data.	fly ash landfill, monitoring wells	Report	Mesa	Mesa	Monitoring Well Development	NDEP	
NDEP-051	10/2/2002	Units 1-3 Evaporation Pond D and E 95% Bid Specification	Generation Engineering	Contains specifications for the construction of ponds D and E.	Pond D, pond E, construction	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Design and Construction	NDEP	
NDEP-052	11/11/2002	Corrective Action Plan for Ponds D and E	NPC	Discussion of background water quality, contaminant concentrations and sources, plume dimensions, remedial options and remediation goals.	Pond D, Pond E, groundwater, remediation	Letter	Pond D, Pond E	Unit 1,2,3 Ponds	Corrective Action Plan - Pond D and E Groundwater Plume	NDEP	
NDEP-053	2/11/2003	Diesel Recovery System. Result of Phase II Environmental Site Assessments and Dual Phase Extraction Pilot Test	NPC	Proposes Dual Phase Extraction System installation by 2003 to accelerate free product removal	diesel, free product, dual phase extraction,	Report	Central Plant	Plant	Phase II - Diesel Recovery	NDEP, NVE	
NDEP-054	8/3/2004	Revised Hydrogeologic Characterization Report Response to NDEP Comments	NDEP	NDEP requests additional activities at WMU 7, WMU 8, Area 6, and Area 4.	hydrogeology, WMU7, WMU8, Area 6, Area 4	Letter	WMU 7, WMU 8, Plant, Unit 1,2,3 Ponds	Site-wide	Hydrogeologic Characterization	NDEP	
NDEP-055	9/24/2004	Limited Site Characterization Workplan for Dissolved Chlorinated Solvent Area 6	NPC	Characterize and delineate lateral extent of dissolved chlorinate solvents in groundwater located and adjacent to warehouse #1	chlorinated solvent	Letter	Warehouse #1	Plant	Site Characterization - Area 6	NDEP	
NDEP-056	10/20/2004	Delineation and Characterization Workplan for Area of Total Dissolved Solids Concentration (Area 6)	NDEP	NDEP requests revised workplan from NPC	TDS, Area 6	Letter	Warehouse #1	Plant	Site Characterization - Area 6	NDEP	

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NDEP-057	10/20/2004	Delineation and Characterization Workplan Waste Management Unit 8	NDEP	NDEP requests revised workplan from NPC including a revised description of soil sampling, GPR sampling grid, number of samples, contaminant concentration maps, backhoe usage instead of borings, and appropriateness of GPR considering soil condition.	WMU 8 , ground penetration radar	Letter	WMU 8	Plant	Site Characterization - WMU 8	NDEP	
NDEP-058	11/18/2004	Revised Limited Site Characterization Workplan for former ASP-1,2,3 area	NPC	NPC proposes additional work to characterize ASP 1,2,3 area	ASP 1,2,3	Letter	ASP-1,2,3	North Plant	Site Characterization - former ASP-1,2,3	NDEP	
NDEP-059	11/18/2004	Revised Limited Site Characterization Workplan for Dissolved Chlorinated Solvent Area 6	NPC	NPC proposes additional work to characterize area 6	chlorinated solvent	Letter	Warehouse #1	Plant	Site Characterization - Area 6	NDEP	
NDEP-060	12/6/2004	Letter regarding Area of Total Dissolved Solids Concentration (Area 6)	NDEP	NDEP approves site characterization activities	TDS	Letter	Plant	Plant	Site Characterization - Area 6	NDEP, NVE	
NDEP-061	12/6/2004	Letter regarding Waste Management Unit 8	NDEP	NDEP approves site characterization activities	WMU 8	Letter	WMU 8	Plant	Site Characterization - WMU 8	NDEP, NVE	
NDEP-062	3/30/2005	Limited Site Characterization, Waste Management Unit 8	NPC	Letter regarding Converse Limited Site Characterization of WMU #8. NPC proposes closing WMU-8 because no evidence of soil impact or debris.	WMU 8,	Letter report	WMU 8	Plant	Site Characterization - WMU 8	NDEP	
NDEP-063	5/13/2005	Groundwater Investigation Pond 4A Closure	Converse	Contains results of field investigation and laboratory data, hydrogeologic information. Also includes recommendation for the location and general design of proposed groundwater interceptor trench on down gradient side to the pond 4A site	Pond 4A, remediation, groundwater, interceptor trench	Report	Pond 4A	Unit 1,2,3 Ponds	Remediation and Closure	NDEP	
NDEP-064		Deleted: Document replaced by more legible scan, see AOC101									
NDEP-065	7/26/2005	95% Submittal - Mesa Decant Fly Ash Pond	NPC	Discusses sizing calculations and flow meters. Contains drawings.	decant fly ash, Mesa, construction	Letter	Mesa Decant Pond	Mesa	Design and Construction	NDEP, NVE	
NDEP-066	10/5/2005	Response to Corrective Action Plan (Pond 4A)	NDEP	Comments regarding Pond 4A interceptor trench, extraction well, and ash sediment removal	corrective action plan, Pond 4A, remediation	Letter	Pond 4A	Unit 4 Ponds	Corrective Action Plan - Pond 4A Trench	NDEP	
NDEP-067	12/2/2005	Sampling Plan Authorization to Discharge - Permit #NEV91022	NPC	Discusses sampling protocol, QA/QC, and chemical sampling matrix	discharge sampling, NPDES	Letter report	Site-wide	Site-wide	Permits - Sampling Procedures	NDEP, NVE	
NDEP-068	12/13/2005	Letter regarding ASP-1,2,3 workplan	NDEP	NDEP approves site characterization activities	ASP-1,2,3 workplan	Letter	ASP-1,2,3	North Plant	Site Characterization - former ASP-1,2,3	NDEP	X
NDEP-069	12/16/2005	Workplan for Additional Site Characterization Waste Management Unit 12 - Area of Total Dissolved Solids	NPC	Proposed activities include the installation of an additional monitoring well at the SW boundary of Unit 4 coal storage pile (WMU 12). Discusses results of groundwater remediation system flow analysis for the entire site.	WMU 12, groundwater, monitoring well	Letter	WMU 12	Plant	Site Characterization - WMU 12	NDEP	X
NDEP-070	5/1/2006	Preliminary Permanent Ash Storage Facility Expansion Feasibility Study	Kennedy Jenks	Considering expansion onto BLM owned land for permanent ash storage facility. Contains maps, ash MSDS, and cost estimates.	fly ash, bottom ash, storage	Report	South of WMU-4	Mesa	Feasibility Study	NDEP	
NDEP-071	5/1/2006	Ponds Preliminary Feasibility Study	Kennedy Jenks	Study determining location, feasibility, and environmental permitting criteria associated with potential new ponds.	ponds, feasibility	Report	Ponds	Site-wide	Feasibility Study	NDEP	
NDEP-072	7/10/2006	Discharge Monitoring Report, 2nd Quarter 2006	Ninyo and Moore	Monitoring well, river, and pond sampling results. Annual sampling record	pond, river, monitoring wells, nodes	Monitoring Report	Site-wide	Site-wide	Discharge Monitoring - Quarterly Report	NDEP	
NDEP-073	7/27/2006	Preliminary Landfill Expansion Design (10% Design)	Kennedy Jenks	10% design associated with expansion of existing landfill for fly ash, bottom ash, and pond sludge disposal. Provides proposed dimensions and design, operation, and closure schedule. Includes maps.	class III landfill, fly ash, bottom ash, pond sludge	Report	WMU 4	Mesa	Design and Construction	NDEP	
NDEP-074	12/18/2006	Lateral Expansion to Existing Landfill - Preliminary 65% Design Submittal	Kennedy Jenks	65% specifications and drawings for landfill expansion construction	class III landfill, fly ash, bottom ash, pond sludge	Report	East of WMU-4	Mesa	Design and Construction	NDEP	
NDEP-075	1/22/2007	Lateral Expansion of Landfill - 65% Design Submittal	NDEP	Comments regarding 65% design of landfill expansion	landfill	Letter	East of WMU-4	Mesa	Design and Construction	NDEP	X

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NDEP-076	1/22/2007	Pond B1 and B2 Relining Project	NDEP	Approval to reline ponds B1 and B2.	Pond B1, Pond 2	Letter	Pond B1, Pond B2	Unit 4 Ponds	Regulatory Correspondence - Ponds	NDEP	X
NDEP-077	2/6/2007	4th Quarter 2006 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP, NVE	
NDEP-078	2/7/2007	Temporary Permit for Use of Groundwater Generated During a Pump Test	NDEP	Temporary permit for use of approximately 576,000 of groundwater generated during a pump test on 12/12/06 at Pond 4A remediation trench and stored in Pond 43 for dust control use. Expires August 6th, 2007	Pond 4A, remediation,	Permit	Pond 4A	Unit 4 Ponds	Permits - Groundwater	NDEP	
NDEP-079	3/9/2007	Spill Cleanup	NPC	E-mail chain with NDEP and NPC re: oil spill excavation and TPH analysis.	spill, TPH	E-mail	Central Plant	Plant	Diesel	NDEP	
NDEP-080	4/17/2007	Evaporation Pond Relining Schedule	NPC	Future schedule for relining pond	pond relining	Letter	Pond B1, Pond B2, Pond B3, Pond F, Pond G	Ponds	Internal Correspondence - Pond	NDEP, NVE	
NDEP-081	5/10/2007	1st Quarter 2007 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-082	6/14/2007	Notice of Final Action	Department of Comprehensive Planning - Land Use Planning	Referenced NPC application was approved. Conditions given. No specific information on application. Found within Landfill files.	planning, land use, landfill	Letter	Unknown	Unknown	Solid and Hazardous Wastes	NDEP	X
NDEP-083	8/1/2007	Environmental Assessment - Pond and Landfill Expansion Project Draft	Bureau of Land Management	Reviews various environmental protection measures to address evaporation ponds, landfill, etc. Other agencies and community groups assisted in the development of this report.	pond, landfill, community,	Report	Site-wide	Site-wide	Environmental Assessment - Pond and Landfill	NDEP	
NDEP-084	8/10/2007	2nd Quarter 2007 Groundwater Monitoring and Remediation Report to NDEP	NPC	Summary of groundwater sampling results, Pond D/E groundwater recovery and diesel recovery. Includes tables, parameter specific contour maps, and laboratory data.	environmental sampling, groundwater data, recovery systems, groundwater contour maps, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP, NVE	
NDEP-085		Deleted: Same document as AOC-281									
NDEP-086	1/10/1992	Moisture Content Evaluation of Subsurface Soils at Mesa Fly ash Storage Area, Phase III	Kleinfelder	Phase III moisture content evaluation including sampling method and analytical results. Study located at the Mesa Fly ash Storage Area, about 1 mile SW of RGS.	moisture, content, Phase III, Fly ash	Letter report	Landfill	Mesa	Geotechnical Investigation - Landfill	NDEP	
NDEP-087	1/16/1991	4th Quarter 1990 Groundwater Samples	NPC	Summary of fourth quarter 1990 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-088	1/19/1990	4th Quarter 1989 Groundwater Samples	NPC	Summary of fourth quarter 1989 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-089	1/26/1993	Diesel Recovery 1992 4th Quarter Report	NPC to NDEP	Diesel recovery report, fourth quarter 1992. Includes product thickness, water flow, and total product recovery.	diesel recovery, product recovery	Monitoring Report	Central Plant	Plant	Diesel Recovery	NDEP	
NDEP-090	1/26/1993	4th Quarter 1992 Groundwater Samples	NPC	Summary of fourth quarter 1992 groundwater samples. Includes analysis by Lockheed. Wells and ponds sampled	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-091	1/28/1992	4th Quarter 1991 Groundwater Samples	NPC	Summary of fourth quarter 1991 groundwater samples. Includes analysis by Lockheed. Wells and ponds sampled	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-092	3/23/1976	Drainage Study for RGS, NPC, Moapa Nevada	GC Wallace Consulting	Drainage study contains recommendations for height of perimeter dikes around ponds, and information about protecting dikes from erosion	drainage, proposed ponds, muddy river, dike, erosion	Report	Site-wide	Site-wide	Water Resources	NDEP	
NDEP-093	4/16/1990	1st Quarter 1990 Groundwater Samples	NPC	Summary of first quarter 1990 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-094	4/25/1991	1st Quarter 1991 Groundwater Samples	NPC	Summary of first quarter 1991 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	

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NDEP-095	4/30/1992	1st Quarter 1992 Groundwater Samples	NPC	Summary of first quarter 1992 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-096	5/2/1991	Revised 1st Quarter 1991 Groundwater Samples	NPC	Revised summary of first quarter 1991 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report, revision	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-097	6/14/1973	Geologic Field Report of the Proposed Evaporative Ponds near Moapa, Clark County, Nevada	Roger Sulenski	Geologic field report of proposed evaporation ponds near Moapa. Report outlines a proposed area and preliminary plans for new evaporation ponds.	Geologic field report, Moapa, evaporation ponds	Report	Site-wide	Site-wide	Geology	NDEP	
NDEP-098		Deleted: NDEP-98 is a draft document. See final document at Storage 364690287 (Sept. 1991)									
NDEP-099	6/10/1990	2nd Quarter 1990 Groundwater Samples	NPC	Summary of second quarter 1990 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-100	7/8/1986	Flood Plain Information for NPC, Muddy River, Moapa Nevada	URS Corporation	This study provides an analysis of the results of a one hundred year flood event within the studied drainage area. The study provides a comparison of predicted conditions during peak flow events both with and without construction of the proposed ponds.	flood plain analysis, drainage, Muddy River, ponds, Unit 1-2-3	Report	Ponds	Unit 1,2,3 Ponds	Water Resources	NDEP	
NDEP-101	7/17/1986	Proposed Plume Investigation Study and RG Power Plant	Intellus Corporation	Investigation conducted to evaluate potential soil and groundwater contamination near the chemical storage area of warehouse 1.	plume investigation, diesel, warehouse 1	Report	Warehouse 1	Plant	Diesel	NDEP	
NDEP-102	7/24/1991	2nd Quarter 1991 Groundwater Samples	NPC	Summary of second quarter 1991 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-103	7/28/1992	2nd Quarter 1992 Groundwater Samples	NPC	Summary of second quarter 1992 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-104	8/20/1975	Unit No. 3 Scrubber Effluent Solar Evaporation Ponds , Site Investigation, Preliminary Design	AIM Inc.	Site investigation and preliminary design for a scrubber effluent evaporation pond for Unit 3. Boring logs included.	Effluent evaporation pond, Unit 3, geotechnical, borings	Report	Ponds	Site-wide	Ponds - Siting	NDEP	
NDEP-105	8/28/1973	Environmental Analysis Record: Evaporation Ponds RG Steam Plant, Aug 73	Prange, Sulenski	Proposed action to construct a series of eight (8) evaporation ponds covering 110 acres. Ponds expected to receive flow of approx. 100 gpm from scrubbers. Includes water quality data	Evaporation ponds, water quality data, siting	Report	Ponds	Site-wide	Ponds - Siting	NDEP	
NDEP-106	9/2/1986	Geotechnical Investigation Laydown Area Evaporation and Storage Ponds, Units 1, 2, & 3	Converse	Results from a geotechnical investigation into the Laydown area evaporation and storage ponds. Outlines construction details and pollution prevention recommendations. Includes boring logs	geotechnical investigation, laydown area, Pond F, Pond G, boring logs	Report	Pond F, Pond G	Site-wide	Geotechnical Investigation - Pond F and G	NDEP	
NDEP-107	9/2/1988	Recommend Remedial Measures "Laydown Area" Ponds Distress	Converse to NPC	Recommendations for repair of seepage in the Laydown area, pond F, northeast embankment. Results based on field and laboratory analysis.	seepage, laydown area, Pond F,	Letter report	Pond F	Unit 1,2,3 Ponds	Ponds - Leaks	NDEP	
NDEP-108	10/12/1989	3rd Quarter 1989 Groundwater Samples	NPC	Summary of third quarter 1989 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-109	10/14/1988	3rd Quarter 1988 Groundwater Samples	NPC	Summary of third quarter 1988 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-110	10/20/1975	Report of Leakage Monitoring Units 1 & 2 Effluent Evaporation Ponds	AIM Inc.	Evaluation of effluent from ponds from Units 1 & 2. Analytical data found no significant seepage. Piezometer data included	effluent, ponds, Units 1 & 2	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Ponds - Leaks	NDEP	
NDEP-111	10/28/1991	3rd Quarter 1991 Groundwater Samples	NPC	Summary of third quarter 1991 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-112	11/1/1990	3rd Quarter 1990 Groundwater Samples	NPC	Summary of third quarter 1990 groundwater samples. Includes wells and ponds, limited analytical data included	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-113	11/12/1992	3rd Quarter 1992 Groundwater Samples	NPC	Summary of third quarter 1992 groundwater samples. Includes analysis by Lockheed. Wells and ponds sampled	environmental sampling, groundwater data, quarterly report	Monitoring Report	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
NDEP-114	11/13/1989	Groundwater Monitoring Program	NPC	Summary of groundwater analysis program based on earlier hydrogeologic studies. Purpose was to determine background levels through monitoring wells, etc. Includes parameters and monitoring well locations	groundwater, monitoring wells, background	Letter	Site-wide	Site-wide	Regulatory Correspondence - Groundwater Monitoring	NVE, NDEP	
NDEP-115	1/1/1973	Environmental Analysis Record: Evaporation Ponds RG Steam Plant	NPC	Proposed action to construct a series of eight (8) evaporation ponds covering 110 acres. Ponds expected to receive flow of approx. 100 gpm from scrubbers. Reviews alternatives and recommends mitigation of environmental impacts.	evaporation, ponds	Letter report	Site-wide	Site-wide	Ponds - Siting	NDEP	
NDEP-116	11/16/1972	Preliminary Soils Exploration, NE 1/4, Section 5, T15S, R66E, Proposed Pond Area	Nevada Testing Laboratory	Geotechnical exploration to determine the feasibility for construction of an evaporation pond. Includes boring logs. Concludes suitable soils of sufficient quantities are available fro construction of the required pond facilities.	evaporation, ponds	Report	East Plant	Plant	Geotechnical Investigation - Proposed Pond	NDEP	
NDEP-117	9/11/1989	Unit 4 Dewatering- Second Quarter Report	NPC	Second Quarter 1989 analysis from Unit 4 dewatering well discharge. Includes analytical results from RGS chemical lab.	environmental sampling, groundwater data, quarterly report	Monitoring Report	Unit 4 Dewatering Well	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-118		Deleted: Same as AOC-310									
NDEP-119	9/8/2003	Response to Background Water Quality Data June 2003	NDEP to NPC	Adjusts proposed action levels for sulfate to account for analytical sensitivity. Established action levels for phosphate, molybdenum, titanium, vanadium, and boron. Includes table of action levels	background, action levels	Letter	Site-wide	Site-wide	Regulatory Correspondence - Background	NDEP	
NDEP-120	9/21/2004	Corrective Action Plan for Ponds F and G	NDEP	Letter from NDEP regarding a proposed corrective action plan for ponds F and G	Pond F, Pond G Corrective Action Plan	Letter	Pond F, Pond G	Site-wide	Corrective Action Plan - Pond F and G	NVE	
NDEP-121	10/11/1989	Unit 4 Dewatering- Third Quarter Report	NPC	Third Quarter 1989 analysis from Unit 4 dewatering well discharge. Includes analytical results from RGS chemical lab.	environmental sampling, groundwater data, quarterly report	Monitoring Report	Unit 4 Dewatering Well	Site-wide	Groundwater Monitoring - Quarterly Report	NDEP	
NDEP-122	4/8/1988	Groundwater monitoring analysis April 1988	NPC	Groundwater monitoring analysis results from the April 1988 sampling event.	groundwater, monitoring	Monitoring Report	Site-wide	Site-wide	Monitoring Data - Groundwater	NDEP	
NDEP-123	7/11/1988	Groundwater Monitoring Analysis June 1988	NPC	Groundwater monitoring analysis results from the June 1988 sampling event.	groundwater, monitoring	Monitoring Report	Site-wide	Site-wide	Monitoring Data - Groundwater	NDEP	
SKOTI-01		Deleted: Document incomplete, see Storage - 424920718 (1986) for complete file									
SKOTI-02		Deleted: Document incomplete, see AOC353 for complete file									
SKOTI-03		Deleted: Document incomplete, see AOC348 for complete file									
SKOTI-04		Deleted: Document incomplete, see AOC342 for complete file									
SKOTI-05	5/15/1997	1998 Hydrological Impact Study, March 1998 Monitoring Data	Kleinfelder	Contains water level, temperature, and quality data for groundwater and surface-water resources in the upper Muddy River Valley. Subject and data point to 1998 therefore letter date must be incorrect.	groundwater, water resources	Letter report	Site-wide	Site-wide	Monitoring Data - Water Resources	NVE	
SKOTI-06	8/22/2000	Reid Gardner Station Site Characterization Status	Kleinfelder	Outlines status of site characterization work by Kleinfelder and gives preliminary evaporation pond data review. States background TDS concentration may exceed 3000 mg/L. States metals of concern were reduced to selenium, manganese, and arsenic.	site characterization, metals, TDS,	Letter report	Site-wide	Site-wide	Site Characterization	NVE	
SKOTI-07	10/2/2000	Closure Plan 1,2,3 Ash Settling Ponds	NPC to NDEP	NPC submits timelines for closing 1,2,3 Ash Settling Ponds	ASP-1,2,3 , Closure	Letter	ASP-1,2,3	North Plant	Regulatory Correspondence - Ponds	NVE	
Storage - 354489940	1994	Water Analysis 1994	NPC	Provides water analysis for Units 1, 2,3,4; panel room, absorbers, scrubbers, and ponds. Ponds include B1, B2, B3, D, E, F, G. Specific pond parameters include EV, sulfite, sulfide, specific gravity, pH and temperature. Document is broken into 8 individual documents	water chemistry, ponds, unit 1, unit 2, unit 3, unit 4,	Data	Site-wide	Site-wide	Process Water Analysis	NVE	
Storage - 364690282	4/23/1991	Construction Documentation Seepage Cut-Off Walls Pond D and E	Converse	Construction daily logs, invoices, and summary of work letters. Construction finished week of September 18, 1989.	seepage, cut-off, Pond D, Pond E	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Design and Construction	NVE	

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Storage - 364690282	10/14/1988	Geotechnical Investigation Seepage Cut-off Wall for 1,2,3 Evaporation Ponds	Converse	Concludes evaporation ponds leaking at a rate greater than design rate (0.02 ft/day). Reasons include absence of clay slurry trench and construction of high permeability layers in embankment. Recommend soil-bentonite slurry wall or similar barrier be installed along south, east, and west side of subject ponds. Drawings included	Seepage, cut-off, Pond D, Pond E, Pond F, Pond G	Report	Pond F, Pond G, Pond D, Pond E	Unit 1,2,3 Ponds	Geotechnical Investigation - Pond D and E	NVE	
Storage - 364690287	1/19/1993	Geotechnical Investigation Escape Tunnel, Unloading Track Hopper Facility	Converse	Geotechnical investigation for proposed waterproofing repair of the escape tunnel. Tested soil and groundwater. Laboratory analysis not included however PID readings over 100 ppm VOCs included.	escape tunnel, geotechnical	Report	Coal Unloading	Plant	Geotechnical Investigation - Escape Tunnel	NVE	
Storage - 364690287	2/10/1987	Hydrogeologic Study of Reid Gardner Power Plant Region	Intellus Corporation	Area geologic and hydrogeologic information. Includes groundwater depth and water quality.	hydrogeologic, groundwater, water quality	Report	NA	Moapa Valley	Hydrogeologic Assessment	NVE	
Storage - 364690287	9/19/1991	Final Environmental Action Plan	The Mark Group	Review and summary of fly ash disposal and evaporation pond operation and practices. Discusses options to wastewater handling and disposal. Includes muddy river sampling data, groundwater data, maps, lab analysis. Recommend evaporation enhanced by aeration.	fly ash, Pond C, Pond B,	Report	Pond B, Pond C	Unit 4 Ponds	Ponds - General Operations	NVE	
Storage - 364690287		Deleted: Document same as NDEP-11									
Storage - 402738509-1	2/23/1987	Design of Leach Field System	Kleinfelder	Design recommendations for the replacement of a septic tank and leach field.	septic	Report	Plant	Plant	Septic System - Predesign	NVE	
Storage - 402738509-2	1/18/1996	Hydrocarbons in RG1-3 Septic System	NPC	Internal memo stating hydrocarbons were noticed inside septic system sludge. Contributors to the problem include maintenance shop and ash haul road	septic, diesel	Interoffice Memo	Plant	Plant	Septic System - Sludge	NVE	
Storage - 402738509-3	3/27/1967	Yard Piping Plan Unit No. 1 and 2	Stearns-Roger	Plan showing diesel tank and piping additions of unit 2	diesel, piping, unit 1, unit 2	Drawings	Plant	Plant	Design and Construction	NVE	
Storage - 402738509-4	6/22/1995	Chemical Feed System	Sentry Equipment Corp.	Drawings showing chemical feed system. Shows Betz chemical tanks and provides component descriptions	Chemical feed, Betz, Cooling Towers	Drawings	Plant	Plant	Design and Construction	NVE	
Storage - 402738509-5	5/2/1996	Topographic Survey of Pond Water Elevations	Kleinfelder	Topographic surveys of pond water elevations for Ponds D, B1, B2, B3, C, and E	Pond D, Pond B, Pond C, Pond E, water elevations	Drawings	Ponds	Ponds	Ponds - Water Balance	NVE	
Storage - 402738509-6	7/13/1999	Existing Site Plan	Kleinfelder	Topographic map of pond area and mesa. Shows limits of lined sludge pond on mesa, asbestos waste area, and site ponds. Drawing states 95% design submittal	mesa dredge pond, asbestos, topographic, ponds	Drawings	WMU-10	Mesa	Design and Construction	NVE	
Storage - 402738545-1	2/5/1965	Yard Piping Plan Unit No. 1	Stearns-Roger	Plan showing diesel tank and piping	unit no. 1, diesel, plot plan	Drawings	Plant	Plant	Design and Construction	NVE	
Storage - 402738545-2	5/30/1980	General Plot Plan Plant Site	Fluor Power Services	Shows a plot of the plant with constructed raw water plans, including unit 4 raw water plan.	raw water ponds, plot plan	Drawings	Raw Water Ponds	Plant	Design and Construction	NVE	
Storage - 402738545-3	1991-1992	Raw Water Reservoirs/Overpass Slope Protection	Various	Correspondence regarding erosion of berms surrounding raw water ponds and overpass. Discusses potential use of soil seal. Includes pictures of eroding overpass.	raw water ponds, soil seal	Various	Raw Water Ponds	Plant	Ponds - Leaks	NVE	
Storage - 424920713	9/21/2004	Pond D and E	NPC	Requests submittal of revised CAP addressing concerns of 12/16/2002 letter. Based off review of quarterly monitoring report and as-built Pond D and E drawings. Concerns include placing drainpipe two feet below historical groundwater elevation.	CAP, Pond D, Pond E, Remediation	Letter	Pond D, Pond E	Unit 1,2,3 Ponds	Corrective Action Plan - Pond D and E	NVE	
Storage - 424920713	4/22/2003	Reid Gardner Diesel Recovery System - NPC Reid Gardner Station 1st Quarter 2003	NPC to NDEP	Summary of free product measurement results. Free product thickness data tables and contour maps	diesel recovery, free product	Monitoring Report	Central Plant	Plant	Diesel Recovery Quarterly Report	NVE	
Storage - 424920713	4/17/1997	Notification of Non-compliance/Groundwater Monitoring Waiver Request	NPC to Clark County Health District	Requests groundwater monitoring waiver because well testing around Class III landfill indicate levels around background. Provides general hydrogeological background. Includes maps, boring logs, and limited laboratory analysis.	landfill, groundwater, monitoring	Letter	WMU 1	Mesa	Regulatory Correspondence - Groundwater Monitoring	NVE	
Storage - 424920713	8/19/1994	August 11, 1994 Letter (Construction Demolition Debris Disposal)	Clark County Health District to NPC	County approves disposal of construction/cooling tower demolition derived materials in the existing permitted fly ash solid landfill.	fly ash landfill, construction waste	Letter	WMU 3	Mesa	Solid and Hazardous Wastes	NVE	X
Storage - 424920713	6/28/1994	June 21, 1994 Release	NPC to NDEP	Pipe burst and 150 gallons of water from Unit 4 fly ash dewater bin was released to native soil and muddy river. Released water contains TDS of 5710 mg/L and TSS 54 mg/L. No apparent damage occurred. 200 feet up gradient of railroad at river	spill, Muddy River	Letter	Railroad at Muddy River	Muddy River	Spill Report	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
Storage - 424920716	9/19/2001	Units 4 Evaporation Pond C1 95% Bid Specification	Engineering and Joint Projects	Contains specifications for the construction of Pond C1. Drawings included	Pond C1, construction	Report	Pond C1	Unit 1,2,3 Ponds	Design and Construction	NVE	
Storage - 424920716	9/23/1997	Groundwater Level Monitoring - September 1997 Quarterly Report	Converse	Contains water level data for the Moapa Valley wells. No analytical.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	1/13/1998	Groundwater Level Monitoring - December 1997 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	3/2/1998	Groundwater Level Monitoring Program 1997 Formal Annual Report	Converse	Summarize water level data for 1997. No analytical. Topographic maps included.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	3/23/1998	Groundwater Level Monitoring - April 1998 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	7/6/1998	Groundwater Level Monitoring - June 1998 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	X
Storage - 424920716	9/30/1998	Groundwater Level Monitoring - September 1998 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Upper Muddy River	Moapa Valley	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	9/21/2001	Groundwater Monitoring - September 2001 Quarterly Report	Converse	Contains water level data. No analytical.	groundwater	Data	Site-wide	Site-wide	Groundwater Monitoring - Quarterly Report	NVE	
Storage - 424920716	9/29/1997	1997 Hydrological Impact study, September 1997 Monitoring Data	Kleinfelder	Contains water level and temperature data for groundwater and surface-water resources in the upper Muddy River Valley.	groundwater, water resources	Letter report	Upper Muddy River	Moapa Valley	Monitoring Data - Water Resources	NVE	
Storage - 424920716	7/6/1998	1997 Hydrological Impacts from Groundwater Withdrawals in the Upper Muddy River Valley	Kleinfelder	Summary of water level and temperature data for groundwater resources in the Upper Muddy River. Gives well and spring withdrawal rates.	groundwater, water resources	Report	Upper Muddy River	Moapa Valley	Monitoring Data - Water Resources	NVE	
Storage - 424920716	7/8/1998	1998 Hydrological Impact study, June 1998 Monitoring Data	Kleinfelder	Contains water level and temperature data for groundwater and surface-water resources in the upper Muddy River Valley.	groundwater, water resources	Letter report	Upper Muddy River	Moapa Valley	Monitoring Data - Water Resources	NVE	X
Storage - 424920716	7/14/1997	1997 Hydrological Impact study, June 1997 Monitoring Data	Kleinfelder	Contains water level and temperature data for groundwater and surface-water resources in the upper Muddy River Valley.	groundwater, water resources	Letter report	Site-wide	Site-wide	Monitoring Data - Water Resources	NVE	
Storage - 424920716	4/1/1993	1992 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley Nevada	Mifflin and Associates	General water study and hydrological impacts in the river and groundwater. Includes water level data, temperature, conductivity rates, photos, maps.	Muddy River, hydrogeological, groundwater	Report	NA	Muddy River Basin	Water Resources	NVE	
Storage - 424920716	4/1/1994	1993 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley Nevada	Mifflin and Associates	General water study and hydrological impacts in the river and groundwater. Includes water level data, temperature, conductivity rates, photos, maps.	Muddy River, hydrogeological, groundwater	Report	NA	Muddy River Basin	Water Resources	NVE	
Storage - 424920716	3/1/1996	1995 Hydrologic Impacts from Groundwater Withdrawals in the Upper Muddy River Valley Nevada	Mifflin and Associates	General water study and hydrological impacts in the river and groundwater. Includes water level data, temperature, conductivity rates, photos, maps.	Muddy River, hydrogeological, groundwater	Report	NA	Muddy River Basin	Water Resources	NVE	
Storage - 424920716	5/1/1993	Moapa Valley Groundwater Level Monitoring Program 1992 Annual Report	Water Resource Center, University of Nevada	Groundwater withdrawals in the area continue to be within natural capacity. Contains graphs, maps, water level data.	groundwater, water resources, recharge	Report	Site-wide	Muddy River Basin	Water Resources	NVE	
Storage - 424920716	5/1/1996	Analysis of 1995 Groundwater Level Trends in the Upper Muddy River Valley	Water Resource Center, University of Nevada	General study of groundwater levels in the Upper Muddy River area. Results indicate met or exceeded water level recharge rates have. Expected to be maintained through 1997. Contains graphs, maps, water level data.	groundwater, water resources, recharge	Report	Site-wide	Muddy River Basin	Water Resources	NVE	
Storage - 424920716	3/1/1997	Analysis of 1996 Groundwater Level Trends in the Upper Muddy River Valley	Water Resource Center, University of Nevada	General study of groundwater levels in the Upper Muddy River area. Results indicate met or exceeded water level recharge rates have. Expected to be maintained through 1997. Contains graphs, maps, water level data.	groundwater, water resources, recharge	Report	Site-wide	Muddy River Basin	Water Resources	NVE	
Storage - 424920718	5/1/2000	Waste Management Compliance Audit	Sierra Pacific Power Company	Comprehensive internal audit finds non-compliance with respect to hazardous waste and non-hazardous wastes. Includes oil staining in drum storage areas, hazard communication, labeling, training, battery and used oil management.	wastes, audit	Interoffice Memo	Plant	Plant	Audit - Waste Management	NVE	

Document No.	Date	Title	Author	Description	Keywords	Document Type	Specific Site Location	General Site Location	Study Category	Document Location	Scan Not Available
Storage - 424920718	10/1/1986	Fly Ash Rehabilitation and Disposal Reid Gardner Generation Station	J.H. Kleinfelder & Associates	Final geotechnical investigation report for the proposed fly ash rehabilitation and disposal. Boring logs included.	fly ash, geotechnical	Report	UPRR easement, Ash Haul Road	Mesa	Geotechnical Investigation	NVE	
Storage - 424920718	2/23/1999	Temporary Permit TNEV99004	NDEP	Letter approving permit for temporary discharge of fly ash slurry into a natural drainage on the south side of the fly ash landfill.	fly ash slurry, landfill	Permit	WMU-10	Mesa	Permits - Discharge	NVE	
Storage - 424920718	12/11/2001	Existing and Proposed Monitoring Wells Related to the Fly ash Landfill Expansion	NPC to NDEP	New wells to be installed due to modification of landfill. One well included on BLM property. Includes contour map with existing and proposed well locations.	monitoring well, landfill	Letter	Mesa	Mesa	Regulatory Correspondence - Groundwater Monitoring	NVE	
Storage - 424920718	8/26/1999	Public Hearing on Approval or Denial of a Modification to the Permitted Design for Permit No. LF006-CMF-01	Clark County Health District	Staff recommends that the District Board of Health approve the modification of the permitted design of the Class III disposal site. Modification allows the temporary covering of a portion of the disposal site with synthetically lined surface impoundments. No comments were heard from public hearing.	Mesa Pond A, Mesa Pond B, landfill, permit	Memo	Mesa	Mesa	Solid and Hazardous Wastes	NVE	
Storage - 424920718	1/14/1993	Sanitary Landfill	NPC	Effective January 20, 1993 sanitary landfill located on the mesa closed for all garbage disposal with the exception of planned disposal of major plant cleanups. Landfill permanently closed June 1, 1993.	landfill, closure	Interoffice Memo	WMU 1	Mesa	Solid and Hazardous Wastes	NVE	X
Storage - 424920718	5/16/1994	Potential Spill Migratory Routes	NPC to EPA	Provides photos of potential spill migratory routes at the plant.	SPCC, oil, migration	Letter	Plant	Plant	SPCC	NVE	
Storage - 425005008-1	7/5/1981	Raw Water Storage and Overpass Plans	Fluor Power Services	Grading plan for raw water ponds, pump structure plans and details, inlet and outlet structures	raw water ponds, reservoir, unit no. 4, grading	Drawings	Raw Water Ponds	Plant	Design and Construction	NVE	
Storage - 425005057-1	12/21/2000	Lining of Unit 4 Evaporation Ponds 4C2 and 4C3, Pipeline and Pump Station	Kennedy Jenks	Pond C2 and C3 plans showing 100% for construction grading, pond line, pipeline alignment, mixer and pump details, and electrical details.	Pond C2, Pond C3, construction	Drawings	Pond C2, Pond C3	Unit 4 Ponds	Design and Construction	NVE	
Storage - 425005099-1	11/29/1972	Topographic Map of Reid Gardner Station	American Aerial Surveys, Inc.	Topo map of the north side of the plant showing large ash settling pond and small adjacent pond.	Ash pond, topography	Drawings	ASP-1,2,3	Plant	Ponds	NVE	X
Storage - 425005099-2	4/3/1984	Topographic Map of Reid Gardner Station	Cooper Aerial of Nevada	Site-wide topographic map showing raw water ponds, remaining ash settling pond, and proposed pond area east of plant site.	topography	Drawings	Site-wide	Site-wide	Ponds	NVE	
Storage - 425005099-3	10/13/1988	Oil and Atomizing Air Flow Diagram	Stearns-Roger	Shows fuel oil flow diagrams initiating from the diesel tank.	diesel	Drawings	Plant	Plant	Design and Construction	NVE	
Storage - 425005099-4	Unknown	Well Field Lines	Unknown	Topo map showing well field and transmission lines to the plant.	water supply, wells	Drawings	Moapa Valley	Moapa Valley	Water Resources	NVE	
Storage - 425005099-5	5/4/1964	Arrangement - Shop and Warehouse Mechanical and Piping	Stearns-Roger	Plan showing warehouse, oil/paint storage, shop, welding area, and steam cleaning pad.	waste, oil, diesel, warehouse	Drawings	Warehouse	Plant	Design and Construction	NVE	
Storage - 425008843-1	9/14/1983	Project Site Plan, Reid Gardner Units 1,2 and 3 Evaporation Pond Upgrade	URS	Topo maps showing borrow areas, ash fill, P ponds, waste material on mesa. Shows Ponds D and E as east and west ponds and in a smaller area.	topography, p ponds, ash fill, Pond D, Pond E	Drawings	Site-wide	Site-wide	Design and Construction	NVE	
Storage - 425008843-2	8/6/1998	NPC Generation Fee Simple Properties	Nevada Power	Lists property identification numbers, acreage, township, section, and range for Reid Gardner Station, Perkins Ranch, Muddy River Intake, Perkins well Site, Lewis Ranch, and Meadow Valley well site	parcels, water supply, property	Interoffice Memo	Moapa Valley	Moapa Valley	Internal Correspondence - Property	NVE	
Storage - 425008843-3	4/28/1993	Tank Location Plot Plan	Nevada Power	Shows locations of 860,000-gal fuel oil tank, two 10,000-gal above ground diesel tanks, underground diesel tank, and underground gas tank. Also shows chemical storage areas, maintenance shop, acid tanks, and waste paint storage area.	diesel, chemical storage areas, waste	Drawings	Plant	Plant	Waste Characterization	NVE	
Storage - 425008878	1997-2001	Water Analysis -Pond	NPC	Provides water analysis for ponds. Ponds include B1, B2, B3, D, E, F, G. Specific pond parameters include EV, sulfite, sulfide, specific gravity, pH and temperature.	water chemistry, ponds	Data	Site-wide	Site-wide	Process Water Analysis	NVE	
Storage - 425009805-1	8/21/1975	Material Balance Case	Combustion Equipment Associates	Process flow diagram showing combustion equipment and materials ultimate destination to ponds. Ash pond 1, Ash Pond 2, clear well, evaporation ponds, sulfate pond, and chloride pond.	Ash ponds, sulfate pond, process flow	Drawings	Site-wide	Site-wide	Design and Construction	NVE	
Storage - 425009806-1	3/30/1967	Unit No. 2 Plot Plan, Grading Plan, Road Plan and Profile	Stearns-Roger	Shows future oil tank area, ash storage area, future reservoir in plot plan. Grading plan for unit 2 and cooling tower #2. Road plan shows diesel AST.	unit no. 2, diesel, plot plan	Drawings	Plant	Plant	Design and Construction	NVE	

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Storage - 436372615-1	1970-1994	Muddy River MVIC	State of Nevada Division of Water Resources	Various certificates of appropriation of water and related correspondence.	muddy river, diversion, irrigation, appropriation	Letter	Muddy River	Moapa Valley	Water Resources	NVE	
Storage - 436372615-2	1978-1995	Muddy Valley Irrigation Company (MVIC) Agreements	Various	Miscellaneous water agreements between the MVIC and Reid Gardner Station. Contains limited well yield data.	water right, water agreement, well yield, muddy river	Letter	Muddy River	Moapa Valley	Water Resources	NVE	
Storage - 436372616-1		Deleted: Document replaced with a more legible scan, see AOC351									
Storage - 436372616-2	10/11/2002	Ponds D and E Stormwater Retention Analysis	Kennedy Jenks	Includes stormwater retention analysis using 100-yr 24 hr storm. Includes figure titled Ponds D and E reconstruction watershed boundary plan	stormwater, Pond D, Pond E, freeboard, storm event, watershet	Report	Pond D, Pond E	Unit 1,2,3 Ponds	Ponds - Stormwater	NVE	
Storage - 436372616-3	10/1/2001	Topographic Survey ASP-123 Closure Plan	Kennedy Jenks	Drawing showing as-built topography after grading of ASP-123.	ASP 1, ASP 2, ASP 3, grading, topography	Drawings	ASP-1,2,3	Plant	Design and Construction	NVE	
Storage - 436372616-4	4/30/2002	RG Water Balance Internal Correspondence	NPC	Response to memo on Reid Gardner water balance and pond capacity concerns. Summarizes sources of water to ponds, active status, and process water balance.	water balance, ponds, water reduction	E-mail	Site-wide	Site-wide	Ponds - Water Balance	NVE	
Storage - 436372616-5	11/20/1967	Installation of Parshall Flumes, Moapa Valley Springs	Desert Research Institute	Discusses parshall flumes installed in vicinity of site. Indicates Muddy River is gaining spring at certain locations. Includes map and flow measurements.	parshall flume, muddy river	Letter	Muddy River	Moapa Valley	Hydrogeologic Characterization - Correspondence	NVE	
Storage - 436372617-1	1/1/1995	Summary of Groundwater Level Trends in the Upper Muddy River Valley	Desert Research Institute	Presentation for Nevada state engineer summarizing water supply wells and groundwater level impacts. Discusses alluvial aquifer, historic trends, and drawdown.	alluvial aquifer, drawdown, groundwater, arrow canyon well,	Presentation	Upper Muddy River Valley	Moapa Valley	Water Resources	NVE	
Storage - 436372617-2	2/1/1992	Lewis Well Field Testing	Desert Research Institute	Summarizes testing of five NPC production wells in the Lewis Wellfield. Tested for maximum pumping capacity, drawdown, sanding problems and water quality. Purpose was to determine if any declines in production capacity or deterioration of water quality had occurred over time. Data included. No well location map.	lewis wellfield, drawdown, groundwater, supply well	Report	Moapa Valley	Moapa Valley	Water Resources	NVE	
Storage - 436372617-3	6/1/2001	Water Resources and Groundwater Modeling in the White River and Meadow Valley Flow Systems	Las Vegas Valley Water District	Comprehensive report to define the groundwater flow systems that contribute to the Muddy Springs in Upper Moapa Valley and to determine if there is a groundwater flow that bypasses the springs. Water balances and groundwater model included along with various color figures.	groundwater, upper Moapa valley, muddy river, meadow valley, geochemistry	Report	White River and Meadow Valley	White River and Meadow Valley	Water Resources	NVE	
Storage - 436372617-4	12/1/1996	Groundwater Model Upper Muddy River, NV	Hydrodynamics Group	Summary of carbonate aquifer and overlying alluvial aquifer to better define the interrelationships between the two aquifers, wells, river and springs. Arrow Canyon wells were studied.	Arrow Canyon well, groundwater, alluvial aquifer	Report	Upper Muddy River	Moapa Valley	Water Resources	NVE	
Storage - 436372617-5	2/1/2001	Hydrogeologic and Groundwater Modeling Analyses for the Moapa Paiute Energy Center	Mifflin and Associates	Summarizes and interprets regional databases and establishes modeling analyses for the proposed groundwater usage in a 760-MW natural gas fired combined cycle power plant.	MODFLOW, groundwater, Arrow Canyon, Muddy River, California Wash	Report	California Wash	Moapa Valley	Water Resources	NVE	
Storage- 425011312-1	1995-1996	Unit Analysis Reports	NPC	Unit 1 and 2 Unit Analysis Logs with chemical concentrations.	Unit Analysis, data, logs	Data	Ponds	Ponds	Process Water Analysis	NVE	
Storage- 433440321-1	1985-1987	Pond Operations and Odor Control	A. Sadan	Various hand written reports entitled The Role of Calcium in the RG Ponds; The Experimental Pond Campaign of Winter 1986 and Spring 1987; Monthly Material Balances and Energy Budget Calculations; Evaporation Ponds for Hydrogen Sulfide Control; Preliminary Evaluation of NPC RG Waste Management.	Ponds, odor, hydrogen sulfide, process flow, calcium, waste management	Various	Site-wide	Site-wide	Ponds - Process Flow	NVE	

Appendix D

Potential Source Area Summary Table

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
MA-1	Closed Sanitary Landfill (WMU-1)	Sanitary landfill	Landfill for municipal-type wastes prior to 1994	1980	1994	General chemistry, metals, PAHs, PCBs, SVOCs, TPH, VOCs	4.1.1	• No further soil characterization is recommended at MA-1. The landfill was closed by the solid waste management authority in accordance with regulations in place at the time. MA-1 has since been included in the area covered by the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-1 will be included in Mesa Area groundwater characterization efforts and will include VOC sampling in selected wells.	C
MA-2	Special Asbestos Waste Cell (WMU-2) (Active Permit)	ACBM landfill	Asbestos waste landfill	1987	Active	Asbestos, formaldehyde, general chemistry, metals	4.1.2	• No soil characterization is recommended specific to MA-2. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. • No groundwater characterization is recommended. Asbestos fibers are not water soluble and do not move through soil or groundwater to any appreciable extent. The depth to groundwater in this area is typically 100 feet or more bgs. It is unlikely that asbestos fibers will migrate through soil to reach groundwater at this depth.	C
MA-3	Existing Disposal Area for Construction and Demolition Debris (WMU-3)		Landfill for cooling tower 4 construction debris	1984	<1997	Formaldehyde, general chemistry, metals	4.1.3	• No soil characterization is recommended at MA-3. Wastes were placed with regulatory coordination; and the actual wastes placed were consistent with the waste types permitted under both past and current permits. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-3 will be included in Mesa Area groundwater characterization efforts.	C
MA-4	Class III (Industrial Waste) Landfill (WMU-4) (Active Permit)	Mesa Landfill, Mesa Flyash Storage Area (WMU 1,2,3,5,9,10, P Ponds, and Mesa Dredge Pond located within WMU-4)	Permitted flyash landfill area (WMU 1,2,3,5,9,10, P Ponds, and Mesa Dredge Pond located within WMU-4)	1986	Active	Formaldehyde, general chemistry, metals	4.1.4	• No soil characterization is recommended specific to MA-4. Wastes were placed with regulatory coordination; and the actual wastes placed were consistent with the waste types permitted under both past and current permits. This area is included in the current Class III landfill permit and will be maintained and closed in accordance with that permit. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-4 will be included in Mesa Area groundwater characterization efforts.	C
MA-5	Closed Ash Disposal Site (WMU-5)		Flyash landfill constructed prior to WMU-4	1980	1987	Formaldehyde, general chemistry, metals	4.1.5	• No soil characterization is recommended. This area was closed and covered in accordance with good engineering practice; the actual wastes placed were consistent with the waste types permitted in the area under both past and current permits. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-5 will be included in Mesa Area groundwater characterization efforts. .	C
MA-6	Evaporation Ponds (P1 - P5)	P Ponds	Historic cascading evaporation ponds on the mesa	1965 (assumed)	1986 (reportedly)	Formaldehyde, general chemistry, metals, PAHs, VOCs	4.1.6	• No soil characterization is recommended. This area was covered by additional waste placed in accordance with regulatory requirements and is now managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-6 will be included in Mesa Area groundwater characterization efforts.	C
MA-7	Landfill Used for Industrial and Non-Industrial Waste (WMU-7)		Industrial and non-industrial wastes disposed (pre-1985) and reportedly burned in this area	Around 1963	1985	Aldehydes and diols, dioxins and furans, general chemistry, metals, PAHs, PCBs, SVOCs, TPH, and VOCs	4.1.7	• No further soil characterization is recommended in this area. • Further source-specific groundwater characterization is recommended in this area. • MA-7 is being investigated under the AOC as a sub-area. The Final Sampling and Analysis Report-Waste Management Unit 7 (Stanley Consultants, 2011) includes the results of this investigation. NVE is currently evaluating remedial options for soil and groundwater at MA-7.	B

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
MA-8	Disposal Area for Water Treatment Waste (WMU-9)		Located within WMU-4 and contains water treatment waste materials	mid 1990s	2005	Formaldehyde, general chemistry, metals, PAHs, VOCs	4.1.8	• No soil characterization is recommended. The wastes placed in the area were consistent with the waste types permitted under both past and current permits. This area was covered by additional waste placed in accordance with regulatory requirements and is now managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-8 will be included in Mesa Area groundwater characterization efforts.	C
MA-9	Former Mesa Dredge Pond (WMU-10)		Located in the southern portion of WMU-4, contains solids from Ponds F and G	1999	2002	Formaldehyde, general chemistry, metals, PAHs, VOCs	4.1.9	• No soil characterization is recommended. This area was taken out of service and covered in accordance with regulatory requirements and the actual wastes placed in the pond were consistent with the waste types permitted under both past and current permits. The area of MA-9 is currently managed in accordance with landfill permit requirements under the direction of the SNHD. Exposure to wastes and potentially impacted soils will be addressed as part of landfill closure activities. Therefore, characterization efforts on the mesa will focus on groundwater. • Groundwater beneath MA-9 will be included in Mesa Area groundwater characterization efforts.	C
PA-1	Hogan Wash		Reported to have received pond water, unpermitted	Unknown	Unknown	Formaldehyde, general chemistry, metals, PAHs, VOCs	4.2.1	• Soil characterization is recommended to evaluate the source of groundwater contamination in the area of PA-1. • Further source-specific groundwater characterization is recommended to evaluate the nature and extent of groundwater contamination in the area of PA-1.	B
PA-2	Pond 4B (B1-3)	Pond B, B Ponds	Historically operated as an unlined permitted pond and late replaced with double-lined ponds in the same footprint.	1983	Active	Formaldehyde, general chemistry, metals	4.2.2	• As the ponds are taken out of service, the accumulated solids will be removed and disposed in the permitted mesa landfill. These solids will be sampled prior to removal and soils underlying the double liner systems will be sampled after solids removal. • Groundwater beneath PA-2 will be included in Ponds Area groundwater characterization efforts.	B
	Pond 4C (C1-3)	Pond C, C Ponds	Historically operated as an unlined permitted pond and late replaced with double-lined ponds in the same footprint.	1983	2007/2008	Formaldehyde, general chemistry, metals	4.2.2		B
PA-3	Former Pond 4A		Permitted pond containing bottom ash, fly ash, scrubber effluent, ash water, and reativator solids. In 2005, Converse Consultants recommended a groundwater interceptor trench adjacent to Pond 4A and a deeper pumping well within the pond footprint to remediate groundwater in the Pond 4A area. Based on groundwater modeling, Converse Consultants estimated it could take up to 15 years for most of the groundwater with elevated TDS to reach the proposed interceptor trench. It was anticipated that the well would produce 25 gpm and the trench would initially produce 120 gpm. In 2006, the groundwater recovery trench was installed in the Pond 4A area. Pump testing of the trench after installation reportedly yielded flows of approximately 250 gpm. This trench is not currently active and the deep pumping well has not been installed.	1983	1998	Formaldehyde, general chemistry, metals, PAHs, SVOCs, TPH, and VOCs	4.2.3	• The accumulated solids will be removed and disposed in the permitted mesa landfill. These solids will be sampled prior to removal and soils underlying PA-3 will be sampled after solids removal. • Groundwater beneath PA-3 will be included in Ponds Area groundwater characterization efforts. • Reevaluate the potential effectiveness of the existing interceptor trench and proposed deep pumping well in the Pond 4A area.	A

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
PA-4	Closed Fly Ash Fill Area Under Landfill Haul Road (WMU-6)		Permitted flyash placement under road and next to Pond D	1980	Active	General chemistry, metals	4.1.10	• Additional soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern. • Groundwater beneath PA-4 will be included in Ponds Area groundwater characterization efforts.	C
PA-5	Former Pond D	West Pond	Historically operated as an unlined permitted pond. Pond solids were removed in 2010. The Pond D remediation trench has been recovering some shallow groundwater since installation in 2002. The quantity of recovered groundwater has been reported quarterly to NDEP. As of the fourth quarter 2011; 2,363,749 gallons of groundwater have been recovered from the Pond D remediation trench and discharged into Pond E1 for evaporation. During solids removal in the former Pond D area in 2010, a portion of the remediation trench associated with Pond D was permanently removed.	1974	2001	Formaldehyde, general chemistry, metals	4.2.4	• Further soil characterization is recommended. • Groundwater beneath PA-5 will be included in Ponds Area groundwater characterization efforts.	A
PA-6	Ponds E (E1-E2)	East Pond, Former Pond C, Former Pond D	Historically operated as an unlined permitted pond and later replaced with double-lined ponds in the same footprint. The Pond E remediation trench has been recovering some shallow groundwater since installation in 2002. The quantity and quality of recovered groundwater has been reported quarterly to NDEP. As of the fourth quarter 2011; 461,306 gallons of groundwater have been recovered from the Pond E remediation trench and discharged into Pond E-1 for evaporation.	1969 (Ponds C&D); 1974 Pond E	Active	Formaldehyde, general chemistry, metals	4.2.5	• When accumulated solids are removed from Pond E they will be disposed in the permitted mesa landfill. These solids will be sampled prior to removal and soils underlying the double liner system will be sampled after solids removal. • Groundwater beneath PA-6 will be included in Ponds Area groundwater characterization efforts. • Reevaluate the effectiveness of the existing Pond E remediation trench.	A
PA-7	Former Pond F	Unit 1,2,3 Laydown Pond	Historically operated as an unlined permitted pond and later replaced with double-lined pond in the same footprint. Pond solids were removed in 2012/2013.	1986	2011	Formaldehyde, general chemistry, metals	4.2.6	• Soils remaining in the Pond F area following solids removal in 2013 were characterized and the results will be provided to NDEP in a Pond F Solids Removal Completion Report. Further soil characterization is recommended in the former Pond F and G areas. • Groundwater beneath PA-7 will be included in Ponds Area groundwater characterization efforts.	A
	Former Pond G	Unit 1,2,3 Laydown Pond	Historically operated as an unlined permitted pond. Pond solids were removed in 2010.	1986	2009	Formaldehyde, general chemistry, metals	4.2.6		A
PA-8	Hydrogen Peroxide Tank Release		Release from tank storing hydrogen peroxide for odor control in ponds.	2009	2009	None	4.2.7	• No further soil characterization is recommended. Hydrogen peroxide consists only of hydrogen and oxygen which would not cause contamination. • No further groundwater characterization is recommended. There are no indications that groundwater was impacted by the release.	C
SA-1	Unit 4 Treated Water Pond		Treated water reservoir within station area	1983	Active	General chemistry, metals	4.4.1	• The potential for soil contamination has been greatly decreased since the pond was lined with HPDE over ten years ago. Because it would be difficult to sample underlying soils while the pond is still in service, the need for soil sampling will be re-evaluated in the future when this pond is taken out of service. • Source-specific groundwater characterization is recommended. The potential for groundwater contamination has been greatly decreased since the pond was lined with HPDE over ten years ago. Available pond water data for metals only show arsenic slightly above the primary MCL and TDS above the secondary MCL.	C

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
SA-2	Unit 4 Cooling Tower		Unit 4 cooling tower	1983	Active	General chemistry, metals	4.4.2	• No further soil characterization is recommended. Only two of eight metals were detected in the TCLP extract from the soil sample collected near the cooling tower. These results demonstrate that the metals are not likely to leach at levels of concern and the soils are not a secondary source of groundwater contamination. • Source-specific groundwater characterization is recommended in this area.	C
SA-3	Unit 4 Cooling Tower Catch Basin		Basin located near the south gate entrance	1983	Active	Formaldehyde, general chemistry, metals, PAHs	4.4.3	• Further soil characterization is recommended. • Source-specific groundwater characterization is recommended in this area.	C
	Units 1,2,3 Coal Pile		First RGS coal pile	1965	Active	Formaldehyde, general chemistry, metals, PAHs, TPH	4.4.4		B
	Unit 4 Coal Pile	Unit 4 Coal Storage	Coal pile added in early 80's with Unit 4	1983	Active	Formaldehyde, general chemistry, metals, PAHs, TPH	4.4.4	• Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the coal piles are still in service, soil characterization at each coal pile will be addressed in the future when the coal piles are taken out of service. • Further source-specific groundwater characterization is recommended.	B
SA-4	Fly Ash Under Unit 4 Coal Pile (WMU-12)		Flyash fill underneath Unit 4 Coal Pile	1980	Active	Formaldehyde, general chemistry, metals, PAHs, TPH	4.4.4		B
SA-5	Area of Previous Fly Ash Fill (WMU-13)		Located east of WMU-14 underlying an un-named road; appears to be engineered fill	Unknown	Unknown	general chemistry, metals, TPH	4.4.5	• Additional soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern. • No further groundwater characterization is recommended at this time. If ash and soil samples indicate concern for leaching, further groundwater characterization will be re-evaluated.	C
SA-6	Area of Previous Fly Ash Fill (WMU-14)		Located east of the plant and consists of less than 100 cubic yards of flyash	Unknown	Unknown	general chemistry, metals, TPH	4.4.5	• Additional soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern. • No further groundwater characterization is recommended at this time. If ash and soil samples indicate concern for leaching, further groundwater characterization will be re-evaluated.	C
SA-7	Unit 4 Settling Pond (Foster Wheeler Pond)	Foster Wheeler Pond	Bottom ash settling designed to receive storm water and overflow from the ash transport and dewatering system; concrete-lined pond	1983	Active	Formaldehyde, general chemistry, metals, PAHs	4.4.6	• Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the pond is still in service, soil characterization will be addressed when the pond it taken out of service. • Source-specific groundwater characterization is recommended.	C
SA-8	Units 1,2,3 Catch Basin	Units 1,2,3 Settling Pond, Cooling Tower Overflow Pond	Units 1,2,3 cooling tower overflow concrete-lined pond	1976	Active	General chemistry, metals, PAHs	4.4.7	• Further soil characterization is recommended. Because it would be difficult to sample underlying soils while the pond is still in service, soil characterization will be addressed when the pond it taken out of service. • Source-specific groundwater characterization is recommended.	C
SA-9	Units 1 and 2 Emergency Diesel Generator		Emergency diesel generator near Units 1,2,3 Turbine Building	<1998	Active	PAHs, TPH, VOCs	4.3.1	• Additional soil characterization is recommended to confirm that contaminated soils have been removed from the Units 1 and 2 Emergency Diesel Generator area. The potential primary source of contamination has been controlled with secondary containment and contaminated surface soil was removed prior to installation of a concrete pad beneath the generator. • No further groundwater characterization is recommended. Because of the limited extent of soil contamination, it is unlikely to have caused groundwater contamination at concentrations of concern.	C

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
SA-10	Former Units 1, 2,3 Lube Oil Rack	Solvent Area	Outside drum storage rack with concrete pad near Unit 1,2,3 cooling tower blowdown tank	Unknown	2010	Metals, PAHs, TPH, VOCs	4.3.2	• Further soil characterization is recommended. The source of contamination is historic spills from drums, and the primary source is no longer present. Any surface drainage/infiltration is further controlled by the concrete sump. The depth to groundwater in this area ranges from approximately 5.5 to 12 feet bgs. Due to the shallow groundwater table, contaminants in the soil would likely leach to groundwater. • Further source-specific groundwater characterization is recommended to determine the current concentrations of chlorinated solvents.	B
SA-11	Former Gasoline Underground Storage Tank (UST) (1000-gallon) and Warehouse 1		Former gasoline UST near Units 1,2,3 warehouse	1970s	<1991	Metals, PAHs, TPH, VOCs	4.3.3	• Further characterization of soil is recommended. • Although groundwater beneath SA-11 will be included in Petroleum Area groundwater characterization efforts, SA-11 was not a source of this groundwater contamination.	B
SA-12	Former 850,000-gallon Diesel AST		Former diesel AST, demolished in 2009	1964	2009	PAHs, TPH, VOCs	4.3.4	• No further characterization of soil is recommended. The 850,000-gallon AST demolition is complete and no evidence was found to indicate the AST had leaked and caused soil contamination. The lead paint on the exterior of the AST was properly collected and disposed off-site. • No further characterization of groundwater is recommended. No evidence was found to indicate the AST leaked and caused groundwater contamination.	C
SA-13	Former Diesel Fuel Unloading Area	Fuel Pumping Station	Former diesel fuel unloading area near former diesel AST (SA-13)	1964	2009	PAHs, TPH, VOCs	4.3.5	• No further characterization of soil is recommended. The soil excavation to 14 feet bgs was completed west of the unloading area in 1999. Although TPH was detected at elevated levels in the base of the excavation, at this depth it is within the saturated zone and will be addressed as a groundwater issue. • Groundwater beneath SA-13 will be included in Petroleum Area groundwater characterization efforts. Metals and general chemistry concentrations may be addressed in a different source-grouped or source-specific groundwater area.	C
SA-14	Former Underground Product Piping, Petroleum Tanks		Former diesel lines to USTs	1964	Unknown	PAHs, TPH, VOCs	4.3.6	• Further characterization of soil is recommended to evaluate concentrations of petroleum contaminants in vadose zone soils. There are likely multiple sources of contamination. • Further characterization of groundwater in the Petroleum Area is recommended. There are likely multiple sources of contamination. • Remediation of the diesel fuel plume should continue.	A
	Diesel AST (10,000-gal)		Active diesel AST within secondary containment, north of Unit 1,2,3 coal pile	Unknown	Active	PAHs, TPH, VOCs	4.3.6		A
	Former Diesel UST (500-gal)		One of three former diesel USTs connected to former product lines	Unknown	<1991	PAHs, TPH, VOCs	4.3.6		A
	Former Diesel UST (1000-gal) and Unloading Area		One of three former diesel USTs connected to former product lines	1964	1987	PAHs, TPH, VOCs	4.3.6		A
	Former Diesel UST (1000-gal) and Unloading Area		One of three former diesel USTs connected to former product lines	1980	1987	PAHs, TPH, VOCs	4.3.6		A
SA-15	Free Product Recovery System	Diesel Reclaim Aboveground Storage Tanks	Treatment system for free product recovery system; located within former diesel AST bermed area	1986	Active	PAHs, TPH, VOCs	4.3.7	• Further characterization of soil contamination is recommended to evaluate whether petroleum contaminants remain in vadose zone soils at concentrations exceeding screening levels. Although soil excavations were completed after the reported historic releases, TPH was detected at elevated levels in the area in 2009. • Groundwater beneath SA-15 will be included in Petroleum Area groundwater characterization efforts. • Remediation of the diesel fuel plume should continue.	C

Source ID	Source Area	Synonyms	Description	Date start	Date end	Site Related Chemical Category	Report Section Number	Recommendation	Further Source Characterization Priority
SA-16	Vehicle Maintenance Area	Chemical Storage Area, Vehicle Wash Area	Vehicle maintenance area consisting of vehicle Maintenance Building and outdoor storage area for oil, hydraulic fluid, degreasers, engine cleaners, and detergents	Approximately 1973	Active	Metals, PAHs, TPH, VOCs	4.3.8	• Further characterization of soil contamination is recommended to evaluate whether petroleum contaminants remain in vadose zone soils at levels of concern. • Further source-specific characterization of groundwater is recommended.	C
SA-17	Reported Previous Waste Disposal Area (WMU-8)		Verbal report of possible location of buried debris. 2005 investigation found no indication of waste placed here.	Unknown	Unknown	None	4.4.8	• No further soil characterization is recommended. The 2005 field investigations found no visual evidence of buried debris or contamination. The boring logs indicate that this area was composed of native soil. • No further groundwater characterization is recommended. There are no indications that groundwater has been impacted in this area by Station activities.	C
SA-18	ASP-1	Pond A	First ash settling pond located north of Station and eventually replaced by raw water pond	1965	1982	Formaldehyde, general chemistry, metals, PAHs, TPH, VOCs	4.5.1	• Further soil characterization is recommended. Limited soil sampling has been conducted for SA-18 and the nature and extent of soil contamination in this area is unknown. • SA-18 sources will be included in North Station Area groundwater characterization efforts.	B
	ASP-2	Pond B	First ash settling pond located north of Station and eventually replaced by raw water pond	1969	2001	Formaldehyde, general chemistry, metals, PAHs, TPH, VOCs	4.5.1		B
	ASP-3		Former ash settling pond located north of Station	1974	2001	Formaldehyde, general chemistry, metals, PAHs, TPH, VOCs	4.5.1		B
	Former Clear Wells	Former Clarifying Ponds	Former "wells" used to clarify ash settling pond water located south of ASP ponds	Unknown	>1986	Formaldehyde, general chemistry, metals, PAHs, TPH, VOCs	4.5.1		B
	Former Fly Ash Disposal Area (WMU-11)		Flyash and solids disposal area near raw water ponds	1980	Unknown	Formaldehyde, general chemistry, metals, PAHs, TPH, VOCs	4.5.1		B
SA-19	Unit 4 Absorber		Absorber used for SO_2 removal	1983	Active	General chemistry, metals	4.4.9	• Soil characterization is recommended to evaluate the nature and extent of contaminants in soil at concentrations of concern. • Further source-specific groundwater characterization is recommended to evaluate the elevated TDS and sulfate values nearby.	C
	Units 1,2,3 Scrubbers		Absorbers used for SO_2 removal	>1968	Active	General chemistry, metals	4.4.9		C

NOTES:

A - High Priority

B - Medium Priority

C - Low Priority

Appendix E

Data Tables

Table No.	Description
E-1	Mesa Area Groundwater Screening Level Comparison Summary August 1993 to December 2011
E-2	Mesa Area Soil Vapor Data 12/11/1998
E-3	MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7) 2005 Soil Data
E-4	MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7) 2009 Shallow Soil Data
E-5	MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7) 2009 Mid-depth Soil Data
E-6	MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7) 2009 Deep Soil Data
E-7	Pond Area Groundwater Screening Level Comparison Summary March 1996 to December 2011
E-8	PA-1 Hogan Wash Soil Data
E-9	PA-1 Hogan Wash Groundwater Screening Level Comparison Summary September 1996 to December 2011
E-10	PA-3 Former Pond 4A Groundwater Data
E-11	PA-5 Former Pond D Solids Composite Sample Data
E-12	PA-5 Former Pond D Solids Data
E-13	PA-5 Former Pond D Solids Data - Radionuclides
E-14	PA-5 Former Pond D Soil Data
E-15	PA-7 Former Pond G Solids Composite Sample Data
E-16	PA-7 Former Pond G Solids Data
E-17	PA-7 Former Pond G Solids Data - Radionuclides
E-18	PA-7 Former Pond G Soil Data
E-19	SA-10 Former Units 1,2,3 Lube Oil Rack Soil Data
E-20	SA-10 Former Units 1,2,3 Lube Oil Rack Groundwater Data
E-21	SA-10 Monitoring Well HM-8 Groundwater Monitoring Data
E-22	SA-10 Monitoring Well HM-48 Groundwater Monitoring Data
E-23	SA-10 Monitoring Well HM-50 and HM-50R Groundwater Monitoring Data
E-24	SA-10 Monitoring Well HM-51 Groundwater Monitoring Data
E-25	SA-11 Former Gasoline UST and Warehouse 1 Soil Data
E-26	SA-11 Former Gasoline UST and Warehouse 1 Groundwater Data Collected from Soil Borings
E-27	SA-12 Former 850,000-gallon AST Soil Data
E-28	SA-13 Diesel Fuel Unloading Area Soil Data
E-29	SA-13 Diesel Fuel Unloading Area Groundwater Data
E-30	SA-14 Former Product Lines and USTs Historic Free Product Maximum Thickness
E-31	SA-14 Former Product Lines and USTs Groundwater Data
E-32	SA-15 Free Product Recovery System Soil Data
E-33	SA-16 Vehicle Maintenance Area Soil Data
E-34	SA-16 Vehicle Maintenance Area Groundwater Data From Soil Borings
E-35	SA-1 Unit 4 Treated Water Pond Pond Water Data
E-36	SA-2 Unit 4 Cooling Tower Groundwater Data
E-37	SA-2 Unit 4 Cooling Tower Southgate Spring Monitoring Data
E-38	SA-3 Unit 4 Cooling Tower Catch Basin Pond Water Data
E-39	SA-4 Unit 4 Coal Pile Area Soil Data
E-40	SA-4 Coal Pile Area Groundwater Screening Level Comparison Summary March 2003 to December 2011
E-41	SA-5 Area of Previous Fly Ash Fill Soil Data
E-42	SA-5 Area of Previous Fly Ash Fill Groundwater Data
E-43	SA-7 Unit 4 Settling Pond Pond Water Data
E-44	SA-8 Units 1,2,3 Catch Basin Pond Water Data
E-45	SA-19 Unit 1,2,3 Scrubbers and Unit 4 Absorber Groundwater Screening Level Comparison Summary June 2005 to December 2011
E-46	SA-18 Northern Station Sources Soil Data
E-47	SA-18 Northern Station Sources Groundwater Data
E-48	SA-18 Northern Station Sources Groundwater Screening Level Comparison Summary June 2005 to December 2011

Table E-1 Mesa Area
Groundwater Screening Level Comparison Summary
August 1993 to December 2011

Parameter Name	Total # of Samples	# Above Federal/Nevada Primary MCL	% Above Federal/Nevada Primary MCL	# Above Nevada Secondary MCL	% Above Nevada Secondary MCL	# Above NDEP BCL - Residential Water	% Above NDEP BCL - Residential Water	# Above EPA Tap Water	% Above EPA Tap Water	Min	Max	Median	Current Screening Levels: Federal/ Nevada Primary MCL[1]	Current Screening Levels: Nevada Secondary MCL[2]	Current Screening Levels: NDEP BCL - Residential Water[3]	Current Screening Levels: EPA Tap Water[4]
General Chemistry																
Chloride (mg/L)	433	-	-	261	60.28%	-	-	-	-	25	2400	450	NA	400	NA	NA
Fluoride (mg/L)	11	0	0.00%	4	36.36%	0	0.00%	11	100.00%	1	3	1.9	4	2	4	0.62
Nitrogen, Nitrate (As N) (mg/L)	414	15	3.62%	-	-	15	3.62%	0	0.00%	< 0.1	24	4.1	10	NA	10	25
pH (S.U.)	410	-	-	0	0.00%	-	-	-	-	7	8.26	7.55	NA	6.5-8.5	NA	NA
Phosphorus (mg/L)	197	-	-	-	-	-	-	-	-	< 0.01	73	0.62	NA	NA	NA	NA
Sulfate (mg/L)	435	-	-	435	100.00%	-	-	-	-	600	14000	2000	NA	500	NA	NA
TDS (residue, filterable) (mg/L)	436	-	-	435	99.77%	-	-	-	-	620	22300	3700	NA	1000	NA	NA
Dissolved Metals (mg/L)		-	-													
Aluminum	210	-	-	46	21.90%	0	0.00%	1	0.48%	< 0.025	21	< 2.5	NA	0.2	36.5	16
Antimony	15	-	-	-	-	0	0.00%	0	0.00%	< 0.004	< 0.015	< 0.015	NA	NA	0.006	0.006
Arsenic	423	159	37.59%	-	-	159	37.59%	237	56.03%	< 0.001	0.22	0.0054	0.01	NA	0.01	0.000045
Barium	222	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.0025	0.61	0.0099	2	NA	2	2.9
Beryllium	209	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.001	< 0.3	< 0.003	0.004	NA	0.004	0.016
Boron	424	-	-	-	-	77	18.16%	312	73.58%	< 0.01	55	5.1	NA	NA	7.3	3.1
Cadmium	212	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.003	< 0.3	< 0.003	0.005	NA	0.005	0.0069
Calcium	439	-	-	-	-	-	-	-	-	< 0.1	1100	329	NA	NA	NA	NA
Chromium	426	41	9.62%	-	-	-	-	-	-	< 0.003	0.154	0.013	0.1	NA	NA	NA
Copper	21	-	-	-	-	0	0.00%	0	0.00%	< 0.005	< 1	< 0.005	NA	NA	1.3	0.62
Iron	222	-	-	7	3.15%	0	0.00%	1	0.45%	< 0.01	21	< 0.5	NA	0.6	25.6	11
Lead	221	0	0.00%	-	-	0	0.00%	-	-	< 0.0025	0.012	< 0.005	0.015	NA	0.015	NA
Magnesium	438	-	-	210	47.95%	51	11.64%	-	-	< 0.1	450	150	NA	150	207	NA
Manganese	421	-	-	14	3.33%	0	0.00%	9	2.14%	< 0.0025	2.3	< 0.1	NA	0.1	5.11	0.32
Mercury	221	0	0.00%	-	-	0	0.00%	1	0.45%	< 0.0002	0.0014	< 0.0002	0.002	NA	0.002	0.00063
Molybdenum	419	-	-	-	-	42	10.02%	230	54.89%	0.015	0.37	0.086	NA	NA	0.183	0.078
Nickel	209	-	-	-	-	0	0.00%	0	0.00%	< 0.005	0.0179	< 0.005	NA	NA	0.73	0.3
Potassium	443	-	-	-	-	-	-	-	-	< 0.1	150	61.4	NA	NA	NA	NA
Selenium	423	79	18.68%	-	-	79	18.68%	25	5.91%	< 0.0025	0.15	0.0248	0.05	NA	0.05	0.078
Sodium	442	-	-	-	-	-	-	-	-	48	6300	590	NA	NA	NA	NA
Thallium	24	-	-	-	-	0	0.00%	0	0.00%	< 0.0004	< 0.03	< 0.005	NA	NA	0.002	0.00016
Titanium	415	-	-	-	-	0	0.00%	-	-	< 0.0025	0.27	< 0.05	NA	NA	146	NA
Vanadium	412	-	-	-	-	0	0.00%	0	0.00%	< 0.001	0.037	< 0.015	NA	NA	0.183	0.078

Notes:

Monitoring wells used in analysis include: FAMW-1, LMW-1, LMW-2, LMW-3, LMW-4, LMW-4R, LMW-5, LMW-5R, LMW-6, LMW-6R, LMW-7, LMW-8, LMW-8R, LMW-9, LMW-10, KMW-12, KMW-13, KMW-16, KMW-17, AND KMW-18

NA - Not Applicable

Refer to Figure A-3 for monitoring well locations

Footnotes:

[1]***Federal/Nevada Primary MCL:*** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]**Nevada *Secondary MCL:*** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water:*** *NDEP Basic Comparison Level (Residential Water)* — Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)*- - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-2 Mesa Area
Soil Vapor Data
12/11/1998

Parameter Name	Units	RB-62 40 ft	RB-63 45 ft	RB-64 45 ft
Freon 12	ppmV	610	310	30
Chloromethane	ppmV	180 J	<4.4	<2.0
Chloroethane	ppmV	200 J	<4.4	<2.0
Freon 11	ppmV	660	620	55
1,1-Dichloroethene	ppmV	1500	670	23
Freon 113	ppmV	1600	900	46
Methylene Chloride	ppmV	2100	15 J	12
1,1-Dichloroethane	ppmV	13000	800	47
cis-1,2-Dichloroethane	ppmV	<100	5.5	<2.0
Chloroform	ppmV	<100	15 J	<2.0
1,1,1-Trichloroethane	ppmV	5200	730	26
Benzene	ppmV	<100	9.2 J	2.8 J
Trichloroethene	ppmV	<100	5.5 J	<2.0
Toluene	ppmV	190 J	21	24
Tetrachloroethene	ppmV	1200	19	11
m,p-Xylenes	ppmV	<100	10 J	10
o-Xylenes	ppmV	<100	5.4 J	6.1 J
Styrene	ppmV	<100	<4.4	3.1 J
Chlorobenzene	ppmV	110 J	<4.4	<2.0
1,2,4-Trimethylbenzene	ppmV	<100	6.6 J	9.2
1,3,5-Trimethylebenzene	ppmV	<100	<4.4	3.4 J
Ethylbenzene	ppmV	100 J	<4.4	3.9 J
Acetone	ppmV	2000	680	260
Carbon Disulfide	ppmV	<400	34 J	9.5 J
2-Butanone (MEK)	ppmV	<400	120	30
4-Ethyltoluene	ppmV	<400	<17	8.5 J
Ethanol	ppmV	<400	45	44

Notes:

Table adapted from AOC-50

Refer to Figure A-3 for sampling locations

Lab Qualifiers:

J = Result falls in between laboratory's levels of detection and level of quantification

Table E-3 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2005 Soil Data (Page 1 of 2)

	B-2-WMU7 11/28/2005 10 ft			B-3-WMU7 11/28/2005 10 ft			B-4-WMU7 11/28/2005 15 ft			B-6-WMU7 11/28/2005 15 ft			B-7-WMU7 11/28/2005 19 ft			B-8-WMU7 11/28/2005 15 ft			B-9-WMU7 11/28/2005 15 ft			B-12-WMU7 11/28/2005 15 ft			Current Screening Levels				
Parameter Name	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
Dioxins and Furans (ng/kg)																													
1,2,3,4,6,7,8-HpCDD	3.0	-	-	8.8	-	-	4.4	-	-	86	-	-	91	-	-	39	-	-	390	-	-	59	-	-	NA	NA	NA	NA	NA
Total HpCDD	5.2	-	-	17	-	-	8.3	-	-	160	-	-	190	-	-	82	-	-	710	-	-	120	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	1.4	-	-	7.7	-	-	< 0.97	-	-	18	-	-	77	-	-	10	-	-	39	-	-	75	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 1	-	-	< 0.97	-	-	< 0.97	-	-	< 4.9	-	-	5.2	-	-	< 6.5	-	-	< 4.8	-	-	8.1	-	-	NA	NA	NA	NA	NA
Total HpCDF	1.4	-	-	9.5	-	-	< 0.97	-	-	18	-	-	93	-	-	20	-	-	110	-	-	100	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 1	-	-	< 0.97	-	-	< 0.97	-	-	< 4.9	-	-	12	-	-	< 0.98	-	-	< 4.8	-	-	6.7	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 1	-	-	1.0	-	-	< 0.97	-	-	< 4.9	-	-	24	-	-	4.0	-	-	8.0	-	-	11	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 1	-	-	1.3	-	-	< 0.97	-	-	< 4.9	-	-	18	-	-	1.4	-	-	< 4.8	-	-	7.3	-	-	NA	NA	NA	NA	NA
Total HxCDD	< 1	-	-	7.6	-	-	6.1	-	-	38	-	-	590	-	-	18	-	-	51	-	-	240	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	< 1	-	-	< 0.97	-	-	1.2	-	-	< 4.9	-	-	24	-	-	1.4	-	-	5.1	-	-	18	-	-	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	< 1	-	-	1.8	-	-	1.3	-	-	< 4.9	-	-	24	-	-	2.0	-	-	< 4.8	-	-	19	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 1	-	-	< 1	-	-	< 0.97	-	-	< 4.9	-	-	5.9	-	-	< 0.98	-	-	< 4.8	-	-	5.7	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	< 1	-	-	< 0.97	-	-	1.4	-	-	< 4.9	-	-	28	-	-	2.0	-	-	< 4.8	-	-	27	-	-	NA	NA	NA	NA	NA
Total HxCDF	< 1	-	-	3.2	-	-	7.0	-	-	8.8	-	-	220	-	-	13	-	-	22	-	-	160	-	-	NA	NA	NA	NA	NA
OCDD	13	-	-	48	-	-	16	-	-	555	-	-	220	-	-	270	-	-	5900	-	-	140	-	-	NA	NA	NA	NA	NA
OCDF	2.4	-	-	6.7	-	-	3.8	-	-	< 9.9	-	-	21	-	-	19	-	-	110	-	-	25	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 1	-	-	< 0.97	-	-	< 0.97	-	-	< 4.9	-	-	13	-	-	< 0.98	-	-	< 4.8	-	-	4.5	-	-	NA	NA	NA	NA	NA
Total PeCDD	< 1	-	-	< 0.97	-	-	3.0	-	-	13	-	-	520	-	-	4.8	-	-	5.5	-	-	140	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 1	-	-	< 0.97	-	-	< 0.97	-	-	< 4.9	-	-	20	-	-	< 0.98	-	-	< 4.8	-	-	12	-	-	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	< 1	-	-	1.4	-	-	1.3	-	-	< 4.9	-	-	35	-	-	1.6	-	-	< 4.8	-	-	22	-	-	NA	NA	NA	NA	NA
Total PeCDF	< 1	-	-	9.4	-	-	6.1	-	-	15	-	-	400	-	-	14	-	-	18	-	-	260	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	0.061	-	-	**1.4**	-	-	1.2	-	-	**2.1**	-	-	**45**	-	-	**2.7**	-	-	**12**	-	-	**26**	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 0.25	-	-	< 0.28	-	-	< 0.32	-	-	< 1.1	-	-	**2.6**	-	-	< 0.41	-	-	< 0.97	-	-	**1.1**	-	-	15	0.26	18	17.7	NA
Total TCDD	< 0.25	-	-	2.0	-	-	3.0	-	-	19	-	-	650	-	-	3.8	-	-	10	-	-	130	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	< 0.2	-	-	< 0.27	-	-	0.81	-	-	5.3	-	-	21	-	-	< 0.44	-	-	1.5	-	-	9.3	-	-	NA	NA	NA	NA	NA
Total TCDF	< 0.2	-	-	4.1	-	-	11	-	-	52	-	-	540	-	-	14	-	-	34	-	-	340	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																													
Arsenic	**11**	-	-	**7.5**	-	-	< 5	-	-	**8.6**	-	-	**10**	-	-	**6.5**	-	-	**7.5**	-	-	**6.2**	-	-	0.29	0.0013	1.6	1.77	1
Barium	68	-	-	69	-	-	**90**	-	-	**180**	-	-	**140**	-	-	81	-	-	**120**	-	-	42	-	-	82	120	190,000	100,000	82
Cadmium	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	**1.0**	-	-	0.38	0.52	NA	560	0.4
Chromium (total)	5.9	-	-	6.0	-	-	4.8	-	-	320	-	-	73	-	-	8.2	-	-	20	-	-	17	-	-	180,000	NA	NA	NA	NA
Lead	< 5	-	-	6.0	-	-	5.0	-	-	**20**	-	-	**35**	-	-	5.9	-	-	**15**	-	-	**49**	-	-	14	NA	800	800	NA
Mercury	< 0.02	-	-	0.028	-	-	< 0.02	-	-	**0.65**	-	-	**0.082**	-	-	0.02	-	-	**0.33**	-	-	**0.037**	-	-	0.1	0.033	43	341	0.104
Selenium	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	**6.8**	-	-	< 5	-	-	< 5	-	-	< 5	-	-	0.26	0.4	5100	5680	0.3
Silver	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	NA	0.6	5100	5680	2
PAHs (ug/kg)																													
1,2-Diphenylhydrazine	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	0.22	2200	2390	NA
2,4,6-Trichlorophenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	13	160,000	174,000	8
2,4, -Dimethylphenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	320	12,000,000	13,700,000	400
2,4-Dichlorophenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	41	1,800,000	2,050,000	50
2,4-Dinitrophenol	< 6600	-	-	< 660	-	-	< 660	-	-	< 660	-	-	< 660	-	-	< 660	-	-	< 660	-	-	< 660	-	-	NA	34	1,200,000	1,370,000	10
2,4-Dinitrotoluene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	0.28	5500	6180	0.04
2,6-Dinitrotoluene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	20	620,000	684,000	0.03
2-Chloronaphthalene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	2900	82,000,000	389,000	NA
2-Chlorophenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	57	5,100,000	1,670,000	200
2-Methylnaphthalene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	140	4,100,000	NA	NA
2-Methylphenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	34,200,000	800
2-Nitrophenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
3,3-Dichlorobenzidine	< 8300	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	NA	0.71	3800	4260	0.3
4,6-Dinitro-2-methylphenol	< 4200	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	NA	2	49,000	NA	NA
4-Bromophenyl phenyl ether	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	1300	62,000,000	NA	NA
4-Chloroaniline	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	0.13	8600	9580	30
4-Chlorophenyl phenyl ether	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
4-Methylphenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	57	3,100,000	3,420,000	NA
4-Nitrophenol	< 8300	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	NA	NA	NA	5,470,000	NA
Acenaphthene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	4100	33,000,000	2,560,000	29,000
Acenaphthylene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	147,000	NA
Anthracene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	10	2100	2340	80
Benzo(a)pyrene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	240	3.5	210	234	400
Benzo(b,k)fluoranthene	< 3000	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	34,100,000	NA
Benzoic Acid	< 8300	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	NA	14,000	2,500,000,000	100,000,000	20,000
Benzyl Alcohol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	370	62,000,000	100,000,000	NA
Bis (2-ethylhexyl)Phthalate	< 3300	-	-	< 330	-	-	NA	-	-	< 330	-	-	**660**	-	-	**530**	-	-	< 330	-	-	< 3300	-	-	1400	17	120,000	137,000	180,000
Bis(2-chloroethoxy)methane	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	11	1,800,000	NA	NA
Bis(2-chloroethyl)ether	< 1700	-	-	< 170	-	-	< 170	-	-	< 170	-	-	< 170	-	-	< 170	-	-	< 170	-	-	< 170	-	-	NA	0.0031	1000	1300	0.02
Bis(2-chloroisopropyl)ether	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
Butyl benzyl phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	200	910,000	240,000	810,000
Chrysene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	1100	210,000	234,000	8000
Dibenzo(a,h)anthracene	< 4200	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	< 420	-	-	NA	11	210	234	80
Dibenzofuran	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	110	1,000,000	2,270,000	NA
Diethyl Phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	4700	490,000,000	100,000,000	NA
Dimethyl Phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	100,000,000	NA
Di-n-butyl phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
Di-n-octyl-phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	NA	NA
Fluoranthene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	4000	22,000,000	3,670,000	28,000
Hexachlorobenzene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	13	0.53	1100	1200	100
Hexachlorocyclopentadiene	< 8300	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	160	70	3,700,000	4,090,000	20,000
Hexachloroethane	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	0.48	43,000	137,000	20
Indeno(1,2,3-cd)pyrene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	120	2100	2340	700
Isophorone	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	22	1,800,000	2,020,000	30
Nitrobenzene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	0.079	24,000	15,100	7
n-Nitroso-di-n-propylamine	< 2500	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	0.007	250	274	0.002
n-Nitrosodiphenylamine	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	57	350,000	391,000	60
Pentachlorophenol	< 8300	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	< 830	-	-	10	1.7	2700	3000	1
Phenanthrene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	NA	NA	24,500	NA
Phenol	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	2600	180,000,000	100,000,000	5000
Pyrene	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	< 330	-	-	NA	9500	17,000,000	19,300,000	210,000

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Soil samples were collected for screening purposes from the drill cuttings and are therefore not assigned to a specific depth. B-2 and B-3 were advanced to ten feet and B-4, B-6, B-7, B-8, B-9, and B-12 were advanced to 15 feet.

Refer to Figure A-4 for sampling locations

Footnotes:

[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* -- Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

[6] ***Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity Equivalent (TEQ)***

Table E-3 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2005 Soil Data (Page 2 of 2)

	B-2-WMU7 11/28/2005 10 ft			B-3-WMU7 11/28/2005 10 ft			B-4-WMU7 11/28/2005 15 ft			B-6-WMU7 11/28/2005 15 ft			B-7-WMU7 11/28/2005 19 ft			B-8-WMU7 11/28/2005 15 ft			B-9-WMU7 11/28/2005 15 ft			B-12-WMU7 11/28/2005 15 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
PCBs (ug/kg)																													
Aroclor 1016	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	**170**	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 50	-	-	< 50	-	-	< 50	-	-	< 60	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-	-	NA	24	740	826	NA
SVOC (ug/kg)																													
Bis(2-ethylhexyl)phthalate	< 3300	-	-	< 330	-	-	< 330	-	-	< 330	-	-	**660**	-	-	**530**	-	-	< 330	-	-	< 330	-	-	1400	17	120,000	137,000	180,000
TPH (mg/kg)																													
DRO	< 25	-	-	< 25	-	-	< 25	-	-	84	-	-	41	-	-	45	-	-	93	-	-	< 25	-	-	NA	NA	NA	NA	NA
GRO	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-	-	NA	NA	NA	NA	NA
ORO	< 75	-	-	< 75	-	-	< 75	-	-	260	-	-	120	-	-	150	-	-	540	-	-	78	-	-	NA	NA	NA	NA	NA
TPH	< 100	-	-	< 100	-	-	< 100	-	-	340	-	-	160	-	-	200	-	-	630	-	-	< 100	-	-	NA	NA	NA	NA	NA
VOCs (ug/kg)																													
Acetone	< 750	-	-	< 750	-	-	< 750	-	-	< 750	-	-	< 750	-	-	< 750	-	-	< 750	-	-	< 750	-	-	NA	2400	630,000,000	100,000,000	800
Benzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	2.6	0.2	5400	4500	2
Bromobenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	21	680,000	NA	NA
Bromodichloromethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	22	0.032	1400	3600	30
Bromoform	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	21	2.1	220,000	242,000	40
Bromomethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	1.8	32,000	42,900	10
2-Butanone	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	NA	NA	393,000	NA
n-Butylbenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	1.9	0.15	3000	4070	3
Chlorobenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	68	49	1,400,000	695,000	70
Chloroethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	NA	NA	1,100,000	NA
Chloroform	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	22	0.053	1500	1710	30
Chloromethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	49	500,000	8950	NA
2-Chlorotoluene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	21	0.039	3300	6150	20
1,2-Dibromoethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	0.014	0.0018	170	185	NA
Dibromomethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	120	-	-	< 100	-	-	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	300	400,000	340,000	NA
Dichloromethane	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	NA	-	-	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	NA	NA
Ethylbenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	0.5	22,000	24,600	100
2-Hexanone	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	NA	7.9	1,400,000	2,150,000	NA
Iodomethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	NA	NA
Isopropyl benzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	990	21,000,000	237,000	NA
Styrene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	**300**	-	-	**240**	-	-	**140**	-	-	2.3	0.033	2600	3280	3
Toluene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	100	-	-	< 100	-	-	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	1.6	0.077	5300	5800	0.9
Trichloroethene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	< 500	-	-	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-	-	NA	120	10,000,000	254,000	NA
Vinyl Acetate	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1200	-	-	NA	87	4,100,000	2,710,000	8000
Vinyl Chloride	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	< 250	-	-	0.69	0.0053	1700	1860	0.7
Xylenes, Total	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	< 300	-	-	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Soil samples were collected for screening purposes from the drill cuttings and are therefore not assigned to a specific depth. B-2 and B-3 were advanced to ten feet and B-4, B-6, B-7, B-8, B-9, and B-12 were advanced to 15 feet.
Refer to Figure A-4 for sampling locations

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-4 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2009 Shallow Soil Data (Page 1 of 2)

	SB-1 11/9/2009 0 - 2 ft			SB-2 11/9/2009 0 - 2 ft			SB-3 11/8/2009 0 - 3.5 ft			SB-4 11/8/2009 0 - 2 ft			SB-5 11/8/2009 0 - 2 ft			SB-6 11/9/2009 0 - 2 ft			SB-7 11/8/2009 0 - 2 ft			SB-8 11/8/2009 0 - 2 ft			SB-9 11/9/2009 0 - 2 ft			SB-10 11/9/2009 0 - 2 ft			SB-11 11/9/2009 0 - 2 ft			SB-12 11/8/2009 0 - 2 ft			Current Screening Levels				
Parameter Name	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
Aldehydes and Diols (mg/kg)																																									
Ethylene Glycol	< 10.4	-	-	< 11.6	-	-	< 10.4	-	-	< 10.5	-	-	2.1	J	-	< 11.1	J, CF6	-	< 10.8	-	-	< 10.7	CF6	J-	< 11.3	-	-	< 10.1	-	-	< 10.7	-	-	< 10.2	-	-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	0.446	J	-	0.288	J	-	**1.14**	-	-	0.46	J	-	**0.752**	J, CF6	J-	0.945	J	J-	< 1.03	CF6	J-	**1.56**	-	-	0.388	J	-	0.454	J	-	0.581	J	-	0.459	J	-	NA	0.62	120,000	41.6	NA
Asbestos																																									
Asbestos	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	NA	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	NA	NA	NA	NA	NA
Dioxins and Furans (ng/kg)																																									
1,2,3,4,6,7,8-HpCDD	10	-	-	< 5	-	-	46	-	-	< 5	-	-	14	-	-	14	-	-	6.7	-	-	29	-	-	< 5	-	-	< 5	-	-	13	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDD	10	-	-	< 5	-	-	78	-	-	< 5	-	-	24	-	-	24	-	-	6.7	-	-	50	-	-	< 5	-	-	< 5	-	-	24	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	< 5	-	-	< 5	-	-	7.3	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	20	-	-	< 5	-	-	< 5	-	-	7.6	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDF	< 5	-	-	< 5	-	-	15	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	20	-	-	< 5	-	-	< 5	-	-	7.6	-	-	< 5	-	J	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDD	< 5	-	-	< 5	-	-	34	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	26	-	-	< 5	-	-	< 5	-	-	15	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	6.0	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	5.2	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	5.9	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	J	NA	NA	NA	NA	NA
Total HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	44	-	-	< 5	-	-	< 5	-	-	5.2	-	-	< 5	-	-	NA	NA	NA	NA	NA
OCDD	60	-	-	< 10	-	-	350	-	-	26	-	-	89	-	-	78	-	-	46	-	-	130	-	-	13	-	U	19	-	U	71	-	-	24	-	J	NA	NA	NA	NA	NA
OCDF	< 10	-	-	< 10	-	-	13	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	18	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	J	NA	NA	NA	NA	NA
Total PeCDD	< 5	-	-	< 5	-	-	29	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	14	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	8.5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	5.3	-	-	< 5	-	-	6.8	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	54	-	-	< 5	-	-	60	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	0.16	-	-	0.	-	-	**0.9**	-	-	0.026	-	-	0.22	-	-	0.22	-	-	0.11	-	-	**5.3**	-	-	0.013	-	-	**6.2**	-	-	**0.41**	-	-	0.024	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	J	15	0.26	18	17.7	NA
Total TCDD	3.6	-	-	< 1	-	-	17	-	-	< 1	-	-	4.3	-	-	< 1	-	-	< 1	-	-	24	-	-	1.1	-	U	2.7	-	U	12	-	-	< 1	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	3.4	-	R	< 1	-	-	24	-	R	1.3	-	R	< 1	-	-	NA	NA	NA	NA	NA
Total TCDF	2.8	-	U	< 1	-	-	6.2	-	-	1.2	-	-	< 1	-	-	< 1	-	-	< 1	-	-	100	-	-	2.4	-	U	250	-	-	20	-	-	4.3	-	-	NA	NA	NA	NA	NA
General Chemistry																																									
pH	8.4	-	J	7.8	-	J	7.9	-	J	8.0	-	J	8.4	-	J	8.4	-	J	8.3	-	J	7.9	-	J	8.3	-	J	7.9	-	-	8.4	-	J	7.8	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)																																									
Ammonia	5.1	-	-	< 2.7	-	-	4.6	-	-	3.9	-	-	< 2.6	-	-	4.5	-	-	17	-	-	15	-	-	7.2	-	-	15	-	-	< 2.6	-	-	5.5	-	-	NA	NA	NA	100,000	NA
Chloride	81	-	-	8.8	-	-	200	-	-	270	-	-	640	-	-	350	-	-	6.0	-	-	1000	-	-	200	-	-	42	-	-	140	-	-	22	-	-	NA	NA	NA	NA	NA
Fluoride	11	-	-	14	-	-	27	-	-	10	-	-	23	-	-	16	-	-	12	-	-	31	-	-	19	-	-	9.4	-	-	19	-	-	16	-	-	NA	93	41,000	41,000	NA
Nitrate	12	-	-	1.9	-	-	9.6	-	-	28	-	-	42	-	-	77	-	-	2.4	-	-	35	-	-	11	-	-	5.6	-	-	18	-	-	6.3	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	190	-	-	160	-	-	550	-	-	180	-	-	690	-	-	380	-	-	130	-	-	650	-	-	190	-	-	290	-	-	140	-	-	190	-	-	NA	NA	NA	NA	NA
Sulfate	1500	-	-	8400	-	-	13,000	-	-	2300	-	-	20,000	-	-	11,000	-	-	530	-	-	20,000	-	-	15,000	-	-	1500	-	-	3100	-	-	7900	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																																									
Aluminum	**8400**	-	-	**10,000**	-	-	**12,000**	-	-	**7600**	-	-	**12,000**	-	-	**11,000**	-	-	**6600**	-	-	**8200**	-	-	**9800**	-	-	**8400**	-	-	**7800**	-	-	**9100**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 2	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2	-	UJ	< 2.1	-	UJ	< 2	-	UJ	0.27	0.27	410	454	0.3
Arsenic	**4.6**	-	-	**14**	-	-	**3.5**	-	-	**4.7**	-	-	**4.1**	-	-	**7.7**	-	-	**3.7**	-	-	**1.9**	-	-	**15**	-	-	**5.2**	-	-	**7.8**	-	-	**12**	-	-	0.29	0.0013	1.6	1.77	1
Barium	**150**	-	J+	77	-	J+	**200**	-	J+	**180**	-	J+	**210**	-	J+	**240**	-	J+	**180**	-	J+	**180**	-	J+	**95**	-	J+	**160**	-	J+	**200**	-	J+	**130**	-	J+	82	120	190,000	100,000	82
Beryllium	< 1	-	-	< 1.1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	3.2	13	2000	2230	3
Boron	**25**	-	J+	**14**	-	J+	**97**	-	-	**15**	-	-	**170**	-	-	**120**	-	-	**12**	-	-	**89**	-	-	**24**	-	J+	**45**	-	-	**23**	-	J+	**27**	-	-	NA	9.9	200,000	100,000	23.4
Cadmium	< 1	-	-	< 1.1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	< 1.1	-	-	**4.4**	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	0.38	0.52	NA	560	0.4
Calcium	78,000	-	-	78,000	-	-	70,000	-	-	130,000	-	-	52,000	-	-	94,000	-	-	100,000	-	-	57,000	-	-	83,000	-	-	74,000	-	-	120,000	-	-	93,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.16	-	-	< 0.17	-	-	< 0.16	-	-	< 0.16	-	-	**0.3**	-	J+	**0.31**	-	-	< 0.17	-	-	< 0.17	-	-	< 0.2	-	-	< 0.16	-	-	**0.2**	-	J+	< 0.16	-	-	NA	0.00059	5.6	1360	2
Chromium (total)	12	-	-	8.7	-	-	19	-	-	7.6	-	-	18	-	J+	18	-	J+	7.7	-	-	21	-	-	10	-	-	13	-	-	9.8	-	-	9.4	-	-	180,000	NA	NA	NA	NA
Cobalt	**2.8**	-	-	**2.9**	-	-	**3.2**	-	-	**2.6**	-	-	**3.1**	-	-	**3.2**	-	-	**1.8**	-	-	**2.3**	-	-	**3.0**	-	-	**2.3**	-	-	**3.9**	-	-	**2.7**	-	-	NA	0.21	300	337	33
Copper	12	-	-	4.1	-	-	**49**	-	-	6.2	-	-	19	-	-	**32**	-	-	8.1	-	-	**45**	-	-	**23**	-	-	16	-	-	**40**	-	-	8.6	-	-	46	22	41,000	42,200	35.2
Iron	**8800**	-	-	**9200**	-	-	**17,000**	-	-	**6400**	-	-	**8600**	-	-	**8300**	-	-	**6900**	-	-	**9000**	-	-	**9500**	-	-	**8400**	-	-	**8500**	-	-	**8000**	-	-	NA	270	720,000	100,000	7.56
Lead	**33**	-	-	5.2	-	-	11	-	-	4.1	-	-	9.9	-	-	7.7	-	-	7.4	-	-	**19**	-	-	8.0	-	-	7.2	-	-	**17**	-	-	9.0	-	-	14	NA	800	800	NA
Magnesium	**22,000**	-	-	**30,000**	-	-	**11,000**	-	-	**19,000**	-	-	**6800**	-	-	**12,000**	-	-	**33,000**	-	-	**6800**	-	-	**29,000**	-	-	**15,000**	-	-	**13,000**	-	-	**21,000**	-	-	NA	NA	NA	100,000	649
Manganese	**130**	-	-	**140**	-	-	**140**	-	-	**110**	-	-	**100**	-	-	**110**	-	-	**90**	-	-	**110**	-	-	**140**	-	-	**120**	-	-	**160**	-	-	**120**	-	-	NA	21	23,000	100,000	3.26
Mercury	< 0.1	-	-	< 0.11	-	-	**0.15**	-	-	< 0.1	-	-	< 0.1	-	-	< 0.11	-	-	< 0.1	-	-	< 0.11	-	-	< 0.11	-	-	< 0.1	-	-	< 0.1	-	-	**0.15**	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1	-	-	< 1.1	-	-	< 1	-	UJ	< 1	-	UJ	< 1	-	UJ	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	UJ	NA	1.6	5100	5680	3.64
Nickel	6.3	-	-	4.9	-	-	**12**	-	-	5.4	-	-	**8.2**	-	-	**7.7**	-	-	4.5	-	-	**11**	-	-	6.1	-	-	5.5	-	-	**7.2**	-	-	6.5	-	-	NA	20	20,000	21,800	7
Potassium	2300	-	-	4000	-	-	2200	-	-	2700	-	-	2200	-	-	3200	-	-	2000	-	-	1300	-	-	3700	-	-	2400	-	-	2500	-	-	3500	-	-	NA	NA	NA	NA	NA
Selenium	< 1	-	-	< 1.1	-	-	< 1	-	UJ	< 1	-	UJ	< 1	-	UJ	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	UJ	0.26	0.4	5100	5680	0.3
Silica	400	-	-	460	-	-	480	-	-	300	-	-	530	-	-	390	-	-	410	-	-	300	-	-	420	-	-	490	-	-	330	-	-	310	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1	-	-	< 1.1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	NA	0.6	5100	5680	2
Sodium	1600	-	-	800	-	-	3200	-	-	950	-	-	5900	-	-	4300	-	-	770	-	-	3600	-	-	2900	-	-	1800	-	-	2500	-	-	1000	-	-	NA	NA	NA	NA	NA
Thallium	< 1	-	-	< 1.1	-	-	< 1	-	UJ	< 1	-	UJ	< 1	-	-	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	UJ	0.14	0.011	10	79.5	0.4
Titanium	370	-	J+	400	-	J+	460	-	-	220	-	-	410	-	-	390	-	J+	260	-	-	410	-	-	400	-	J+	320	-	j+	300	-	J+	300	-	-	NA	NA	NA	100,000	150,000
Vanadium	26	-	-	48	-	-	27	-	-	20	-	-	25	-	-	28	-	-	22	-	-	21	-	-	45	-	-	25	-	-	23	-	-	37	-	-	NA	78	5200	5680	300
Zinc	200	-	-	25	-	-	78	-	-	18	-	-	29	-	-	45	-	-	26	-	-	140	-	-	43	-	-	31	-	-	130	-	-	30	-	-	NA	290	310,000	100,000	620

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Discrete Volatile Samples; SB-1 to SB-10 and SB-12 = 2', SB-11 = 1'
Refer to Figure A-4 for sampling locations
ALDEHYDE AND DIOL Flags J=Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL) Concentrations within this range are estimated, CF2 = Confirmatory analysis was past holding time, CF6 = Results confirmed by reanalysis

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* — Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).
[6] ***Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity Equivalent (TEQ)***

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
J1 = Blanks greater than MDA
J2 = Lack of agreement for duplicate sampled
J4 = Tracer yield was high
R = The data are unusable
UJ = The parameter is an estimated non-detect with low bias on RL values

Table E-4 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2009 Shallow Soil Data (Page 2 of 2)

	SB-1 11/9/2009 0 - 2 ft			SB-2 11/9/2009 0 - 2 ft			SB-3 11/8/2009 0 - 3.5 ft			SB-4 11/8/2009 0 - 2 ft			SB-5 11/8/2009 0 - 2 ft			SB-6 11/9/2009 0 - 2 ft			SB-7 11/8/2009 0 - 2 ft			SB-8 11/8/2009 0 - 2 ft			SB-9 11/9/2009 0 - 2 ft			SB-10 11/9/2009 0 - 2 ft			SB-11 11/9/2009 0 - 2 ft			SB-12 11/8/2009 0 - 2 ft			Current Screening Levels				
Parameter Name	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
PAHs (ug/kg)																																									
Acenaphthene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.2	-	-	< 5.3	-	-	< 5.3	-	-	< 5.4	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	4100	33,000,000	2,560,000	29,000
Anthracene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	9.5	-	-	< 5.3	-	-	< 5.3	-	-	19	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	**110**	-	-	< 5.3	-	-	< 5.3	-	-	**38**	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	10	2100	2340	80
Benzo(a)pyrene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	**43**	-	-	< 5.3	-	-	< 5.3	-	-	**18**	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	240	3.5	210	234	400
Benzo(b)fluoranthene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	**110**	-	-	< 5.3	-	-	< 5.3	-	-	28	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	35	2100	2340	200
Benzo(g,h,i)perylene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	33	-	-	< 5.3	-	-	< 5.3	-	-	10	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	NA	NA	34,100,000	NA
Benzo(k)fluoranthene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	39	-	-	< 5.3	-	-	< 5.3	-	-	6.4	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	350	21,000	23,400	2000
Biphenyl	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.2	-	-	< 5.3	-	-	< 5.3	-	-	**34**	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl)Phthalate	< 336	-	-	< 352	-	-	< 340	-	-	< 340	-	-	< 350	-	-	< 350	-	-	< 350	-	-	**520**	-	-	< 347	-	-	< 336	-	-	< 345	-	-	< 340	-	-	1400	17	120,000	137,000	180,000
Chrysene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	140	-	-	< 5.3	-	-	< 5.3	-	-	56	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	1100	210,000	234,000	8000
Fluoranthene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	200	-	-	< 5.3	-	-	< 5.3	-	-	79	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.2	-	-	< 5.3	-	-	< 5.3	-	-	< 5.4	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	4000	22,000,000	3,670,000	28,000
Indeno(1,2,3-cd)pyrene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	30	-	-	< 5.3	-	-	< 5.3	-	-	7.4	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	120	2100	2340	700
5-Methyl chrysene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.2	-	-	< 5.3	-	-	< 5.3	-	-	15	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	NA	NA	NA	NA
Phenanthrene	< 5.1	-	-	< 5.3	-	-	10	-	-	< 5.2	-	-	74	-	-	< 5.3	-	-	< 5.3	-	-	170	-	-	< 5.3	-	-	< 5.1	-	-	5.5	-	-	< 5.1	-	-	NA	NA	NA	24,500	NA
Pyrene	< 5.1	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	200	-	-	< 5.3	-	-	< 5.3	-	-	84	-	-	< 5.3	-	-	< 5.1	-	-	< 5.2	-	-	< 5.1	-	-	NA	9500	17,000,000	19,300,000	210,000
PCBs (ug/kg)																																									
Aroclor 1016	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 34	-	-	< 35	-	-	< 34	-	-	< 34	-	-	< 35	-	-	< 35	-	-	< 35	-	-	< 35	-	-	< 35	-	-	< 34	-	-	< 34	-	-	< 34	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	**240**	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	**110**	-	-	< 17	-	-	< 17	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	NA	24	740	826	NA
Radionuclides (pCi/g)																																									
Cesium 137	-0.0232	U	-	-0.0324	U	-	0.0456	U	-	0.0422	U	-	-0.119	U	-	-0.0132	U	-	-0.0371	U	-	-0.0334	U	-	-0.0234	U	-	-0.0024	U	-	0.0149	U	-	-0.0111	U	-	NA	NA	NA	NA	NA
Lead 210	1.32	-	-	3.52	-	-	2.13	-	J4	0.911	J	J4	5.06	-	J4	1.68	-	-	1.52	-	J4	2.24	-	J4	3.62	-	-	1.47	-	-	1.78	-	-	2.86	-	J4	NA	NA	NA	NA	NA
Polonium 210	2.39	-	-	4.12	-	-	1.77	-	J1, J2	1.26	-	J1, J2	5.02	-	J1, J2	1.7	-	-	1.58	-	J1, J2	2.42	-	J1,J4	4.26	-	-	2.08	-	-	2.0	-	-	3.66	-	J1,J2	NA	NA	NA	NA	NA
Radium 226	2.51	-	-	4.86	-	-	2.51	-	J1	0.968	J	J1	4.21	-	J1	1.84	-	-	1.67	-	J1	2.7	-	J1	5.25	-	-	2.04	-	-	2.02	-	-	4.46	-	J1	NA	NA	NA	NA	NA
Radium 228	1.28	-	-	1.47	-	-	1.22	-	-	1.25	-	-	2.02	-	-	0.778	J	-	1.03	-	-	1.79	-	-	0.972	J	-	0.54	U	-	1.0	-	-	1.65	-	-	NA	NA	NA	NA	NA
Strontium 89	0.108	J	-	0.962	J	-	2.96	-	J1	0.388	J	J1	1.76	J	J1	0.166	J	-	0.724	J	J1	0.205	J	J1	1.01	J	-	0.9	J	-	0.9	J	-	3.53	-	J1	NA	NA	NA	NA	NA
Strontium 90	-0.017	U	-	-0.0008	U	-	0.0473	U	-	0.117	U	-	-0.0596	U	-	-0.0101	U	-	0.0083	U	-	-0.0081	U	-	-0.0816	U	-	-0.0111	U	-	0.0246	U	-	0.0357	U	-	NA	NA	NA	NA	NA
Thorium 228	0.879	J	-	0.899	J	-	1.16	-	-	1.2	-	-	1.33	-	-	0.599	J	-	1.18	-	-	1.23	-	-	0.778	J	-	0.596	J	-	1.12	-	-	1.1	-	-	NA	NA	NA	NA	NA
Thorium 230	1.42	-	-	4.25	-	-	1.8	-	-	1.24	-	-	2.84	-	-	0.838	J	-	1.22	-	-	1.55	-	-	4.93	-	-	1.77	-	-	2.41	-	-	3.21	-	-	NA	NA	NA	NA	NA
Thorium 232	0.521	J	-	0.658	J	-	1.2	-	J1	0.858	J	J1	1.11	-	J1	0.694	J	-	0.834	J	J1	0.991	J	J1	0.606	J	-	0.74	J	-	0.507	J	-	1.05	-	J1	NA	NA	NA	NA	NA
Uranium 234	2.23	-	-	5.47	-	-	1.74	-	J1	1.07	-	J1	2.78	-	J1	2.03	-	-	1.25	-	J1	2.01	-	J1	5.57	-	-	1.95	-	-	2.57	-	-	3.9	-	J1	NA	NA	NA	NA	NA
Uranium 235	0.052	J	-	0.142	J	-	0.0871	J	-	0.0829	J	-	0.117	J	-	0.0416	U	-	0.0264	U	-	0.0613	J	-	0.0968	J	-	0.0802	J	-	0.0556	J	-	0.115	J	-	NA	NA	NA	NA	NA
Uranium 238	1.92	-	-	4.13	-	-	1.51	-	J1	0.931	J	J1	2.67	-	J1	1.48	-	-	0.908	J	J1	1.82	-	J1	4.22	-	-	1.98	-	-	1.97	-	-	2.6	-	J1	NA	NA	NA	NA	NA
TPH (mg/kg)																																									
DRO	< 10	-	UJ	< 11	-	UJ	29	-	J	< 10	-	UJ	13	-	J	< 11	-	UJ	< 11	-	UJ	190	-	J	< 11	-	UJ	< 10	-	UJ	< 10	-	UJ	< 10	-	UJ	NA	NA	NA	NA	NA
ORO	25	-	J	< 11	-	UJ	130	-	J	< 10	-	UJ	47	-	JB	18	-	J	13	-	J	410	-	J	76	-	J	17	-	J	30	-	J	28	-	J	NA	NA	NA	NA	NA
TPH	30	-	J	< 11	-	UJ	160	-	J	< 10	-	UJ	60	-	J	18	-	J	13	-	J	600	-	J	82	-	J	17	-	J	36	-	J	28	-	J	NA	NA	NA	NA	NA
VOCs (ug/kg)																																									
Naphthalene (VOC)	< 5.1	-	-	< 5.3	-	-	**5.3**	-	-	< 5.2	-	-	< 5.2	-	-	< 5.3	-	-	< 5.3	-	-	**150**	-	-	< 5.3	-	-	**6.2**	-	-	< 5.2	-	-	< 5.1	-	-	NA	0.47	18,000	17,400	4000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Discrete Volatile Samples; SB-1 to SB-10 and SB-12 = 2', SB-11 = 1'
Refer to Figure A-4 for sampling locations
ALDEHYDE AND DIOL Flags J=Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL) Concentrations within this range are estimated, CF2 = Confirmatory analysis was past holding time, CF6 = Results confirmed by reanalysis

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* — Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* – Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* – Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* – Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
J1 = Blanks greater than MDA
J2 = Lack of agreement for duplicate sampled
J4 = Tracer yield was high
R = The data are unusable
UJ = The parameter is an estimated non-detect with low bias on RL values

Table E-5 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2009 Mid-depth Soil Data (Page 1 of 2)

	SB-1 11/9/2009 3.5 - 6.5 ft			SB-2 11/9/2009 3.5 - 5 ft			SB-3 11/8/2009 7.5 - 10 ft			SB-4 11/8/2009 5 - 6.5 ft			SB-6 11/9/2009 3 - 5 ft			SB-7 11/8/2009 3 - 6.5 ft			SB-8 11/8/2009 3.5 - 9.5 ft			SB-9 11/9/2009 3 - 5 ft			SB-10 11/9/2009 5 - 9.5 ft			SB-11 11/9/2009 2.5 - 5 ft			SB-12 11/8/2009 3 - 5 ft			Current Screening Levels				
Parameter Name	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
Aldehydes and Diols (mg/kg)																																							
Ethylene Glycol	< 11.2	-	-	< 12.8	-	-	< 11	-	-	< 10.6	-	-	< 10.5	-	-	< 10.3	-	-	< 11	-	-	< 11.5	-	-	< 10.8	-	-	< 11.3	-	-	< 10.4	-	-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	**1.26**	CF2, Z	J-	0.477	CF6, J, Z	J-	0.619	J, CF6	J-	0.563	J	-	**1.19**	CF2, Z	J-	0.544	J, CF6	J-	**2.78**	CF6	J-	0.4	J	-	**1.35**	-	-	0.59	J	-	0.271	J	-	NA	0.62	120,000	41.6	NA
Asbestos																																							
Asbestos	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	NA	NA	NA	NA	NA
Dioxins and Furans (ng/kg)																																							
1,2,3,4,6,7,8-HpCDD	46	-	-	34	-	-	130	-	-	< 5	-	-	45	-	-	< 5	-	-	240	D	-	< 5	-	-	180	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDD	91	-	-	93	-	-	570	-	-	< 5	-	-	80	-	-	< 5	-	-	480	D	-	< 5	-	-	380	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	29	-	-	55	-	-	13	-	-	< 5	-	-	< 5	-	-	< 5	-	-	170	D	-	< 5	-	-	580	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 5	-	-	5.2	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	7.9	J,D	-	< 5	-	-	28	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDF	35	-	-	66	-	-	48	-	-	< 5	-	-	< 5	-	-	< 5	-	-	220	D	-	< 5	-	-	660	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	28	D	-	< 5	-	-	24	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 5	-	-	5.6	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	64	D	-	< 5	-	-	34	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 5	-	-	< 5	-	-	5.3	-	-	< 5	-	-	< 5	-	-	< 5	-	-	53	D	-	< 5	-	-	32	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDD	49	-	-	120	-	-	82	-	-	< 5	-	-	7.0	-	U	< 5	-	-	1500	D	-	< 5	-	-	710	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	8.2	-	-	15	-	-	6.1	-	-	< 5	R	-	< 5	-	-	< 5	-	-	< 5	P	J	< 5	-	-	120	P	J	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	6.9	-	-	11	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	43	D	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	9.8	J,D	-	< 5	-	-	19	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	9.3	-	-	11	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	59	D	-	< 5	-	-	170	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDF	63	-	-	72	-	-	20	-	-	< 5	-	-	< 5	-	-	< 5	-	-	360	D	-	< 5	-	-	910	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
OCDD	240	-	-	81	-	-	1000	-	-	< 10	-	-	270	-	-	29	-	-	210	D	-	27	-	U	330	-	-	23	-	U	11	-	-	NA	NA	NA	NA	NA
OCDF	15	-	-	43	-	-	29	-	-	< 10	-	-	< 10	-	-	< 10	-	-	37	J,D	-	< 10	-	-	130	-	-	< 10	-	-	< 10	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	20	J,D	-	< 5	-	-	14	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDD	31	-	-	75	-	-	7.2	-	-	< 5	-	-	< 5	-	-	< 5	-	-	1200	D	-	< 5	-	-	680	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 5	-	-	< 5	P	J	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	P	J	< 5	-	-	57	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	7.0	-	-	13	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	67	D	-	< 5	-	-	120	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDF	69	-	-	81	-	-	17	-	-	< 5	-	-	< 5	-	-	< 5	-	-	660	D	-	< 5	-	-	1000	-	-	< 5	-	-	< 5	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	**7.3**	-	-	**13**	-	-	**3.9**	-	-	0.	-	-	**0.72**	-	-	0.029	-	-	**78**	-	-	0.027	-	-	**120**	-	-	0.023	-	-	0.011	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 1	-	-	**1.1**	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	**4.4**	J,D	-	< 1	-	-	**5.1**	-	-	< 1	-	-	< 1	-	-	15	0.26	18	17.7	NA
Total TCDD	31	-	-	89	-	-	28	-	-	< 1	-	-	< 1	-	-	< 1	-	-	960	D	-	3.3	-	U	810	-	-	1.8	-	-	< 1	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	4.0	-	R	< 1	P	R	2.9	-	R	< 1	-	-	< 1	-	-	< 1	-	-	< 1	P	J	< 1	-	-	< 1	P	R	< 1	-	-	< 1	-	-	NA	NA	NA	NA	NA
Total TCDF	100	-	-	120	-	-	50	-	-	< 1	-	-	< 1	-	-	< 1	-	-	1300	D	-	7.9	-	-	1200	-	-	3.6	-	U	< 1	-	-	NA	NA	NA	NA	NA
General Chemistry																																							
pH	7.9	-	J	6.8	-	J	8.7	-	J	8.4	-	-	8.2	-	J	9.1	-	J	7.6	-	J	8.8	-	J	7.8	-	J	8.0	-	J	7.9	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)																																							
Ammonia	4.4	-	-	49	-	-	22	-	-	< 2.7	-	-	3.6	-	-	6.3	-	-	24	-	-	< 2.7	-	-	26	-	-	4.9	-	-	58	-	-	NA	NA	NA	100,000	NA
Chloride	710	-	-	630	-	-	420	-	-	120	-	-	420	-	-	5.7	-	-	980	-	-	550	-	-	1300	-	-	450	-	-	250	-	-	NA	NA	NA	NA	NA
Fluoride	16	-	-	20	-	-	15	-	-	15	-	-	25	-	-	13	-	-	37	-	-	32	-	-	31	-	-	18	-	-	9.0	-	-	NA	93	41,000	41,000	NA
Nitrate	60	-	-	55	-	-	86	-	-	19	-	-	84	-	-	1.4	-	-	16	-	-	29	-	-	16	-	-	53	-	-	50	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	330	-	-	300	-	-	260	-	-	170	-	-	250	-	-	110	-	-	860	-	-	220	-	-	580	-	-	140	-	-	50	-	-	NA	NA	NA	NA	NA
Sulfate	14,000	-	-	17,000	-	-	4200	-	-	270	-	J	5600	-	-	180	-	-	19,000	-	-	8000	-	-	14,000	-	-	3300	-	-	1900	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																																							
Aluminum	**7400**	-	-	**6000**	-	-	**5300**	-	-	**7900**	-	-	**10,000**	-	-	**5300**	-	-	**6200**	-	-	**9500**	-	-	**12,000**	-	-	**9000**	-	-	**6700**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 2.1	-	UJ	< 2.2	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.2	-	UJ	**2.4**	-	J-	**7.8**	-	J-	< 2.2	-	-	< 2.1	-	UJ	0.27	0.27	410	454	0.3
Arsenic	**9.1**	-	-	**6.5**	-	-	**3.7**	-	-	**4.4**	-	-	**5.1**	-	-	**5.1**	-	-	**4.8**	-	-	**17**	-	-	**4.1**	-	-	**7.2**	-	-	**3.9**	-	-	0.29	0.0013	1.6	1.77	1
Barium	**83**	-	J+	**100**	-	J+	**92**	-	J+	**220**	-	J+	**170**	-	J+	**83**	-	J+	**160**	-	J+	**120**	-	J+	**160**	-	J+	**170**	-	J+	**120**	-	J+	82	120	190,000	100,000	82
Beryllium	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	-	3.2	13	2000	2230	3
Boron	**36**	-	-	**92**	-	-	**40**	-	-	< 11	-	-	**86**	-	-	< 11	-	-	**97**	-	-	**36**	-	J+	**79**	-	J+	**15**	-	J+	< 10	-	-	NA	9.9	200,000	100,000	23.4
Cadmium	< 1.1	-	-	**2.8**	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	**1.8**	-	-	< 1.1	-	-	**5.0**	-	-	< 1.1	-	-	< 1	-	-	0.38	0.52	NA	560	0.4
Calcium	61,000	-	-	22,000	-	-	36,000	-	-	93,000	-	-	94,000	-	-	100,000	-	-	49,000	-	-	94,000	-	-	82,000	-	-	130,000	-	-	100,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.17	-	-	< 0.18	-	-	< 0.17	-	-	< 0.17	-	-	**0.35**	-	J+	< 0.17	-	-	< 0.17	-	-	**0.23**	-	J+	**0.18**	-	J+	< 0.17	-	-	< 0.17	-	-	NA	0.00059	5.6	1360	2
Chromium (total)	< 1.1	-	-	140	-	-	10	-	-	7.1	-	-	17	-	-	7.3	-	-	43	-	-	13	-	-	42	-	-	12	-	-	7.0	-	-	180,000	NA	NA	NA	NA
Cobalt	**3.0**	-	-	**6.8**	-	-	**2.1**	-	-	**2.4**	-	-	**2.9**	-	-	**2.0**	-	-	**4.8**	-	-	**4.0**	-	-	**4.8**	-	-	**3.5**	-	-	**2.3**	-	-	NA	0.21	300	337	33
Copper	**53**	-	-	**120**	-	-	17	-	-	6.0	-	-	**37**	-	-	8.2	-	-	**610**	-	-	**73**	-	-	**450**	-	-	5.3	-	-	46	-	-	46	22	41,000	42,200	35.2
Iron	**17,000**	-	-	**75,000**	-	-	**6800**	-	-	**7400**	-	-	**7800**	-	-	**6800**	-	-	**49,000**	-	-	**11,000**	-	-	**68,000**	-	-	**9700**	-	-	**6800**	-	-	NA	270	720,000	100,000	7.56
Lead	13	-	-	**34**	-	-	**29**	-	-	3.5	-	-	6.2	-	-	4.1	-	-	**51**	-	-	**26**	-	-	**200**	-	-	12	-	-	4.2	-	-	14	NA	800	800	NA
Magnesium	**13,000**	-	-	**4100**	-	-	**6600**	-	-	**30,000**	-	-	**30,000**	-	-	**29,000**	-	-	**4900**	-	-	**18,000**	-	-	**15,000**	-	-	**21,000**	-	-	**18,000**	-	-	NA	NA	NA	100,000	649
Manganese	**200**	-	-	**490**	-	-	**110**	-	-	**120**	-	-	**91**	-	-	**93**	-	-	**610**	-	-	**140**	-	-	**660**	-	-	**270**	-	-	**130**	-	-	NA	21	23,000	100,000	3.26
Mercury	**0.24**	-	-	**0.3**	-	-	< 0.11	-	-	< 0.11	-	-	< 0.11	-	-	< 0.11	-	-	< 0.11	-	-	< 0.11	-	-	< 0.1	-	-	< 0.11	-	-	< 0.1	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1.1	-	-	**89**	-	-	< 1.1	-	UJ	< 1.1	-	BJ	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1.1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	UJ	NA	1.6	5100	5680	3.64
Nickel	6.8	-	-	**48**	-	-	5.9	-	-	4.4	-	-	6.4	-	-	4.1	-	-	**27**	-	-	**8.9**	-	-	**38**	-	-	**7.5**	-	-	4.6	-	-	NA	20	20,000	21,800	7
Potassium	< 110	-	-	1400	-	-	1500	-	-	3300	-	-	2600	-	-	2100	-	-	1500	-	-	3400	-	-	2800	-	-	2700	-	-	2300	-	-	NA	NA	NA	NA	NA
Selenium	< 1.1	-	-	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1.1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	UJ	0.26	0.4	5100	5680	0.3
Silica	370	-	-	1400	-	-	300	-	-	490	-	-	410	-	-	420	-	-	320	-	-	360	-	-	790	-	-	350	-	-	320	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1.1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	-	NA	0.6	5100	5680	2
Sodium	3500	-	-	3600	-	-	1500	-	-	760	-	-	3000	-	-	720	-	-	2900	-	-	12,000	-	-	4900	-	-	1800	-	-	900	-	-	NA	NA	NA	NA	NA
Thallium	< 1.1	-	-	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1.1	-	-	< 1.1	-	UJ	< 1.1	-	UJ	< 1.1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	UJ	0.14	0.011	10	79.5	0.4
Titanium	320	-	J+	290	-	J+	190	-	-	300	-	-	400	-	J+	310	-	-	450	-	-	380	-	J+	350	-	J+	320	-	J+	230	-	-	NA	NA	NA	100,000	150,000
Vanadium	30	-	-	72	-	-	16	-	-	28	-	-	25	-	-	23	-	-	16	-	-	37	-	-	22	-	-	29	-	-	20	-	-	NA	78	5200	5680	300
Zinc	64	-	-	140	-	-	79	-	-	19	-	-	44	-	-	19	-	-	280	-	-	170	-	-	**880**	-	-	88	-	-	20	-	-	NA	290	310,000	100,000	620

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Discrete Volatile Samples: SB-1 = 5'; SB-2=3.5'; SB-3=8'; SB-4=6.5'; SB-5=5'; SB-6, SB-7=4'; SB-8=6'; SB-9=3.5'; SB-10=8'; SB-11=3'; SB-12=4'
Refer to Figure A-4 for sampling locations
ALDEHYDE AND DIOL Flags J=Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL) Concentrations within this range are estimated, CF2 = Confirmatory analysis was past holding time, CF6 = Results confirmed by reanalysis

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* — Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* – Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* – Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* – Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).
[6] ***Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity Equivalent (TEQ)***

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
J1 = Blanks greater than MDA
J2 = Lack of agreement for duplicate sampled
J4 = Tracer yield was high
R = The data are unusable
UJ = The parameter is an estimated non-detect with low bias on RL values

Table E-5 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2009 Mid-depth Soil Data (Page 2 of 2)

	SB-1 11/9/2009 3.5 - 6.5 ft			SB-2 11/9/2009 3.5 - 5 ft			SB-3 11/8/2009 7.5 - 10 ft			SB-4 11/8/2009 5 - 6.5 ft			SB-6 11/9/2009 3 - 5 ft			SB-7 11/8/2009 3 - 6.5 ft			SB-8 11/8/2009 3.5 - 9.5 ft			SB-9 11/9/2009 3 - 5 ft			SB-10 11/9/2009 5 - 9.5 ft			SB-11 11/9/2009 2.5 - 5 ft			SB-12 11/8/2009 3 - 5 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
PAHs (ug/kg)																																							
Acenaphthene	< 5.3	-	-	< 5.6	-	-	< 5.3	-	-	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	< 5.4	-	-	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	4100	33,000,000	2,560,000	29,000
Anthracene	< 5.3	-	-	< 5.6	-	-	17	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	24	-	J+	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 5.3	-	-	< 5.6	-	-	**39**	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	**46**	-	J+	< 5.4	-	-	5.7	-	-	**14**	-	J+	< 5.3	-	-	NA	10	2100	2340	80
Benzo(a)pyrene	< 5.3	-	-	< 5.6	-	-	**17**	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	**24**	-	J+	< 5.4	-	-	< 5.2	-	-	**5.6**	-	J+	< 5.3	-	-	240	3.5	210	234	400
Benzo(b)fluoranthene	< 5.3	-	-	7.5	-	J+	**35**	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	**38**	-	J+	< 5.4	-	-	< 5.2	-	-	13	-	J+	< 5.3	-	-	NA	35	2100	2340	200
Benzo(g,h,i)perylene	< 5.3	-	-	< 5.6	-	-	14	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	15	-	J+	< 5.4	-	-	< 5.2	-	-	5.5	-	J+	< 5.3	-	-	NA	NA	NA	34,100,000	NA
Benzo(k)fluoranthene	< 5.3	-	-	< 5.6	-	-	8.4	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	7.6	-	J+	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	350	21,000	23,400	2000
Biphenyl	< 5.3	-	-	< 5.6	-	-	**19**	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	**44**	-	J+	< 5.4	-	-	**14**	-	-	< 5.4	-	-	< 5.3	-	-	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl)Phthalate	**377**	-	-	< 371	-	-	**590**	-	J+	< 350	-	-	< 350	-	-	< 350	-	-	**800**	-	J+	< 359	-	-	**538**	-	-	< 358	-	-	< 350	-	-	1400	17	120,000	137,000	180,000
Chrysene	< 5.3	-	-	9.4	-	J+	57	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	68	-	J+	9.2	-	-	11	-	-	18	-	J+	< 5.3	-	-	NA	1100	210,000	234,000	8000
Fluoranthene	5.9	-	-	< 5.6	-	-	98	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	93	-	J+	11	-	-	12	-	-	28	-	J+	< 5.3	-	-	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 5.3	-	-	< 5.6	-	-	< 5.3	-	-	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	< 5.4	-	-	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	4000	22,000,000	3,670,000	28,000
Indeno(1,2,3-cd)pyrene	< 5.3	-	-	< 5.6	-	-	12	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	11	-	J+	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	120	2100	2340	700
5-Methyl chrysene	< 5.3	-	-	< 5.6	-	-	13	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	21	-	J+	< 5.4	-	-	< 5.2	-	-	< 5.4	-	-	< 5.3	-	-	NA	NA	NA	NA	NA
Phenanthrene	9.6	-	-	< 5.6	-	-	190	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	230	-	J+	20	-	-	27	-	-	14	-	J+	< 5.3	-	-	NA	NA	NA	24,500	NA
Pyrene	6.1	-	-	< 5.6	-	-	82	-	J+	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	100	-	J+	10	-	-	15	-	-	20	-	J+	< 5.3	-	-	NA	9500	17,000,000	19,300,000	210,000
PCBs (ug/kg)																																							
Aroclor 1016	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 35	-	-	< 37	-	-	< 170	-	-	< 35	-	-	< 35	-	-	< 35	-	-	< 36	-	-	< 36	-	-	< 34	-	-	< 36	-	-	< 35	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 17	-	-	< 19	-	-	< 87	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 18	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	24	740	826	NA
Radionuclides (pCi/g)																																							
Cesium 137	0.007	U	-	-0.013	U	-	0.0041	U	-	-0.003	U	-	-0.0309	U	-	0.0086	U	-	-0.0325	U	-	0.0021	U	-	-0.0559	U	-	-0.0194	U	-	0.0399	U	-	NA	NA	NA	NA	NA
Lead 210	3.03	-	-	2.47	-	-	1.72	-	J4	2.09	-	J4	1.64	-	-	1.53	-	J4	1.84	-	J4	2.93	-	-	1.39	-	-	1.6	-	-	1.36	-	J4	NA	NA	NA	NA	NA
Polonium 210	3.23	-	-	2.31	-	-	1.5	-	J1, J2	2.12	-	J1, J2	1.36	-	-	1.52	-	J1, J2	2.01	-	J1,J2	3.89	-	-	1.98	-	-	1.37	-	-	1.47	-	J1,J2	NA	NA	NA	NA	NA
Radium 226	2.41	-	-	1.65	-	-	1.34	-	J1	2.18	-	J1	1.25	-	-	1.77	-	J1	2.47	-	J1	4.83	-	-	1.44	-	-	1.45	-	-	1.71	-	J1	NA	NA	NA	NA	NA
Radium 228	1.3	-	-	0.735	J	-	0.986	J	-	1.39	-	-	1.22	-	-	1.62	-	-	1.28	-	-	1.07	-	-	0.826	-	-	0.916	J	-	1.7	-	-	NA	NA	NA	NA	NA
Strontium 89	0.338	J	-	0.238	J	-	1.66	J	J1	2.05	-	J1	0.163	J	-	1.32	-	J1	0.316	J	J1	2.46	-	-	0.529	J	-	0.662	J	-	1.38	J	J1	NA	NA	NA	NA	NA
Strontium 90	-0.0145	U	-	-0.0673	U	-	0.0481	U	-	-0.334	U	-	-0.0359	U	-	-0.041	-	-	0.0776	U	-	-0.0172	U	-	0.0825	U	-	0.029	U	-	-0.0364	U	-	NA	NA	NA	NA	NA
Thorium 228	0.898	J	-	0.41	J	-	0.345	J	-	0.0049	U	-	0.574	J	-	1.09	-	-	0.771	J	-	0.885	J	-	0.628	J	-	0.791	J	-	1.02	-	-	NA	NA	NA	NA	NA
Thorium 230	1.7	-	-	0.747	J	-	0.581	J	-	0.0356	U	-	0.856	J	-	1.43	-	-	0.9	J	-	4.7	-	-	1.08	-	-	1.29	-	-	1.78	-	-	NA	NA	NA	NA	NA
Thorium 232	0.644	J	-	0.302	J	-	0.488	J	J1	1.52	-	J1	0.536	J	-	1.03	-	J1	0.686	J	J1	0.646	J	-	0.604	J	-	0.638	J	-	0.982	J	J1	NA	NA	NA	NA	NA
Uranium 234	3.57	-	-	1.58	-	-	1.5	-	J1	1.1	-	J1	1.84	-	-	1.18	-	J1	1.63	-	J1	3.91	-	-	1.52	-	-	1.45	-	-	1.24	-	J1	NA	NA	NA	NA	NA
Uranium 235	0.108	J	-	0.0427	J	-	0.0505	J	-	0.0516	J	-	0.0953	J	-	0.0421	J	-	0.0309	U	-	0.0871	J	-	0.0431	U	-	0.0305	J	-	0.0445	J	-	NA	NA	NA	NA	NA
Uranium 238	2.69	-	-	1.34	-	-	1.02	-	J1	1.07	-	J1	1.54	-	-	1.13	-	J1	1.21	-	J1	2.74	-	-	1.46	-	-	1.32	-	-	1.03	-	J1	NA	NA	NA	NA	NA
TPH (mg/kg)																																							
DRO	NA	-	UJ	< 11	-	UJBJ	330	-	J	< 11	-	UJ	< 11	-	-	< 11	-	UJ	200	-	J	28	-	J	19	-	J	< 11	-	UJ	< 11	-	UJ	NA	NA	NA	NA	NA
ORO	48	-	J	21	-	J	600	-	J	< 11	-	UJ	14	-	J	15	-	J	360	-	J	77	-	J	88	-	J	66	-	J	< 11	-	UJ	NA	NA	NA	NA	NA
TPH	56	-	J	27	-	J	930	-	J	< 11	-	UJ	14	-	J	15	-	J	560	-	J	110	-	J	110	-	J	75	-	J	< 11	-	UJ	NA	NA	NA	NA	NA
VOCs (ug/kg)																																							
Naphthalene (VOC)	< 5.3	-	-	< 5.6	-	-	**220**	-	-	< 5.4	-	-	< 5.3	-	-	< 5.3	-	-	**240**	-	-	**8.4**	-	-	**25**	-	-	< 5.4	-	-	< 5.3	-	-	NA	0.47	18,000	17,400	4000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Discrete Volatile Samples: SB-1 = 5'; SB-2=3.5'; SB-3=8'; SB-4=6.5'; SB-5=5'; SB-6, SB-7=4'; SB-8=6'; SB-9=3.5'; SB-10=8'; SB-11=3'; SB-12=4'
Refer to Figure A-4 for sampling locations
ALDEHYDE AND DIOL Flags J=Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL) Concentrations within this range are estimated, CF2 = Confirmatory analysis was past holding time, CF6 = Results confirmed by reanalysis

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J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
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J1 = Blanks greater than MDA
J2 = Lack of agreement for duplicate sampled
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UJ = The parameter is an estimated non-detect with low bias on RL values

Table E-6 MA-7 Landfill Used for Industrial and Non-Industrial Waste (WMU-7)
2009 Deep Soil Data (Page 1 of 2)

	SB-1 11/9/2009 6.5 - 8.5 ft			SB-2 11/9/2009 8.5 - 10.5 ft			SB-3 11/8/2009 10 - 11.5 ft			SB-8 11/8/2009 9.5 - 12 ft			SB-9 11/9/2009 5 - 8 ft			SB-10 11/9/2009 9.5 - 10 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)																							
Ethylene Glycol	< 11.2	-	-	< 10.7	-	-	< 10.2	-	-	< 10.3	-	-	< 11.6	-	-	NA	-	-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	0.769	J	-	0.436	J	-	0.626	J	-	**1.35**	-	-	0.505	J	-	NA	-	-	NA	0.62	120,000	41.6	NA
Asbestos																							
Asbestos	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	< 0.1 - 1%	-	-	NA	-	-	NA	NA	NA	NA	NA
Dioxins and Furans (ng/kg)																							
1,2,3,4,6,7,8-HpCDD	20	-	-	< 5	-	-	< 5	-	-	63	-	-	19	-	-	130	-	-	NA	NA	NA	NA	NA
Total HpCDD	37	-	-	< 5	-	-	< 5	-	-	130	-	-	36	-	-	270	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	20	-	-	< 5	-	-	< 5	-	-	29	-	-	9.8	-	-	220	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	9.8	-	-	NA	NA	NA	NA	NA
Total HpCDF	20	-	-	< 5	-	-	< 5	-	-	29	-	-	9.8	-	-	250	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	J	< 5	-	-	10	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	20	-	-	< 5	-	-	20	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 5	-	-	< 5	-	-	< 5	-	-	17	-	-	< 5	-	-	16	-	-	NA	NA	NA	NA	NA
Total HxCDD	16	-	-	< 5	-	-	< 5	-	-	320	-	-	35	-	-	470	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	5.7	-	-	< 5	-	-	< 5	-	-	8.8	-	-	< 5	-	-	< 5	-	J	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	6.7	-	-	< 5	-	-	< 5	-	J	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	8.0	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	5.5	-	-	< 5	-	-	< 5	-	-	6.5	-	-	< 5	-	-	49	-	-	NA	NA	NA	NA	NA
Total HxCDF	40	-	-	< 5	-	-	< 5	-	-	52	-	-	9.2	-	-	280	-	-	NA	NA	NA	NA	NA
OCDD	100	-	-	41	-	-	37	-	-	54	-	-	98	-	-	200	-	-	NA	NA	NA	NA	NA
OCDF	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	62	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	6.0	-	-	NA	NA	NA	NA	NA
Total PeCDD	5.6	-	-	< 5	-	-	< 5	-	-	240	-	-	27	-	-	310	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	-	< 5	-	J	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	< 5	-	-	< 5	-	-	< 5	-	-	7.7	-	-	< 5	-	-	39	-	-	NA	NA	NA	NA	NA
Total PeCDF	45	-	-	< 5	-	-	< 5	-	-	80	-	-	37	-	-	390	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	**1.9**	-	-	0.041	-	-	0.037	-	-	**11**	-	-	**0.7**	-	-	**38**	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	**1.5**	-	-	15	0.26	18	17.7	NA
Total TCDD	14	-	-	< 1	-	-	< 1	-	-	150	-	-	39	-	-	250	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	2.6	-	R	< 1	-	-	< 1	-	-	4.6	-	R	3.1	-	R	< 1	-	R	NA	NA	NA	NA	NA
Total TCDF	69	-	-	1.0	-	U	< 1	-	-	140	-	-	79	-	-	430	-	-	NA	NA	NA	NA	NA
General Chemistry																							
pH	8.1	-	J	8.4	-	J	8.6	-	J	7.9	-	J	8.4	-	J	7.8	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)																							
Ammonia	< 2.6	-	-	4.3	-	-	< 2.6	-	-	5.9	-	-	< 2.8	-	-	9.3	-	-	NA	NA	NA	100,000	NA
Chloride	470	-	-	260	-	-	42	-	-	91	-	-	1500	-	-	330	-	-	NA	NA	NA	NA	NA
Fluoride	10	-	-	8.1	-	-	4.3	-	-	16	-	-	15	-	-	17	-	-	NA	93	41,000	41,000	NA
Nitrate	53	-	-	29	-	-	3.9	-	-	2.3	-	-	120	-	-	5.2	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	180	-	-	54	-	-	200	-	-	250	-	-	200	-	-	190	-	-	NA	NA	NA	NA	NA
Sulfate	15,000	-	-	3900	-	-	1700	-	-	4300	-	-	15,000	-	-	16,000	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																							
Aluminum	**5100**	-	-	**5500**	-	-	**3700**	-	-	**4400**	-	-	**8300**	-	-	**5500**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.1	-	UJ	< 2.2	-	UJ	**8.2**	-	J-	0.27	0.27	410	454	0.3
Arsenic	**8.6**	-	-	**6.2**	-	-	**5.8**	-	-	**8.8**	-	-	**9.2**	-	-	4.0	-	-	0.29	0.0013	1.6	1.77	1
Barium	54	-	J+	**94**	-	J+	45	-	J+	53	-	J+	79	-	J+	77	-	J+	82	120	190,000	100,000	82
Beryllium	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	-	3.2	13	2000	2230	3
Boron	**17**	-	J+	**26**	-	J+	< 10	-	-	**20**	-	-	**31**	-	J+	**15**	-	J+	NA	9.9	200,000	100,000	23.4
Cadmium	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	**2.6**	-	-	0.38	0.52	NA	560	0.4
Calcium	76,000	-	-	56,000	-	-	98,000	-	-	64,000	-	-	73,000	-	-	100,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.17	-	-	< 0.17	-	-	< 0.17	-	-	< 0.17	-	-	**0.27**	-	J+	< 0.16	-	-	NA	0.00059	5.6	1360	2
Chromium (total)	8.8	-	-	17	-	-	5.7	-	-	14	-	-	12	-	-	17	-	-	180,000	NA	NA	NA	NA
Cobalt	**2.3**	-	-	**2.1**	-	-	**2.1**	-	-	**3.2**	-	-	**3.0**	-	-	**2.7**	-	-	NA	0.21	300	337	33
Copper	17	-	-	8.3	-	-	3.2	-	-	**35**	-	-	**35**	-	-	**930**	-	-	46	22	41,000	42,200	35.2
Iron	**9600**	-	-	**7200**	-	-	**6900**	-	-	**25,000**	-	-	**9500**	-	-	**20,000**	-	-	NA	270	720,000	100,000	7.56
Lead	5.6	-	-	8.6	-	-	3.8	-	-	**14**	-	-	**14**	-	-	**120**	-	-	14	NA	800	800	NA
Magnesium	**15,000**	-	-	**9400**	-	-	**9100**	-	-	**13,000**	-	-	**15,000**	-	-	**11,000**	-	-	NA	NA	NA	100,000	649
Manganese	**190**	-	-	**120**	-	-	**140**	-	-	**280**	-	-	**130**	-	-	**220**	-	-	NA	21	23,000	100,000	3.26
Mercury	**0.12**	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.11	-	-	< 0.1	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1	-	-	< 1	-	-	< 1	-	UJ	< 1	-	UJ	< 1.1	-	-	< 1	-	-	NA	1.6	5100	5680	3.64
Nickel	4.5	-	-	4.0	-	-	3.1	-	-	**12**	-	-	5.5	-	-	**9.2**	-	-	NA	20	20,000	21,800	7
Potassium	2000	-	-	2000	-	-	1600	-	-	1600	-	-	2600	-	-	1600	-	-	NA	NA	NA	NA	NA
Selenium	< 1	-	-	< 1	-	-	< 1	-	UJ	< 1	-	-	< 1.1	-	-	< 1	-	-	0.26	0.4	5100	5680	0.3
Silica	310	-	-	300	-	-	300	-	-	250	-	UJ	410	-	-	460	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1.1	-	-	< 1	-	-	NA	0.6	5100	5680	2
Sodium	2200	-	-	2000	-	-	950	-	-	1200	-	-	6600	-	-	1400	-	-	NA	NA	NA	NA	NA
Thallium	< 1	-	-	< 1	-	-	< 1	-	UJ	< 1	-	UJ	< 1.1	-	-	< 1	-	J+	0.14	0.011	10	79.5	0.4
Titanium	300	-	J+	270	-	J+	280	-	-	280	-	-	390	-	J+	380	-	-	NA	NA	NA	100,000	150,000
Vanadium	27	-	-	23	-	-	21	-	-	19	-	-	32	-	-	26	-	-	NA	78	5200	5680	300
Zinc	31	-	-	30	-	-	22	-	-	68	-	-	86	-	-	**440**	-	-	NA	290	310,000	100,000	620

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Discrete Volatile Samples: SB-1 =7'; SB-2,SB-3,SB-8, SB-10=10'; SB-9=6.5'
Deep soils not collected for SB-4, SB-5, SB-6, SB-11, and SB-12. Native soils reached at mid-depth.
Refer to Figure A-4 for sampling locations
ALDEHYDE AND DIOL Flags J=Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL) Concentrations within this range are estimated, CF2 = Confirmatory analysis was past holding time, CF6 = Results confirmed by reanalysis

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based) --* Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil) --* Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker) --* Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1) --* Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

[6] ***Agency for Toxic Substances and Disease Registry (ATSDR) Toxicity Equivalent (TEQ)***

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
J1 = Blanks greater than MDA
J2 = Lack of agreement for duplicate sampled
J4 = Tracer yield was high
R = The data are unusable
UJ = The parameter is an estimated non-detect with low bias on RL values

	SB-1 11/9/2009 6.5 - 8.5 ft			SB-2 11/9/2009 8.5 - 10.5 ft			SB-3 11/8/2009 10 - 11.5 ft			SB-8 11/8/2009 9.5 - 12 ft			SB-9 11/9/2009 5 - 8 ft			SB-10 11/9/2009 9.5 - 10 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
PAHs (ug/kg)																							
Acenaphthene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	4100	33,000,000	2,560,000	29,000
Anthracene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	5.7	-	J+	< 5.5	-	-	NA	-	-	NA	10	2100	2340	80
Benzo(a)pyrene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	**5.9**	-	J+	< 5.5	-	-	NA	-	-	240	3.5	210	234	400
Benzo(b)fluoranthene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	5.8	-	J+	< 5.5	-	-	NA	-	-	NA	35	2100	2340	200
Benzo(g,h,i)perylene	< 5.2	-	-	22	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	NA	NA	34,100,000	NA
Benzo(k)fluoranthene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	350	21,000	23,400	2000
Biphenyl	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	J+	< 5.5	-	-	NA	-	-	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl)Phthalate	**418**	-	-	< 341	-	-	< 340	-	-	< 340	-	-	**682**	-	-	NA	-	-	1400	17	120,000	137,000	180,000
Chrysene	6.7	-	-	5.5	-	-	< 5.2	-	-	10	-	J+	< 5.5	-	-	NA	-	-	NA	1100	210,000	234,000	8000
Fluoranthene	10	-	-	7.8	-	-	< 5.2	-	-	8.7	-	J+	< 5.5	-	-	NA	-	-	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	4000	22,000,000	3,670,000	28,000
Indeno(1,2,3-cd)pyrene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	120	2100	2340	700
5-Methyl chrysene	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.2	-	-	< 5.5	-	-	NA	-	-	NA	NA	NA	NA	NA
Phenanthrene	19	-	-	13	-	-	< 5.2	-	-	15	-	J+	6.9	-	-	NA	-	-	NA	NA	NA	24,500	NA
Pyrene	7.6	-	-	9.7	-	-	< 5.2	-	-	11	-	J+	< 5.5	-	-	NA	-	-	NA	9500	17,000,000	19,300,000	210,000
PCBs (ug/kg)																							
Aroclor 1016	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 34	-	-	< 34	-	-	< 34	-	-	< 34	-	-	< 36	-	-	< 33	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 17	-	-	< 17	-	-	< 17	-	-	< 17	-	-	< 18	-	-	< 17	-	-	NA	24	740	826	NA
Radionuclides (pCi/g)																							
Cesium 137	-0.0119	U	-	0.0008	U	-	NA	-	-	NA	-	-	0.005	U	-	NA	-	-	NA	NA	NA	NA	NA
Lead 210	1.71	-	-	2.36	-	-	NA	-	-	NA	-	-	1.95	-	-	NA	-	-	NA	NA	NA	NA	NA
Polonium 210	2.41	-	-	2.9	-	-	NA	-	-	NA	-	-	2.71	-	-	NA	-	-	NA	NA	NA	NA	NA
Radium 226	1.88	-	-	3.44	-	-	NA	-	-	NA	-	-	2.45	-	-	NA	-	-	NA	NA	NA	NA	NA
Radium 228	1.04	-	-	1.51	-	-	NA	-	-	NA	-	-	1.37	-	-	NA	-	-	NA	NA	NA	NA	NA
Strontium 89	0.116	J	-	0.189	J	-	NA	-	-	NA	-	-	0.334	J	-	NA	-	-	NA	NA	NA	NA	NA
Strontium 90	0.0036	U	-	0.0104	U	-	NA	-	-	NA	-	-	0.0279	U	-	NA	-	-	NA	NA	NA	NA	NA
Thorium 228	0.701	J	-	0.993	J	-	NA	-	-	NA	-	-	0.847	J	-	NA	-	-	NA	NA	NA	NA	NA
Thorium 230	1.69	-	-	2.27	-	-	NA	-	-	NA	-	-	2.05	-	-	NA	-	-	NA	NA	NA	NA	NA
Thorium 232	0.658	J	-	0.733	J	-	NA	-	-	NA	-	-	0.586	J	-	NA	-	-	NA	NA	NA	NA	NA
Uranium 234	3.13	-	-	3.0	-	-	NA	-	-	NA	-	-	2.83	-	-	NA	-	-	NA	NA	NA	NA	NA
Uranium 235	0.0877	J	-	0.0729	J	-	NA	-	-	NA	-	-	0.11	J	-	NA	-	-	NA	NA	NA	NA	NA
Uranium 238	2.47	-	-	2.67	-	-	NA	-	-	NA	-	-	2.33	-	-	NA	-	-	NA	NA	NA	NA	NA
TPH (mg/kg)																							
DRO	11	-	J	17	-	J	< 10	-	UJ	< 10	-	UJ	14	-	J	< 10	-	UJ	NA	NA	NA	NA	NA
ORO	35	-	J	43	-	J	13	-	J	25	-	J	65	-	J	16	-	J	NA	NA	NA	NA	NA
TPH	46	-	J	60	-	J	13	-	J	33	-	J	78	-	J	16	-	J	NA	NA	NA	NA	NA
VOCs (ug/kg)																							
Naphthalene (VOC)	**12**	-	-	**11**	-	-	< 5.2	-	-	**12**	-	-	< 5.5	-	-	NA	-	-	NA	0.47	18,000	17,400	4000

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Discrete Volatile Samples: SB-1 =7'; SB-2,SB-3,SB-8, SB-10=10'; SB-9=6.5'

Deep soils not collected for SB-4, SB-5, SB-6, SB-11, and SB-12. Native soils reached at mid-depth.

Refer to Figure A-4 for sampling locations

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J2 = Lack of agreement for duplicate sampled

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UJ = The parameter is an estimated non-detect with low bias on RL values

Table E-7 Pond Area
Groundwater Screening Level Comparison Summary
March 1996 to December 2011

Parameter Name	Total # of Samples	# Above Federal/Nevada Primary MCL	% Above Federal/Nevada Primary MCL	# Above Nevada Secondary MCL	% Above Nevada Secondary MCL	# Above NDEP BCL - Residential Water	% Above NDEP BCL - Residential Water	# Above EPA Tap Water	% Above EPA Tap Water	Min	Max	Median	Current Screening Levels: Federal/ Nevada Primary MCL[1]	Current Screening Levels: Nevada Secondary MCL[2]	Current Screening Levels: NDEP BCL - Residential Water[3]	Current Screening Levels: EPA Tap Water[4]
General Chemistry																
Chloride (mg/L)	2057	-	-	1698	82.55%	-	-	-	-	19	25000	1500	NA	400	NA	NA
Fluoride (mg/L)	170	49	28.82%	72	42.35%	49	28.82%	74	43.53%	< 0.1	24	< 5	4	2	4	0.62
Nitrogen, Nitrate (As N) (mg/L)	1692	31	1.83%	-	-	31	1.83%	10	0.59%	< 0.022	710	< 1	10	NA	10	25
pH (S.U.)	1947	-	-	18	0.92%	-	-	-	-	2.35	9.22	7.4	NA	6.5-8.5	NA	NA
Phosphorus (mg/L)	856	-	-	-	-	-	-	-	-	0.01	29	0.18	NA	NA	NA	NA
Sulfate (mg/L)	2054	-	-	2025	98.59%	-	-	-	-	50	110000	5900	NA	500	NA	NA
Sulfide (mg/L)	171	-	-	-	-	-	-	-	-	< 0.01	2.4	< 0.05	NA	NA	NA	NA
Sulfite (mg/L)	169	-	-	-	-	-	-	-	-	< 2	5	< 2	NA	NA	NA	NA
Suspended Solids (mg/L)	174	-	-	-	-	-	-	-	-	< 3.3	11370	81	NA	NA	NA	NA
TDS (residue, filterable) (mg/L)	2072	-	-	2070	99.9%	-	-	-	-	810	160000	11000	NA	1000	NA	NA
Total Organic Carbon (mg/L)	171	-	-	-	-	-	-	-	-	< 1	37	2.1	NA	NA	NA	NA
Dissolved Metals (mg/L)																
Aluminum	807	-	-	86	10.66%	1	0.12%	1	0.12%	0.009	60	< 0.25	NA	0.2	36.5	16
Arsenic	1701	1604	94.3%	-	-	1604	94.3%	1612	94.77%	< 0.001	8.4	0.149	0.01	NA	0.01	0.000045
Barium	812	-	-	-	-	-	-	-	-	< 0.0028	1.6	0.015	2	NA	2	2.9
Beryllium	829	1	0.12%	-	-	1	0.12%	-	-	0.001	0.011	< 0.005	0.004	NA	0.004	0.016
Boron	1701	-	-	-	-	881	51.79%	1128	66.31%	< 0.05	1000	8.9	NA	NA	7.3	3.1
Cadmium	830	-	-	-	-	-	-	-	-	< 0.0025	0.0045	< 0.006	0.005	NA	0.005	0.0069
Calcium	2025	-	-	-	-	-	-	-	-	0.024	7100	450	NA	NA	NA	NA
Chromium (Total)	1672	4	0.24%	-	-	-	-	-	-	< 0.00068	0.23	< 0.005	0.1	NA	NA	NA
Iron	807	-	-	110	13.63%	1	0.12%	2	0.25%	0.0039	60	< 0.25	NA	0.6	25.6	11
Lead	807	14	1.73%	-	-	14	1.73%	-	-	< 0.0021	160	NULL	0.015	NA	0.015	NA
Magnesium	2056	-	-	1783	86.72%	1494	72.67%	-	-	0.21	5270	430	NA	150	207	NA
Manganese	1683	-	-	1187	70.53%	58	3.45%	836	49.67%	< 0.0025	10	0.32	NA	0.1	5.11	0.32
Mercury	807	2	0.25%	-	-	2	0.25%	2	0.25%	< 0.000063	0.039	NULL	0.002	NA	0.002	0.00063
Molybdenum	1696	-	-	-	-	783	46.17%	1215	71.64%	< 0.001	48	0.17	NA	NA	0.183	0.078
Nickel	845	-	-	-	-	3	0.36%	21	2.49%	0.005	0.84	< 0.05	NA	NA	0.73	0.3
Potassium	2051	-	-	-	-	-	-	-	-	0.0039	2700	120	NA	NA	NA	NA
Selenium	1715	340	19.83%	-	-	340	19.83%	214	12.48%	< 0.0005	520	0.01	0.05	NA	0.05	0.078
Sodium	2056	-	-	-	-	-	-	-	-	0.09	66000	2350	NA	NA	NA	NA
Strontium	169	-	-	-	-	-	-	-	-	1.4	20	12	NA	NA	NA	NA
Titanium	1670	-	-	-	-	1	0.06%	-	-	< 0.00065	230	< 0.05	NA	NA	146	NA
Vanadium	1674	-	-	-	-	4	0.24%	15	0.90%	< 0.0014	1500	< 0.01	NA	NA	0.183	0.078
Zinc	194	-	-	-	-	-	-	-	-	< 0.005	0.62	< 0.1	NA	5	11	4.7

Notes:

Monitoring wells used in analysis include: P-15, P-15A, P-15AR, IMW-2.5S, IMW-2.5D, P-14, P-14R, P-13, P-13R, P-12, P-12R, P-11, P-10, P-9, P-9R, P-8, P-8R, KMW-9, P-7, P-7R, P-6, P-6R, P-5, P-5R, P-4, P-3, P-2, P-1, P-1R, P-17A, P-17B, KMW-8, KMW-8R, KMW-7, P-18A, P-18B, P-19A, P-19AR, P-20A, P-20B, IMW-16S, IMW-16D, MW-9, MW-8, MW-4, MW-1, MW-1R, KMW-14, KMW-15, MW-2, MW-2R, MW-3, MW-3R, MW-3RR, MW-7, KMW-11, MW-5, MW-6, KMW-2S, KMW-2M, KMW-2D, MW-10, MW-10R, MW-10RR

NA - Not Applicable

Refer to Figure A-5 for monitoring well locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)*-- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* **-** - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-8 PA-1 Hogan Wash
Soil Data

	KMW-1D 2/25/1998 5'	KMW-1D 2/25/1998 10'	KMW-1D 2/25/1998 15'	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
pH (S.U.)	9.27	8.81	8.39	NA	NA	NA	NA	NA
Sodium (mg/kg)	2600	4400	2000	NA	NA	NA	NA	NA
Sulfate(mg/kg)	2700	10000	8200	NA	NA	NA	NA	NA

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figure A-5 for sampling locations

Footnotes:

[1]***EPA MCL-based SSL*** **:** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA Risk-based SSL*** **:** *EPA SSL (Risk-Based)* **--** Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil*** **:** *EPA Regional Screening Level (RSL) (Industrial Soil)-* **-** Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker*** **:** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1)*** **:** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-9 PA-1 Hogan Wash
Groundwater Screening Level Comparison Summary
September 1996 to December 2011

Parameter Name	Total # of Samples	# Above Federal/Nevada Primary MCL	% Above Federal/Nevada Primary MCL	# Above Nevada Secondary	% Above Ndevada Secondary	# Above NDEP BCL - Residential Water	% Above NDEP BCL - Residential Water	# Above EPA Tap Water	% Above EPA Tap Water	Min	Max	Median	Current Screening Levels			
													Federal/Nevada Primary MCL[1]	Nevada Secondary MCL[2]	NDEP BCL - Residential Water[3]	EPA Tap Water[4]
General Chemistry																
Chloride (mg/L)	198	-	-	125	63.13%	-	-	-	-	30	5000	535	NA	400	NA	NA
Fluoride (mg/L)	43	18	41.86%	31	72.09%	18	41.86%	31	72.09%	< 0.5	16	3.1	4	2	4	0.62
Nitrogen, Nitrate (As N) (mg/L)	173	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.022	4	< 1	10	NA	10	25
pH (S.U.)	184	-	-	0	0.00%	-	-	-	-	6.8	8	7.385	NA	9	NA	NA
Phosphorus (mg/L)	81	-	-	-	-	-	-	-	-	< 0.02	7.1	0.2	NA	NA	NA	NA
Sulfate (mg/L)	198	-	-	197	99.49%	-	-	-	-	220	57000	5000	NA	500	NA	NA
Sulfide (mg/L)	41	-	-	-	-	-	-	-	-	0.01	0.78	< 0.5	NA	NA	NA	NA
Sulfite (mg/L)	41	-	-	-	-	-	-	-	-	< 2	< 2	< 2	NA	NA	NA	NA
TDS (residue, filterable) (mg/L)	198	-	-	198	100%	-	-	-	-	1100	65500	8220	NA	1000	NA	NA
Dissolved Metals (mg/L)																
Aluminum	80	-	-	17	21.25%	0	0.00%	0	0.00%	< 0.025	2.4	< 1.2	NA	0.2	36.5	16
Arsenic	181	104	57.46%	-	-	104	57.46%	124	68.51%	< 0.001	0.72	0.024	0.01	NA	0.01	0.000045
Barium	82	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.0028	0.3	0.01025	2	NA	2	2.9
Beryllium	90	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.001	< 0.03	< 0.003	0.004	NA	0.004	0.016
Boron	180	-	-	-	-	91	50.56%	131	72.78%	< 0.5	82	7.5	NA	NA	7.3	3.1
Cadmium	90	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.003	< 0.05	< 0.006	0.005	NA	0.005	0.0069
Calcium	196	-	-	-	-	-	-	-	-	100	590	433	NA	NA	NA	NA
Chromium (Total)	177	0	0.00%	-	-	-	-	-	-	< 0.00068	0.0066	< 0.005	0.1	NA	NA	NA
Iron	81	-	-	9	11.11%	0	0.00%	0	0.00%	< 0.0088	4	0.2	NA	0.6	25.6	11
Lead	81	0	0.00%	-	-	0	0.00%	-	-	< 0.0021	0.015	NULL	0.015	NA	0.015	NA
Magnesium	196	-	-	140	71.43%	138	70.41%	-	-	85	2700	500	NA	150	207	NA
Manganese	179	-	-	114	63.69%	0	0.00%	100	55.87%	< 0.005	4.3	0.5	NA	0.1	5.11	0.32
Mercury	81	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.000063	< 0.0005	NULL	0.002	NA	0.002	0.00063
Molybdenum	180	-	-	-	-	166	92.22%	175	97.22%	0.034	25	1.62	NA	NA	0.183	0.078
Nickel	90	-	-	-	-	0	0.00%	0	0.00%	< 0.005	0.0970	< 0.01	NA	NA	0.73	0.3
Potassium	195	-	-	-	-	-	-	-	-	14.3	1700	136	NA	NA	NA	NA
Selenium	184	36	19.57%	-	-	36	19.57%	22	11.96%	< 0.0005	0.19	0.01	0.05	NA	0.05	0.078
Silica	15	-	-	-	-	-	-	-	-	10	23	15	NA	NA	NA	NA
Sodium	197	-	-	-	-	-	-	-	-	73	22000	1300	NA	NA	NA	NA
Strontium	42	-	-	-	-	-	-	-	-	6.45	14	10	NA	NA	NA	NA
Titanium	177	-	-	-	-	0	0.00%	-	-	< 0.00065	0.1	< 0.05	NA	NA	146	NA
Vanadium	177	-	-	-	-	4	2.26%	5	2.82%	< 0.0025	0.24	< 0.015	NA	NA	0.183	0.078
Zinc	45	-	-	0	0.00%	0	0.00%	0	0.00%	< 0.005	0.27	< 0.05	NA	5	11	4.7

Notes:

Monitoring wells used in analysis include: IMW-2D, IMW-2S, IMW-2SR, KMW-1D, KMW-1M, KMW-1S, KMW-19, KMW-20

NA - Not Applicable

Refer to Figure A-5 for monitoring well locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-10 PA-3 Former Pond 4A
Groundwater Data

	CMW-3 Shallow 12/7/2004	CMW-3 Deep 12/7/2004	CMW-5 Shallow 12/6/2004	CMW-5 Deep 12/6/2004	CMW-6 Shallow 12/6/2004	CMW-6 Deep 12/6/2004	Current Screening Levels			
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/ Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
pH (S.U.)	7.80	7.10	6.76	6.92	6.98	6.79	NA	6.5 - 8.5	NA	NA
Total Dissolved Solids (residue, filterable) (mg/L)	**25,000**	**8900**	**51,000**	**13,000**	**30,000**	**22,000**	NA	1000	NA	NA

	CMW-1 Shallow 12/7/2004	CMW-1 Deep 12/7/2004	CMW-2 Shallow 12/7/2004	CMW-2 Deep 12/7/2004	CMW-4 Shallow 12/6/2004	CMW-4 Deep 12/6/2004	CMW-7 Shallow 12/6/2004	CMW-7 Deep 12/6/2004	MW-8 12/6/2004	MW-9 12/7/2004	Current Screening Levels			
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/ Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
pH (S.U.)	6.95	7.00	6.70	6.75	6.96	7.03	7.06	7.04	6.82	6.93	NA	6.5 - 8.5	NA	NA
Total Dissolved Solids (residue, filterable) (mg/L)	**5800**	**3800**	**38,000**	**11,000**	**1600**	**1500**	**4700**	**3600**	**3800**	**13,000**	NA	1000	NA	NA

Notes:
Table adapted from Table 4 in NDEP-63
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Wells CMW-3, CMW-5, and CMW-6 are inside the Former Pond 4A footprint. Wells CMW-1, CMW-2, CMW-4, CMW-7, MW-8, and MW-9 are outside the Former Pond 4A footprint.
Refer to Figure A-5 for sampling locations

Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)*-- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* - - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-11 PA-5 Former Pond D
Solids Composite Sample Data

	PD-Solids-Composite 11/5/2009 0 - 12 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)								
Ethylene Glycol	23	J	J-	NA	6.3	1,200,000	100,000	NA
Dioxins and Furans (ng/kg)								
1,2,3,4,6,7,8-HpCDD	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 5	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDF	< 5	-	-	NA	NA	NA	NA	NA
OCDD	< 10	-	-	NA	NA	NA	NA	NA
OCDF	< 10	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDF	< 5	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	NA	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 1	-	-	15	0.26	18	17.7	NA
Total TCDD	< 1	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	< 1	-	-	NA	NA	NA	NA	NA
Total TCDF	< 1	-	-	NA	NA	NA	NA	NA
General Chemistry								
pH	9.6	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)								
Ammonia	< 3.9	-	-	NA	NA	NA	100,000	NA
Chloride	1500	-	-	NA	NA	NA	NA	NA
Fluoride	**560**	-	-	NA	93	41,000	41,000	NA
Nitrate	< 15	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	470	-	-	NA	NA	NA	NA	NA
Sulfate	350,000	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)								
Aluminum	**7900**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 3.1	-	-	0.27	0.27	410	454	0.3
Arsenic	**2.4**	-	J	0.29	0.0013	1.6	1.77	1
Barium	**150**	-	-	82	120	190,000	100,000	82
Beryllium	< 1.5	-	-	3.2	13	2000	2230	3
Boron	**620**	-	-	NA	9.9	200,000	100,000	23.4
Cadmium	< 1.5	-	-	0.38	0.52	NA	560	0.4
Calcium	23,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	**0.44**	-	J+	NA	0.00059	5.6	1360	2
Chromium (total)	16	-	-	180,000	NA	NA	NA	NA
Cobalt	**2.0**	-	-	NA	0.21	300	337	33
Copper	8.0	-	-	46	22	41,000	42,200	35.2
Iron	**5800**	-	-	NA	270	720,000	100,000	7.56
Lead	4.7	-	-	14	NA	800	800	NA
Magnesium	**3800**	-	-	NA	NA	NA	100,000	649
Manganese	**54**	-	-	NA	21	23,000	100,000	3.26
Mercury	< 0.15	-	-	0.1	0.033	43	341	0.104
Molybdenum	**3.8**	-	-	NA	1.6	5100	5680	3.64
Nickel	6.1	-	-	NA	20	20,000	21,800	7
Potassium	1600	-	-	NA	NA	NA	NA	NA
Selenium	**3.1**	-	J	0.26	0.4	5100	5680	0.3
Silica	480	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1.5	-	-	NA	0.6	5100	5680	2
Sodium	120,000	-	-	NA	NA	NA	NA	NA
Thallium	< 1.5	-	-	0.14	0.011	10	79.5	0.4
Titanium	400	-	-	NA	NA	NA	100,000	150,000
Vanadium	26	-	-	NA	78	5200	5680	300
Zinc	15	-	-	NA	290	310,000	100,000	620
PAHs (ug/kg)								
Acenaphthene	< 7.7	-	U; J	NA	4100	33,000,000	2,560,000	29,000
Anthracene	< 7.7	-	U; J	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 7.7	-	U; J	NA	10	2100	2340	80
Benzo(a)pyrene	< 7.7	-	U; J	240	3.5	210	234	400
Benzo(b)fluoranthene	< 7.7	-	U; J	NA	35	2100	2340	200
Benzo(g,h,i)perylene	< 7.7	-	U; J	NA	NA	NA	34,100,000	NA
Benzo(k)fluoranthene	< 7.7	-	U; J	NA	350	21,000	23,400	2000
Biphenyl	< 7.7	-	U; J	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl)Phthalate	< 510	-	U; J	1400	17	120,000	137,000	180,000
Chrysene	< 7.7	-	U; J	NA	1100	210,000	234,000	8000
Fluoranthene	< 7.7	-	U; J	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 7.7	-	U; J	NA	4000	22,000,000	3,670,000	28,000
Indeno(1,2,3-cd)pyrene	< 7.7	-	U; J	NA	120	2100	2340	700
5-Methyl chrysene	< 7.7	-	U; J	NA	NA	NA	NA	NA
Phenanthrene	< 7.7	-	U; J	NA	NA	NA	24,500	NA
Pyrene	< 7.7	-	U; J	NA	9500	17,000,000	19,300,000	210,000
PCBs (ug/kg)								
Aroclor 1016	< 130	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 250	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 130	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 130	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 130	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 130	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 130	-	-	NA	24	740	826	NA
Radionuclides (pCi/g)								
Cesium 137	-0.0249	U	-	NA	NA	NA	NA	NA
Lead 210	1.29	-	J4	NA	NA	NA	NA	NA
Polonium 210	0.921	J	J1; J2	NA	NA	NA	NA	NA
Radium 226	1.1	-	J1	NA	NA	NA	NA	NA
Radium 228	0.965	J	-	NA	NA	NA	NA	NA
Strontium 89	-1.63	U	J1	NA	NA	NA	NA	NA
Strontium 90	9.08	U	-	NA	NA	NA	NA	NA
Thorium 228	0.428	J	-	NA	NA	NA	NA	NA
Thorium 230	1.13	-	-	NA	NA	NA	NA	NA
Thorium 232	0.47	J	J1	NA	NA	NA	NA	NA
Uranium 234	1.52	-	J1	NA	NA	NA	NA	NA
Uranium 235	0.0483	J	-	NA	NA	NA	NA	NA
Uranium 238	1.26	-	J1	NA	NA	NA	NA	NA
TPH (mg/kg)								
DRO	< 15	-	U; J	NA	NA	NA	NA	NA
GRO	< 2.1	-	U; J	NA	NA	NA	NA	NA
ORO	< 15	-	U; J	NA	NA	NA	NA	NA
TPH	< 15	-	U; J	NA	NA	NA	NA	NA
VOCs (ug/kg)								
Naphthalene (VOC)	< 7.7	-	-	NA	0.47	18,000	17,400	4000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.

Footnotes:

[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* - - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
U;J = The parameter is an estimated non-detect with low bias on RL values

Table E-12 PA-5 Former Pond D
Solids Data

Parameter Name	PD-Solids-1 11/4/2009 4.25 - 4.25 ft			PD-Solids-2 11/5/2009 4 - 4 ft			PD-Solids-3 11/3/2009 8 - 8 ft			PD-Solids-4 11/3/2009 2.5 - 2.5 ft			PD-Solids-5 11/4/2009 2.5 - 2.5 ft			PD-Solids-6 11/4/2009 2 - 2 ft			PD-Solids-7 11/4/2009 2.5 - 2.5 ft			PD-Solids-8 11/4/2009 4.5 - 4.5 ft			PD-Solids-9 11/4/2009 2.5 - 2.5 ft			Current Screening Levels				
	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	Result	Lab Qualifier	Validation Qualifier	EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
Aldehydes and Diols (mg/kg)																																
Formaldehyde	< 13.3	-	J-	0.586	CF6, J	J-	0.49	CF6, J	J-	0.503	J, CF6	J-	< 2.45	CF6	J-	0.357	J, CF6	-	< 12.5	-	J-	0.421	CF6, J	J-	0.647	CF6, J	J-	NA	0.62	120,000	41.6	NA
VOCs (ug/kg)																																
Acetone	< 3900	-	-	< 4100	-	-	< 4000	-	-	< 5200	-	-	< 5700	-	-	< 5700	-	-	< 4900	-	-	< 4500	-	-	< 3500	-	-	NA	2400	630,000,000	100,000,000	800
Benzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	2.6	0.2	5400	4500	2
Bromobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	36	1,800,000	695,000	NA
Bromodichloromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	22	0.032	1400	3600	30
Bromoform	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	21	2.1	220,000	242,000	40
Bromomethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	1.8	32,000	42,900	10
2-Butanone	< 3900	-	-	< 4100	-	-	< 4000	-	-	< 5200	-	-	< 5700	-	-	< 5700	-	-	< 4900	-	-	< 4500	-	-	< 3500	-	-	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	393,000	NA
n-Butylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.9	0.15	3000	4070	3
Chlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	68	49	1,400,000	695,000	70
Chloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	1,100,000	NA
Chloroform	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	22	0.053	1500	1710	30
Chloromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	49	500,000	8950	NA
2-Chlorotoluene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 790	-	-	< 810	-	-	< 800	-	-	< 1000	-	-	< 1100	-	-	< 1100	-	-	< 990	-	-	< 890	-	-	< 690	-	-	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	21	0.039	3300	6150	20
1,2-Dibromoethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	0.014	0.0018	170	185	NA
Dibromomethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	300	400,000	340,000	NA
Dichloromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	NA	NA
Ethylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.5	22,000	24,600	100
Isopropyl benzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	< 3900	-	-	< 4100	-	-	< 4000	-	-	< 5200	-	-	< 5700	-	-	< 5700	-	-	< 4900	-	-	< 4500	-	-	< 3500	-	-	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	990	21,000,000	237,000	NA
Styrene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	2.3	0.033	2600	3280	3
Toluene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.6	0.077	5300	5800	0.9
Trichloroethene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 790	-	-	< 810	-	-	< 800	-	-	< 1000	-	-	< 1100	-	-	< 1100	-	-	< 990	-	-	< 890	-	-	< 690	-	-	9800	190	2,700,000	214,000	10,000
o-xylene	< 390	-	-	< 410	-	-	< 400	-	-	< 520	-	-	< 570	-	-	< 570	-	-	< 490	-	-	< 450	-	-	< 350	-	-	NA	190	3,000,000	282,000	9000
Xylenes, Total	< 1200	-	-	< 1200	-	-	< 1200	-	-	< 1600	-	-	< 1700	-	-	< 1700	-	-	< 1500	-	-	< 1300	-	-	< 1000	-	-	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* - - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Analyte detected at a level less than the RL and greater than or equal to the MDL. Concentrations within this range are estimated.
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
CF6 = Results confirmed by reanalysis

Table E-13 PA-5 Former Pond D
Solids Data - Radionuclides

Pond D Composite Solids Sample
11/10/2009
0 - 12 ft

Parameter Name	Result	Lab Qualifiers	Validation Qualifier	MDC/MDA	Uncertainty (+/-)	Current Screening Levels EPA Soil Screening Levels (SSLs)[1]
RADIONUCLIDES (pCi/g)						
Cesium 137	-0.0249	U	-	0.0708	0.043	97
Lead 210	1.29	-	J4	0.407	0.43	2.5
Polonium 210	0.921	J	J1; J2	0.0237	0.18	180
Radium 226	1.1	-	J1	0.0999	0.26	4.4
Radium 228	0.965	J	-	0.713	0.38	4.4
Strontium 89	-1.63	U	J1	2.08	2.3	12,000
Strontium 90	0.908	U	-	1.87	0.94	46
Thorium 228	0.428	J	-	0.0418	0.14	100
Thorium 230**	1.13	-	-	0.0403	0.26	16
Thorium 232**	0.47	J	J1	0.0403	0.15	14
Uranium 234**	1.52	-	J1	0.0297	0.32	20
Uranium 235	0.0483	J	-	0.0297	0.036	20
Uranium 238	1.26	-	J1	0.0297	0.27	22

Notes:
MDC/MDA - Detection level based on instrument background or blank.
Radionuclides with half-lives greater than six months. Principal radionuclides with associated decay chains included in SSLs.
Footnotes:
[1]Radionuclide activity was compared to the Adult Soil Screening Levels (SSLs) for Ingestion of Soil found in the EPA's Soil Screening Guidance for Radionuclides (http://rais.ornl.gov/rad-ssg/radssl1.shtml) using default equation values for Ingestion of Soil.
Data Validation Qualifiers:
J = The associated value is an estimated quantity
J1 = Method blank greater than MDA
J2 = Lack of agreement for duplicate samples
J3 = Matrix spike duplicates not in agreement
J4 = Tracer yield was high
J5 = Matrix spike recovery was high
J6 = Tracer yield was low
R = The data are unusable
U = The parameter is not detected at the reported value

Table E-14 PA-5 Former Pond D
Soil Data

	PD-Soil-1 5/6/2010 0 - 1 ft			PD-Soil-10 5/17/2010 0 - 1 ft			PD-Soil-3 6/2/2010 0 - 1 ft			PD-Soil-5 6/14/2010 0 - 1 ft			PD-Soil-6 7/13/2010 0 - 1 ft			PD-Soil-7 7/1/2010 0 - 1 ft			PD-Soil-8 4/26/2010 0 - 1 ft			PD-Soil-9 7/1/2010 0 - 1 ft			PD-Solids-Composite 11/5/2009 0 - 12 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)																																
Acetaldehyde	NA	-	-	**0.531**	J	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	0.00045	52	77.7	NA
Ethylene Glycol	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	23	J	J-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	**2.55**	-	-	**4.98**	-	-	**0.936**	J	J	**0.772**	J	J	**1.18**	-	-	**2.57**	-	-	0.527	J	J	**1.21**	-	-	NA	-	-	NA	0.62	120,000	41.6	NA
General Chemistry																																
pH	8.7	-	J	8.6	-	J	8.5	-	J	8.5	-	J	8.5	-	J	8.7	-	J	8.8	-	J	8.5	-	J	9.6	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)																																
Ammonia	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 3.9	-	-	NA	NA	NA	100,000	NA
Chloride	3400	-	-	5300	-	-	4200	-	-	4500	-	-	3200	-	-	3200	-	-	2600	-	-	5000	-	-	1500	-	-	NA	NA	NA	NA	NA
Fluoride	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	**560**	-	-	NA	93	41,000	41,000	NA
Nitrate	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 15	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	420	-	-	440	-	-	220	-	-	200	-	-	310	-	-	330	-	-	180	-	-	280	-	-	470	-	-	NA	NA	NA	NA	NA
Sulfate	47,000	-	-	58,000	-	-	54,000	-	-	44,000	-	-	40,000	-	-	35,000	-	-	63,000	-	-	60,000	-	-	350,000	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																																
Aluminum	**18,000**	-	-	**24,000**	-	-	**8000**	-	-	**6300**	-	-	**9000**	-	-	**12,000**	-	-	**8600**	-	-	**9400**	-	-	**7900**	-	-	NA	23,000	990,000	100,000	75
Antimony	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 3.1	-	-	0.27	0.27	410	454	0.3
Arsenic	**16**	-	-	**21**	-	-	**8.1**	-	-	**7.8**	-	-	**14**	-	-	**16**	-	-	**8.8**	-	-	**9.0**	-	-	**2.4**	-	J	0.29	0.0013	1.6	1.77	1
Barium	**99**	-	-	**110**	-	-	61	-	-	52	-	-	**90**	-	J-	**100**	-	-	**93**	-	-	72	-	-	**150**	-	-	82	120	190,000	100,000	82
Beryllium	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 1.5	-	-	3.2	13	2000	2230	3
Boron	**430**	-	-	**960**	-	-	**410**	-	-	**380**	-	-	**350**	-	J-	**330**	-	J-	**370**	-	-	**420**	-	J-	**620**	-	-	NA	9.9	200,000	100,000	23.4
Cadmium	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 1.5	-	-	0.38	0.52	NA	560	0.4
Calcium	96,000	-	-	84,000	-	-	73,000	-	-	65,000	-	-	59,000	-	-	69,000	-	-	78,000	-	J+	52,000	-	-	23,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	**0.44**	-	J+	NA	0.00059	5.6	1360	2
Chromium (total)	17	-	-	21	-	-	8.3	-	-	7.1	-	-	10	-	J-	12	-	J-	10	-	-	9.9	-	J-	16	-	-	180,000	NA	NA	NA	NA
Cobalt	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	**2.0**	-	-	NA	0.21	300	337	33
Copper	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	8.0	-	-	46	22	41,000	42,200	35.2
Iron	**11,000**	-	-	**14,000**	-	-	**6600**	-	-	**5700**	-	-	**7300**	-	J-	**9100**	-	J-	**7300**	-	-	**7500**	-	J-	**5800**	-	-	NA	270	720,000	100,000	7.56
Lead	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	4.7	-	-	14	NA	800	800	NA
Magnesium	**14,000**	-	-	**25,000**	-	-	**8300**	-	-	**6600**	-	-	**8300**	-	J-	**9900**	-	J-	**11,000**	-	-	**8900**	-	J-	**3800**	-	-	NA	NA	NA	100,000	649
Manganese	**330**	-	-	**280**	-	-	**170**	-	-	**150**	-	-	**170**	-	J-	**210**	-	-	**150**	-	-	**160**	-	-	**54**	-	-	NA	21	23,000	100,000	3.26
Mercury	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 0.15	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	**3.8**	-	-	NA	1.6	5100	5680	3.64
Nickel	**11**	-	-	**13**	-	-	5.7	-	-	4.9	-	-	6.1	-	J-	**8.1**	-	J-	6.2	-	-	6.3	-	J-	6.1	-	-	NA	20	20,000	21,800	7
Potassium	7600	-	-	10,000	-	-	5000	-	-	4000	-	-	4800	-	-	6000	-	-	4200	-	-	5400	-	-	1600	-	-	NA	NA	NA	NA	NA
Selenium	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	**3.1**	-	J	0.26	0.4	5100	5680	0.3
Silica	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	480	-	-	NA	NA	18,000,000	NA	NA
Silver	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 1.5	-	-	NA	0.6	5100	5680	2
Sodium	22,000	-	-	27,000	-	-	19,000	-	-	16,000	-	-	15,000	-	J+	14,000	-	-	34,000	-	-	25,000	-	-	120,000	-	-	NA	NA	NA	NA	NA
Thallium	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 1.5	-	-	0.14	0.011	10	79.5	0.4
Titanium	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	400	-	-	NA	NA	NA	100,000	150,000
Vanadium	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	26	-	-	NA	78	5200	5680	300
Zinc	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	15	-	-	NA	290	310,000	100,000	620

Notes:
*Refer to Table E-12 for Formaldehyde concentrations in the four grab samples.
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-6 for sampling locations

Footnotes:
[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2]***EPA Risk-based SSL:*** *EPA SSL (Risk-Based)*- - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3]***EPA Regional Screening Level (RSL) (Industrial Soil)***-- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).
[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude

Table E-15 PA-7 Former Pond G
Solids Composite Sample Data

	PG-Solids-Composite 11/10/2009 0 - 7 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)								
Ethylene Glycol	< 16.5	-	J-	NA	6.3	1,200,000	100,000	NA
Dioxins and Furans (ng/kg)								
1,2,3,4,6,7,8-HpCDD	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	< 5	-	-	NA	NA	NA	NA	NA
Total HpCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	< 5	-	-	NA	NA	NA	309	NA
1,2,3,6,7,8-HxCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	< 5	-	-	NA	NA	NA	NA	NA
Total HxCDF	< 5	-	-	NA	NA	NA	NA	NA
OCDD	< 10	-	-	NA	NA	NA	NA	NA
OCDF	< 10	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDD	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDD	< 5	-	-	NA	NA	NA	NA	NA
1,2,3,7,8-PeCDF	< 5	-	-	NA	NA	NA	NA	NA
2,3,4,7,8-PeCDF	< 5	-	-	NA	NA	NA	NA	NA
Total PeCDF	< 5	-	-	NA	NA	NA	NA	NA
Total 2,3,7,8-TCDD Equivalence	NA	-	-	15	0.26	18	17.7	NA
2,3,7,8-TCDD	< 1	-	-	15	0.26	18	17.7	NA
Total TCDD	< 1	-	-	NA	NA	NA	NA	NA
2,3,7,8-TCDF	< 1	-	-	NA	NA	NA	NA	NA
Total TCDF	< 1	-	-	NA	NA	NA	NA	NA
General Chemistry								
pH	9.2	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)								
Ammonia	< 3.6	-	-	NA	NA	NA	100,000	NA
Chloride	1900	-	-	NA	NA	NA	NA	NA
Fluoride	**630**	-	-	NA	93	41,000	41,000	NA
Nitrate	< 7.2	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	1800	-	-	NA	NA	NA	NA	NA
Sulfate	55,000	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)								
Aluminum	**21,000**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 2.9	-	-	0.27	0.27	410	454	0.3
Arsenic	**4.4**	-	-	0.29	0.0013	1.6	1.77	1
Barium	**750**	-	-	82	120	190,000	100,000	82
Beryllium	< 1.4	-	-	3.2	13	2000	2230	3
Boron	**220**	-	-	NA	9.9	200,000	100,000	23.4
Cadmium	< 1.4	-	-	0.38	0.52	NA	560	0.4
Calcium	26,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.23	-	-	NA	0.00059	5.6	1360	2
Chromium (total)	50	-	-	180,000	NA	NA	NA	NA
Cobalt	**5.8**	-	-	NA	0.21	300	337	33
Copper	**26**	-	-	46	22	41,000	42,200	35.2
Iron	**15,000**	-	-	NA	270	720,000	100,000	7.56
Lead	**23**	-	-	14	NA	800	800	NA
Magnesium	**3400**	-	-	NA	NA	NA	100,000	649
Manganese	**56**	-	-	NA	21	23,000	100,000	3.26
Mercury	**0.24**	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1.4	-	-	NA	1.6	5100	5680	3.64
Nickel	**14**	-	-	NA	20	20,000	21,800	7
Potassium	1500	-	-	NA	NA	NA	NA	NA
Selenium	< 1.4	-	-	0.26	0.4	5100	5680	0.3
Silica	380	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1.4	-	-	NA	0.6	5100	5680	2
Sodium	18,000	-	-	NA	NA	NA	NA	NA
Thallium	< 1.4	-	-	0.14	0.011	10	79.5	0.4
Titanium	1100	-	-	NA	NA	NA	100,000	150,000
Vanadium	45	-	-	NA	78	5200	5680	300
Zinc	42	-	-	NA	290	310,000	100,000	620
PAHs (ug/kg)								
Acenaphthene	< 7.2	-	U; J	NA	4100	33,000,000	2,560,000	29,000
Anthracene	< 7.2	-	U; J	NA	42,000	170,000,000	9,920,000	590,000
Benzo(a)anthracene	< 7.2	-	U; J	NA	10	2100	2340	80
Benzo(a)pyrene	< 7.2	-	U; J	240	3.5	210	234	400
Benzo(b)fluoranthene	< 7.2	-	U; J	NA	35	2100	2340	200
Benzo(g,h,i)perylene	< 7.2	-	U; J	NA	NA	NA	34,100,000	NA
Benzo(k)fluoranthene	< 7.2	-	U; J	NA	350	21,000	23,400	2000
Biphenyl	< 7.2	-	U; J	NA	8.7	210,000	56,800,000	NA
Bis (2-ethylhexyl)Phthalate	< 480	-	-	1400	17	120,000	137,000	180,000
Chrysene	< 7.2	-	U; J	NA	1100	210,000	234,000	8000
Fluoranthene	< 7.2	-	U; J	NA	70,000	22,000,000	24,400,000	210,000
Fluorene	< 7.2	-	U; J	NA	4000	22,000,000	3,670,000	28,000
Indeno(1,2,3-cd)pyrene	< 7.2	-	U; J	NA	120	2100	2340	700
5-Methyl chrysene	< 7.2	-	U; J	NA	NA	NA	NA	NA
Phenanthrene	< 7.2	-	U; J	NA	NA	NA	24,500	NA
Pyrene	< 7.2	-	U; J	NA	9500	17,000,000	19,300,000	210,000
PCBs (ug/kg)								
Aroclor 1016	< 120	-	-	NA	92	21,000	23,600	NA
Aroclor 1221	< 240	-	-	NA	0.074	540	826	NA
Aroclor 1232	< 120	-	-	NA	0.074	540	826	NA
Aroclor 1242	< 120	-	-	NA	5.3	740	826	NA
Aroclor 1248	< 120	-	-	NA	5.2	740	826	NA
Aroclor 1254	< 120	-	-	NA	8.8	740	826	NA
Aroclor 1260	< 120	-	-	NA	24	740	826	NA
TPH (mg/kg)								
DRO	25	-	J	NA	NA	NA	NA	NA
GRO	< 1.6	-	U; J	NA	NA	NA	NA	NA
ORO	18	-	J	NA	NA	NA	NA	NA
TPH	43	-	J	NA	NA	NA	NA	NA
VOCs (ug/kg)								
Naphthalene (VOC)	< 7.2	-	-	NA	0.47	18,000	17,400	4000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.

Footnotes:

[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA SSL (Risk-Based)--*** Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)-* **-** Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker:*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate
J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude
U;J = The parameter is an estimated non-detect with low bias on RL values

Table E-16 PA-7 Former Pond G
Solids Data

	PG-Solids-1 11/10/2009 6 - 6 ft			PG-Solids-2 11/10/2009 5 - 5 ft			PG-Solids-3 11/10/2009 5 - 5 ft			PG-Solids-4 11/10/2009 5 - 5 ft			PG-Solids-Composite 11/10/2009 0 - 7 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)																				
Ethylene Glycol	NA	-	-	NA	-	-	NA	-	-	NA	-	-	< 16.5	-	J-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	< 1.44	CF2	J-	< 1.53	-	-	< 1.57	-	-	**48**	-	-	NA	-	-	NA	0.62	120,000	41.6	NA
VOCs (ug/kg)																				
Acetone	< 2900	-	-	< 5300	-	-	< 5400	-	-	< 3100	-	-	NA	-	-	NA	2400	630,000,000	100,000,000	800
Benzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	2.6	0.2	5400	4500	2
Bromobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	36	1,800,000	695,000	NA
Bromodichloromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	22	0.032	1400	3600	30
Bromoform	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	21	2.1	220,000	242,000	40
Bromomethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	1.8	32,000	42,900	10
2-Butanone	< 2900	-	-	< 5300	-	-	< 5400	-	-	< 3100	-	-	NA	-	-	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	393,000	NA
n-Butylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.9	0.15	3000	4070	3
Chlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	68	49	1,400,000	695,000	70
Chloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	1,100,000	NA
Chloroform	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	22	0.053	1500	1710	30
Chloromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	49	500,000	8950	NA
2-Chlorotoluene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 580	-	-	< 1100	-	-	< 1100	-	-	< 630	-	-	NA	-	-	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	21	0.039	3300	6150	20
1,2-Dibromoethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	0.014	0.0018	170	185	NA
Dibromomethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	300	400,000	340,000	NA
Dichloromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	NA	NA
Ethylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	0.5	22,000	24,600	100
Isopropyl benzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	< 2900	-	-	< 5300	-	-	< 5400	-	-	< 3100	-	-	NA	-	-	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	< 7.2	-	-	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	990	21,000,000	237,000	NA
Styrene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	2.3	0.033	2600	3280	3
Toluene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.6	0.077	5300	5800	0.9
Trichloroethene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 580	-	-	< 1100	-	-	< 1100	-	-	< 630	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000
o-xylene	< 290	-	-	< 530	-	-	< 540	-	-	< 310	-	-	NA	-	-	NA	190	3,000,000	282,000	9000
Xylenes, Total	< 870	-	-	< 1600	-	-	< 1600	-	-	< 940	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.

Footnotes:
[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1):*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate
J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude

Table E-17 PA-7 Former Pond G
Solids Data - Radionuclides

Pond G Composite Solids Sample
11/10/2009
0 - 7 ft

Parameter Name	Result	Lab Qualifiers	Validation Qualifier	MDC/MDA	Uncertainty (+/-)	Current Screening Levels EPA Soil Screening Levels (SSLs)[1]
RADIONUCLIDES (pCi/g)						
Cesium 137	-0.000217	U	-	0.0725	0.042	97
Lead 210	2.39	-	J4	0.502	0.55	2.5
Polonium 210	1.82	-	J1; J2	0.0292	0.34	180
Radium 226	2.42	-	J1	0.123	0.53	4.4
Radium 228	1.63	-	-	0.822	0.48	4.4
Strontium 89	0.341	J	J1	0.151	0.24	12,000
Strontium 90	0.25	U	-	0.439	0.22	46
Thorium 228	0.204	J	-	0.0765	0.12	100
Thorium 230**	0.335	J	-	0.0875	0.15	16
Thorium 232**	0.291	J	J1	0.0742	0.14	14
Uranium 234**	2.04	-	J1	0.0541	0.40	20
Uranium 235	0.0699	J	-	0.0429	0.044	20
Uranium 238	1.66	-	J1	0.368	0.34	22

Notes:
MDC/MDA - Detection level based on instrument background or blank.
Radionuclides with half-lives greater than six months. Principal radionuclides with associated decay chains included in SSLs.
Footnotes:
[1]Radionuclide activity was compared to the Adult Soil Screening Levels (SSLs) for Ingestion of Soil found in the EPA's Soil Screening Guidance for Radionuclides (http://rais.ornl.gov/rad-ssg/radssl1.shtml) using default equation values for Ingestion of Soil.
Data Validation Qualifiers:
J = The associated value is an estimated quantity
J1 = Method blank greater than MDA
J2 = Lack of agreement for duplicate samples
J3 = Matrix spike duplicates not in agreement
J4 = Tracer yield was high
J5 = Matrix spike recovery was high
J6 = Tracer yield was low
R = The data are unusable
U = The parameter is not detected at the reported value

Table E-18 PA-7 Former Pond G
Soil Data

	PG-Solids-Composite 11/10/2009 0 - 7 ft			PG-Soil-1 9/7/2010 0 - 1 ft			PG-Soil-2 9/7/2010 0 - 1 ft			PG-Soil-3 9/7/2010 0 - 1 ft			PG-Soil-4 9/7/2010 0 - 1 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Aldehydes and Diols (mg/kg)																				
Ethylene Glycol	< 16.5	-	J-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	6.3	1,200,000	100,000	NA
Formaldehyde	NA	-	-	**1.82**	-	-	0.545	J	J	0.301	J	J	**0.647**	J	J	NA	0.62	120,000	41.6	NA
General Chemistry																				
pH	9.2	-	J	8.6	-	J	8.3	-	J	8.5	-	J	8.1	-	J	NA	NA	NA	NA	NA
General Chemistry (mg/kg)																				
Ammonia	< 3.6	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	NA	NA	100,000	NA
Chloride	1900	-	-	550	-	-	780	-	-	460	-	-	600	-	-	NA	NA	NA	NA	NA
Fluoride	**630**	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	93	41,000	41,000	NA
Nitrate	< 7.2	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	NA	1,600,000	100,000	NA
Total Phosphorous	1800	-	-	660	-	-	490	-	-	790	-	-	370	-	-	NA	NA	NA	NA	NA
Sulfate	55,000	-	-	36,000	-	-	22,000	-	-	32,000	-	-	24,000	-	-	NA	NA	NA	NA	NA
Metals (mg/kg)																				
Aluminum	**21,000**	-	-	**16,000**	-	-	**18,000**	-	-	**16,000**	-	-	**12,000**	-	-	NA	23,000	990,000	100,000	75
Antimony	< 2.9	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	0.27	0.27	410	454	0.3
Arsenic	**4.4**	-	-	**26**	-	-	**9.7**	-	-	**11**	-	-	**14**	-	-	0.29	0.0013	1.6	1.77	1
Barium	**750**	-	-	**100**	-	J-	**130**	-	J-	**130**	-	J-	**91**	-	J-	82	120	190,000	100,000	82
Beryllium	< 1.4	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	3.2	13	2000	2230	3
Boron	**220**	-	-	**150**	-	J-	**49**	-	J-	**190**	-	J-	**51**	-	J-	NA	9.9	200,000	100,000	23.4
Cadmium	< 1.4	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	0.38	0.52	NA	560	0.4
Calcium	26,000	-	-	8600	-	-	99,000	-	-	64,000	-	-	87,000	-	-	NA	NA	NA	NA	NA
Chromium (hexavalent)	< 0.23	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	0.00059	5.6	1360	2
Chromium (total)	50	-	-	15	-	J-	15	-	J-	15	-	J-	13	-	J-	180,000	NA	NA	NA	NA
Cobalt	**5.8**	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	0.21	300	337	33
Copper	**26**	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	46	22	41,000	42,200	35.2
Iron	**15,000**	-	-	**14,000**	-	J-	**16,000**	-	J-	**13,000**	-	J-	**9400**	-	J-	NA	270	720,000	100,000	7.56
Lead	**23**	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	14	NA	800	800	NA
Magnesium	**3400**	-	-	**22,000**	-	J-	**18,000**	-	J-	**20,000**	-	J-	**17,000**	-	J-	NA	NA	NA	100,000	649
Manganese	**56**	-	-	**270**	-	J-	**330**	-	J-	**190**	-	J-	**240**	-	J-	NA	21	23,000	100,000	3.26
Mercury	**0.24**	-	-	< 0.12	-	-	< 0.12	-	-	< 0.11	-	-	< 0.11	-	-	0.1	0.033	43	341	0.104
Molybdenum	< 1.4	-	-	< 1.2	-	J-	< 1.2	-	J-	< 1.2	-	J-	< 1.1	-	J-	NA	1.6	5100	5680	3.64
Nickel	**14**	-	-	**11**	-	J-; J+	**12**	-	J-; J+	**9.9**	-	J-; J+	**8.5**	-	J-; J+	NA	20	20,000	21,800	7
Potassium	1500	-	-	7500	-	J-	9300	-	J-	6000	-	J-	6500	-	J-	NA	NA	NA	NA	NA
Selenium	< 1.4	-	-	< 1.2	-	-	< 1.2	-	-	< 1.2	-	-	< 1.1	-	-	0.26	0.4	5100	5680	0.3
Silica	380	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	NA	18,000,000	NA	NA
Silver	< 1.4	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	0.6	5100	5680	2
Sodium	18,000	-	-	13,000	-	J-	9900	-	J-	11,000	-	J-	6500	-	J-	NA	NA	NA	NA	NA
Thallium	< 1.4	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	0.14	0.011	10	79.5	0.4
Titanium	1100	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	NA	NA	100,000	150,000
Vanadium	45	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	78	5200	5680	300
Zinc	42	-	-	NA	-	-	NA	-	-	NA	-	-	NA	-	-	NA	290	310,000	100,000	620

Notes:

*Refer to Table E-16 for Formaldehyde concentrations in the four grab samples.

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figure A-7 for sampling locations

Footnotes:

[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil:*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:

J = Associated value is an estimate

J+ = The associated value is an estimated quantity with indication of positive bias of indeterminate magnitude

J- = The associated value is an estimated quantity with indication of negative bias of indeterminate magnitude

Table E-19 SA-10 Former Units 1,2,3 Lube Oil Rack
Soil Data

	RB-17 12/3/1998 0.5 ft	RB-17 12/3/1998 5 ft	RB-17 12/3/1998 10 ft	RB-18 12/3/1998 0.5 ft	RB-18 12/3/1998 5 ft	RB-18 12/3/1998 10 ft	RB-42 12/5/1998 5 ft	RB-42 12/5/1998 10 ft	RB-55 12/9/1998 5 ft	RB-55 12/9/1998 10 ft	RB-70 4/21/2000 0.5 ft	RB-70 4/21/2000 5 ft	RB-71 4/21/2000 0.5 ft	RB-71 4/21/2000 5 ft	RB-72 4/21/2000 0.5 ft	RB-72 4/21/2000 5 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Metals (mg/L)																					
TCLP Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04	< 0.02	< 0.02	< 0.02	0.03	< 0.02	NA	NA	NA	NA	NA
TCLP Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31	0.48	0.3	0.66	0.59	0.63	NA	NA	NA	NA	NA
TCLP Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA	NA	NA
TPH (mg/kg)																					
DRO	< 20	40	36	< 20	< 20	60	< 20	< 20	< 20	2400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	< 20	40	36	< 20	< 20	60	NA	NA	< 20	2400	24	< 10	11,000	23,000	1300	< 10	NA	NA	NA	NA	NA
VOCs (ug/kg)																					
Acetone	< 25	96	< 25	< 25	< 25	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400	630,000,000	100,000,000	800
Benzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 2000	< 20000	< 40	< 20	2.6	0.2	5400	4500	2
Bromobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	21	680,000	NA	NA
Bromodichloromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	22	0.032	1400	3600	30
Bromoform	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	21	2.1	220,000	242,000	40
Bromomethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	1.8	32,000	42,900	10
2-Butanone	< 25	< 25	< 25	< 25	< 25	34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	< 5	< 5	29	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	140	< 20	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	393,000	NA
n-Butylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	1.9	0.15	3000	4070	3
Chlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	68	49	1,400,000	695,000	70
Chloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	1,100,000	NA
Chloroform	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	22	0.053	1500	1710	30
Chloromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	NA	49	500,000	8950	NA
2-Chlorotoluene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	21	0.039	3300	6150	20
1,2-Dibromoethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	0.014	0.0018	170	185	NA
Dibromomethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	300	400,000	340,000	NA
Dichloromethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	NA	NA	NA	NA
Ethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 2000	< 20000	< 40	< 20	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	NA	0.5	22,000	24,600	100
2-Hexanone	< 25	< 25	< 25	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	1,400,000	2,150,000	NA
Iodomethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	< 5	< 5	6.0	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	140	< 20	**960,000**	**1,500,000**	140	< 20	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	< 25	< 25	< 25	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	120	< 20	NA	990	21,000,000	237,000	NA
Styrene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	2.3	0.033	2600	3280	3
Toluene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 2000	< 20000	< 40	< 20	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	1.6	0.077	5300	5800	0.9
Trichloroethene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 40	< 40	< 20000	< 40000	< 80	< 40	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	**580**	< 20	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	NA	**250**	< 20	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 5000	< 20000	< 40	< 20	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 2000	< 20000	< 40	< 20	9800	190	2,700,000	214,000	10,000
o-xylene	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	< 20	< 20	< 2000	< 20000	< 40	< 20	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figures A-10 and A-11 for sampling locations

Footnotes:

[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Indutrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* - - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-20 SA-10 Former Units 1,2,3 Lube Oil Rack
Groundwater Data

	RB-17	RB-18	RB-55	RB-70	RB-71	RB-72				
	12/5/1998	12/5/1998	12/5/1998	4/21/2000	4/21/2000	4/21/2000	**Current Screening Levels**			
Parameter	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
Metals (mg/L)										
Arsenic (Dissolved)	-	-	-	**0.12**	**0.013**	**0.027**	0.01	NA	0.01	0.000045
Barium (Dissolved)	-	-	-	0.012	0.011	0.026	2	NA	2	2.9
Boron (Dissolved)	-	-	-	**3.9**	**5.2**	**3.7**	NA	NA	7.3	3.1
Calcium (Dissolved)	-	-	-	2.2	2.1	4	NA	NA	NA	NA
Chromium (Dissolved)	-	-	-	0.06	**0.13**	0.028	0.1	NA	NA	NA
Magnesium (Dissolved)	-	-	-	4.8	4.8	4.3	NA	150	207	NA
Molybdenum (Dissolved)	-	-	-	0.11	**0.096**	0.074	NA	NA	0.183	0.078
Potassium (Dissolved)	-	-	-	17	14	17	NA	NA	NA	NA
Selenium (Dissolved)	-	-	-	0.019	<0.005	0.011	0.05	NA	0.05	0.078
Sodium (Dissolved)	-	-	-	880	1,000	660	NA	NA	NA	NA
Vanadium (Dissolved)	-	-	-	0.037	0.045	0.02	NA	NA	0.183	0.078
Petroleum Hydrocarbons (mg/L)										
TPH-Extractable	21	320	230	7.3	70	99	NA	NA	NA	NA
VOCs (ug/L)										
n-Butylbenzene	< 25	< 25	-	< 1.0	35	2.2	NA	NA	254	780
sec-Butylbenzene	< 25	< 25	-	1.1	50	14	NA	NA	254	NA
tert-Butylbenzene	< 25	< 25	-	< 1.0	5.3	1.5	NA	NA	254	NA
1,2-Dichlorobenzene	< 25	< 25	-	< 1.0	< 2.5	12	600	NA	600	280
1,1-Dichloroethane	**28**	< 25	-	< 1.0	**9.5**	**5.3**	NA	NA	2.42	2.4
cis-1,2-Dichloroethene	**390**	< 25	-	< 1.0	**82**	**46**	70	NA	70	28
trans-1,2-Dichloroethene	81	< 25	-	< 1.0	44	45	100	NA	100	86
Ethylbenzene	< 25	< 25	-	< 1.0	**5**	**3.7**	700	NA	700	1.3
Isopropylbenzene	< 25	< 25	-	< 1.0	30	8.4	NA	NA	679	390
4-Isopropyltoluene	< 25	< 25	-	63	430	230	NA	NA	834	NA
Naphthalene	< 50	< 50	-	**3.2**	< 10	**14**	NA	NA	0.143	0.14
n-Propylbenzene	< 25	< 25	-	1	76	22	NA	NA	254	530
Toluene	< 25	< 25	-	< 1.0	< 1.0	1.3	1,000	NA	1,000	860
Trichloroethene	**64**	< 25	-	< 1.0	**42**	**45**	5	NA	5	0.44
1,2,4-Trimethylbenzene	< 25	< 25	-	5.6	**360**	**160**	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 25	< 25	-	1.7	**140**	**56**	NA	NA	14.5	87
Vinyl Chloride	< 10	< 10	-	< 1.0	< 2.5	**24**	2	2	2	0.015
Xylenes (Total)	< 25	< 25	-	< 1.0	9	15.6	10,000	NA	10,000	190

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figure A-8 for sampling locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-21 SA-10 Monitoring Well HM-8
Groundwater Monitoring Data

	HM-8 3/31/2005	HM-8 6/10/2005	HM-8 6/30/2005	HM-8 9/8/2005	HM-8 9/12/2005	HM-8 12/7/2005	HM-8 1/4/2006	HM-8 3/8/2006	HM-8 3/30/2006	HM-8 6/7/2006	HM-8 6/12/2006	HM-8 9/13/2006	HM-8 9/28/2006	HM-8 12/13/2006
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
General Chemistry (mg/L)														
Chloride	NA	**870**	NA	**730**	NA	**650**	NA	**530**	NA	300	NA	**580**	NA	**490**
Nitrogen, Nitrate(As N)	NA	0.68	NA	1.0	NA	0.39	NA	0.4	NA	0.29	NA	< 0.1	NA	< 1
Phosphorus, Total (As P)	NA	0.49	NA	0.38	NA	0.36	NA	NA	NA	1.4	NA	0.27	NA	0.24
Sulfate	NA	**740**	NA	460	NA	250	NA	280	NA	330	NA	340	NA	290
Total Dissolved Solids(residue, filterable)	NA	**3800**	NA	**3500**	NA	**2900**	NA	**3000**	NA	**2800**	NA	**2700**	NA	**3000**
Metals (mg/L)														
Arsenic, Dissolved	NA	**0.11**	NA	**0.12**	NA	**0.13**	NA	**0.068**	NA	**0.12**	NA	**0.11**	NA	**0.088**
Barium, Dissolved	NA	< 0.03	NA	0.05	NA	< 0.075	NA	NA	NA	0.034	NA	< 0.03	NA	0.041
Beryllium, Dissolved	NA	NA	NA	< 0.015	NA	< 0.075	NA	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA
Boron, Dissolved	NA	**7.3**	NA	**6.5**	NA	**4.4**	NA	**5.7**	NA	**6.4**	NA	**5.0**	NA	**5.9**
Cadmium, Dissolved	NA	NA	NA	< 0.015	NA	< 0.075	NA	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA
Calcium, Dissolved	NA	90	NA	66	NA	59	NA	48	NA	47	NA	48	NA	52
Chromium, Dissolved	NA	< 0.03	NA	< 0.015	NA	< 0.075	NA	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.03
Magnesium, Dissolved	NA	120	NA	93	NA	83	NA	65	NA	61	NA	61	NA	59
Manganese, Dissolved	NA	< 0.1	NA	< 0.5	NA	< 2.5	NA	< 0.5	NA	< 0.5	NA	< 1	NA	< 1
Molybdenum, Dissolved	NA	< 0.05	NA	< 0.025	NA	< 0.12	NA	0.033	NA	0.041	NA	< 0.05	NA	< 0.05
Nickel, Dissolved	NA	NA	NA	< 0.025	NA	< 0.12	NA	< 0.025	NA	< 0.025	NA	< 0.05	NA	NA
Potassium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	NA	0.0081	NA	0.015	NA	0.0092	NA	0.0054	NA	0.0041	NA	< 0.005	NA	< 0.002
Sodium, Dissolved	NA	1200	NA	870	NA	830	NA	910	NA	930	NA	930	NA	880
Titanium, Dissolved	NA	< 0.1	NA	< 0.05	NA	< 0.25	NA	< 0.05	NA	< 0.05	NA	< 0.1	NA	< 0.1
Vanadium, Dissolved	NA	< 0.03	NA	< 0.015	NA	< 0.075	NA	< 0.015	NA	< 0.015	NA	< 0.03	NA	**1.3**
TPH (mg/L)														
DRO (C10-C22)	NA	3.1	NA	2.2	NA	2.6	NA	0.063	NA	< 0.05	NA	< 0.05	NA	< 0.05
ORO (C22-C32)	NA	NA	NA	1.1	NA	0.93	NA	0.83	NA	0.64	NA	< 0.2	NA	0.46
Total (C10-C32)	NA	NA	NA	3.1	NA	3.3	NA	2.6	NA	2.2	NA	1.6	NA	1.3
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	2.2	NA	< 0.05	NA	0.052	NA	1.8	NA	1.5	NA	1.6	NA	0.88
VOC (µg/L)														
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Bromobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Bromodichloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Bromoform	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Bromomethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
n-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
sec-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
tert-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Chlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Chloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Chloroform	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Chloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
2-Chlorotoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
4-Chlorotoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2-Dibromo-3-chloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Dibromochloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2-Dibromoethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Dibromomethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,3-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,4-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Dichlorodifluoromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1-Dichloroethane	NA	0.9	NA	0.74	NA	0.58	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2-Dichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
cis-1,2-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
trans-1,2-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,3-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
2,2-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1-Dichloropropene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
cis-1,3-Dichloropropene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Ethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Ethylene	NA	< 3	NA	< 3	NA	< 3	NA	< 1	NA	< 3	NA	< 3	NA	< 1
Hexachlorobutadiene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Isopropylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
4-Isopropyltoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	< 0.5	NA	< 0.5	NA	< 1	NA	< 0.5	NA	< 0.5	NA	< 1	NA	< 1
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene (VOC)	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
n-Propylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Styrene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1,1,2-Tetrachloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1,2,2-Tetrachloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Tetrachloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Toluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2,3-Trichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2,4-Trichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1,1-Trichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,1,2-Trichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Trichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Trichlorofluoromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2,3-Trichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,2,4-Trimethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
1,3,5-Trimethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Vinyl chloride	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
m,p-Xylene	NA	< 1	NA	< 1	NA	< 0.5	NA	< 1	NA	< 0.5	NA	< 1	NA	< 1
o-Xylene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	HM-8 12/14/2006	HM-8 3/7/2007	HM-8 3/19/2007	HM-8 6/14/2007	HM-8 7/3/2007	HM-8 9/5/2007	HM-8 9/10/2007	HM-8 12/7/2007	HM-8 12/14/2007	HM-8 3/6/2008	HM-8 6/5/2008	HM-8 6/11/2008	HM-8 9/11/2008	HM-8 12/12/2008	HM-8 3/5/2009	HM-8 3/9/2009	HM-8 6/11/2009	HM-8 6/11/2009	HM-8 9/17/2009
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
General Chemistry (mg/L)																			
Chloride	NA	**490**	NA	**680**	NA	**630**	NA	**790**	NA	**670**	**810**	NA	**780**	110	**670**	NA	110	110	**580**
Nitrogen, Nitrate(As N)	NA	< 1	NA	< 0.1	NA	< 0.1	NA	0.12	NA	< 0.1	< 0.1	NA	< 0.2	1.3	< 0.2	NA	0.79	0.72	< 0.1
Phosphorus, Total (As P)	NA	< 0.02	NA	0.48	NA	0.2	NA	0.2	NA	3.1	0.4	NA	0.23	0.058	0.42	NA	0.057	0.059	0.23
Sulfate	NA	450	NA	**730**	NA	**670**	NA	**920**	NA	**660**	**910**	NA	**630**	**780**	340	NA	**790**	**800**	320
Total Dissolved Solids(residue, filterable)	NA	**2600**	NA	**2400**	NA	**3000**	NA	**4000**	NA	**3800**	**4000**	NA	**3700**	**1600**	**3100**	NA	**1600**	**1600**	**2600**
Metals (mg/L)																			
Arsenic, Dissolved	NA	**0.045**	NA	**0.073**	NA	**0.092**	NA	**0.083**	NA	**0.037**	**0.051**	NA	**0.078**	**0.059**	**0.079**	NA	**0.02**	**0.022**	**0.071**
Barium, Dissolved	NA	0.035	NA	0.073	NA	0.056	NA	0.053	NA	0.045	0.06	NA	0.045	0.017	0.045	NA	0.017	0.019	0.04
Beryllium, Dissolved	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003
Boron, Dissolved	NA	**4.0**	NA	**8.0**	NA	**7.0**	NA	**8.0**	NA	**8.9**	NA	NA	**7.6**	2.3	**6.9**	NA	2.4	2.5	**5.3**
Cadmium, Dissolved	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	NA	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003
Calcium, Dissolved	NA	40	NA	67	NA	72	NA	75	NA	76	100	NA	72	49	51	NA	56	57	48
Chromium, Dissolved	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	0.0034	0.004	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003
Magnesium, Dissolved	NA	53	NA	99	NA	100	NA	120	NA	120	140	NA	110	23	85	NA	27	27	59
Manganese, Dissolved	NA	< 0.5	NA	< 0.5	NA	**0.12**	NA	**0.12**	NA	**0.12**	**0.11**	NA	< 0.1	< 0.1	< 0.1	NA	< 0.1	< 0.1	< 0.1
Molybdenum, Dissolved	NA	0.026	NA	0.033	NA	0.026	NA	0.031	NA	0.035	0.028	NA	0.024	0.069	0.025	NA	0.062	0.063	0.055
Nickel, Dissolved	NA	< 0.025	NA	0.031	NA	0.028	NA	0.031	NA	0.038	0.03	NA	0.029	< 0.005	0.028	NA	< 0.005	< 0.005	0.021
Potassium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20
Selenium, Dissolved	NA	0.0035	NA	< 0.005	NA	< 0.005	NA	< 0.005	NA	0.0083	0.0056	NA	< 0.01	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01
Sodium, Dissolved	NA	770	NA	1300	NA	1100	NA	1200	NA	1100	1400	NA	1200	440	1100	NA	440	390	800
Titanium, Dissolved	NA	< 0.05	NA	< 0.05	NA	< 0.01	NA	< 0.1	NA	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01
Vanadium, Dissolved	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003	0.028	< 0.003	NA	0.021	0.021	< 0.003
TPH (mg/L)																			
DRO (C10-C22)	NA	0.057	NA	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05	0.05	NA	2.5	< 0.2	1.0	NA	< 0.2	< 0.2	0.87
ORO (C22-C32)	NA	0.6	NA	0.65	NA	< 0.2	NA	0.62	NA	< 0.2	0.57	NA	0.88	< 0.2	0.26	NA	< 0.2	< 0.2	< 0.2
Total (C10-C32)	NA	1.6	NA	2.0	NA	< 0.4	NA	2.8	NA	< 0.4	2.4	NA	3.4	< 0.4	1.3	NA	< 0.4	< 0.4	0.87
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	1.0	NA	1.3	NA	< 0.2	NA	2.1	NA	< 0.2	1.8	NA	< 0.05	< 0.05	< 0.05	NA	< 0.05	< 0.05	< 0.05
VOC (µg/L)																			
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Bromobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Bromodichloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Bromoform	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Bromomethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	1.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
n-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
sec-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
tert-Butylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Chlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Chloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Chloroform	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Chloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
2-Chlorotoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 1	< 1	< 1
Dibromochloromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Dibromomethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,3-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
2,2-Dichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1-Dichloropropene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Ethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Ethylene	NA	< 3	NA	< 1	NA	< 3	NA	< 3	NA	< 3	< 3	NA	< 3	< 0.5	< 3	NA	< 3	< 3	< 3
Hexachlorobutadiene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Isopropylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
4-Isopropyltoluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	< 1	< 1	NA	< 1	< 1	< 1
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene (VOC)	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
n-Propylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Styrene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Tetrachloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Toluene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2,3-Trichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Trichloroethene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2,3-Trichloropropane	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,2,4-Trimethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Vinyl chloride	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
m,p-Xylene	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	< 1	< 1	NA	< 1	< 1	< 1
o-Xylene	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	HM-8 12/12/2009	HM-8 3/12/2010	HM-8 6/6/2010	HM-8 9/22/2010	HM-8 12/13/2010	HM-8 2/28/2011	HM-8 3/1/2011	HM-8 6/9/2011	HM-8 9/14/2011	HM-8 12/12/2011	Current Screening Levels			
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)														
Chloride	**580**	**570**	**660**	**560**	**451**	**448**	NA	**559**	**420**	**400**	NA	400	NA	NA
Nitrogen, Nitrate(As N)	< 0.2	< 0.1	< 0.1	< 1	0.28	< 0.5	NA	< 0.5	< 2	< 0.1	10	NA	10	25
Phosphorus, Total (As P)	0.22	0.12	0.34	0.23	0.17	0.12	NA	0.31	0.78	2.8	NA	NA	NA	NA
Sulfate	320	310	310	199	293	**540**	NA	390	460	**590**	NA	500	NA	NA
Total Dissolved Solids(residue, filterable)	**2800**	**3000**	**3100**	**2850**	**2950**	**2560**	NA	**2750**	**2860**	**2660**	NA	1000	NA	NA
Metals (mg/L)														
Arsenic, Dissolved	**0.094**	**0.059**	**0.054**	**0.0774**	**0.0521**	**0.0508**	NA	**0.0529**	**0.098**	**0.060**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.038	0.022	0.045	0.0413	0.0473	0.0550	NA	0.0478	0.043	0.048	2	NA	2	2.9
Beryllium, Dissolved	< 0.003	< 0.003	< 0.003	< 0.001	< 0.001	< 0.001	NA	< 0.001	< 0.003	< 0.003	0.004	NA	0.004	0.016
Boron, Dissolved	**6.0**	2.1	**6.1**	**5.88**	**5.43**	**5.21**	NA	**5.43**	**4.7**	**4.5**	NA	NA	7.3	3.1
Cadmium, Dissolved	< 0.003	< 0.003	< 0.003	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.003	< 0.003	0.005	NA	0.005	0.0069
Calcium, Dissolved	55	54	59	46.2	44.9	55.5	NA	53.5	54	67	NA	NA	NA	NA
Chromium, Dissolved	< 0.003	< 0.003	< 0.003	< 0.005	< 0.005	< 0.005	NA	< 0.005	< 0.005	< 0.005	0.1	NA	NA	NA
Magnesium, Dissolved	63	24	76	65.6	53.1	58.8	NA	56.7	56	66	NA	150	207	NA
Manganese, Dissolved	< 0.1	< 0.1	< 0.1	0.0746	0.0206	0.0705	NA	0.0663	0.085	0.082	NA	0.1	5.11	0.32
Molybdenum, Dissolved	0.043	0.057	0.022	0.0256	0.0355	0.0330	NA	0.0216	0.021	0.022	NA	NA	0.183	0.078
Nickel, Dissolved	0.022	< 0.005	0.026	0.0269	0.0215	0.0163	NA	0.0137	0.011	0.0056	NA	NA	0.73	0.3
Potassium, Dissolved	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	< 0.01	< 0.01	< 0.01	< 0.015	< 0.015	< 0.015	NA	< 0.015	< 0.02	< 0.02	0.05	NA	0.05	0.078
Sodium, Dissolved	990	360	1000	925	846	948	NA	891	840	870	NA	NA	NA	NA
Titanium, Dissolved	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	< 0.01	< 0.005	< 0.005	NA	NA	146	NA
Vanadium, Dissolved	< 0.003	0.022	< 0.003	< 0.01	< 0.01	< 0.01	NA	< 0.01	< 0.003	< 0.003	NA	NA	0.183	0.078
TPH (mg/L)														
DRO (C10-C22)	1.2	3.3	10	4.2	2.7	NA	2.7	2.1	7.2	< 1	NA	NA	NA	NA
ORO (C22-C32)	0.24	1.6	4.2	0.69	< 0.5	NA	< 0.5	< 0.5	1.7	< 1	NA	NA	NA	NA
Total (C10-C32)	1.4	4.9	14	4.8	3.0	NA	2.8	2.3	NA	< 1	NA	NA	NA	NA
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	NA	8.9	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	< 0.05	< 0.05	< 0.05	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 1	< 1	NA	NA	NA	NA
VOC (µg/L)														
Acetone	NA	NA	NA	NA	< 10	< 10	NA	< 10	< 10	< 50	NA	NA	21,800	12,000
Benzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.39
Bromobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	87.6	54
Bromodichloromethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	80	NA	0.117	0.12
Bromoform	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	80	NA	8.51	7.9
Bromomethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	8.66	7
n-Butylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	254	780
sec-Butylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	254	NA
tert-Butylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	254	NA
Carbon Disulfide	NA	NA	NA	NA	< 5	< 5	NA	< 5	< 5	< 5	NA	NA	1040	720
Carbon tetrachloride	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.39
Chlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	100	NA	100	72
Chloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	23.2	NA
Chloroform	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	0.193	0.19
Chloromethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	2.7	190
2-Chlorotoluene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	91.25	180
4-Chlorotoluene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	NA	190
1,2-Dibromo-3-chloropropane	< 1	< 1	< 1	< 2.5	< 2.5	< 2.5	NA	< 2.5	< 5	< 5	0.2	NA	0.2	0.00032
Dibromochloromethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	80	NA	0.147	0.15
1,2-Dibromoethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	0.05	NA	0.05	0.0065
Dibromomethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	8.16	7.9
1,2-Dichlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	600	NA	600	280
1,3-Dichlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	86.7	NA
1,4-Dichlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	75	NA	75	0.42
Dichlorodifluoromethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	395	190
1,1-Dichloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	2.42	2.4
1,2-Dichloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.15
1,1-Dichloroethene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	7	NA	7	260
cis-1,2-Dichloroethene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	70	NA	70	28
trans-1,2-Dichloroethene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	100	NA	100	86
1,2-Dichloropropane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.38
1,3-Dichloropropane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	8.25	290
2,2-Dichloropropane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	NA	NA
1,1-Dichloropropene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	NA	NA
Ethylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	700	NA	700	1.3
Ethylene	< 3	< 3	< 3	< 10	< 10	< 10	NA	< 10	< 0.013	< 0.013	NA	NA	NA	NA
Hexachlorobutadiene	< 0.5	< 0.5	< 1	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	0.862	0.26
Isopropylbenzene	< 0.5	< 0.5	< 1	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	679	390
4-Isopropyltoluene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	834	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	< 10	< 10	NA	< 10	< 10	< 10	NA	NA	1990	1000
Methylene chloride	< 1	< 1	< 5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	4.7
Methyl-tert-butyl ether	NA	NA	NA	NA	2.6	< 1	NA	2.9	< 5	< 5	NA	NA	12.5	12
Naphthalene (VOC)	< 0.5	< 0.5	< 5	< 10	NA	< 10	NA	< 10	< 5	< 5	NA	NA	0.143	0.14
n-Propylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	254	530
Styrene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	100	NA	100	1100
1,1,1,2-Tetrachloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	0.524	0.5
1,1,2,2-Tetrachloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	0.0671	0.066
Tetrachloroethene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.072
Toluene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	1000	NA	1000	860
1,2,3-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	NA	5.2
1,2,4-Trichlorobenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	70	NA	70	0.99
1,1,1-Trichloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	200	NA	200	7500
1,1,2-Trichloroethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.24
Trichloroethene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	5	NA	5	0.44
Trichlorofluoromethane	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	1290	1100
1,2,3-Trichloropropane	< 0.5	< 0.5	< 0.5	< 2.5	< 2.5	< 2.5	NA	< 2.5	< 5	< 5	NA	NA	0.00224	0.00065
1,2,4-Trimethylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	14.5	87
Vinyl chloride	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	2	NA	2	0.015
m,p-Xylene	< 1	< 1	< 0.5	< 2	< 2	< 2	NA	< 2	< 10	< 10	10,000	NA	10,000	190
o-Xylene	< 0.5	< 0.5	< 0.5	< 1	< 1	< 1	NA	< 1	< 5	< 5	NA	NA	1220	190
Total Xylenes	NA	NA	NA	NA	< 3	< 3	NA	< 3	< 15	< 15	10,000	NA	10,000	190

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-8 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)*- - Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).
Data Validation Qualifiers:
CU = The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
D3 = Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H1 = Analysis conducted outside the EPA method holding time.
L3 = Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

Table E-22 SA-10 Monitoring Well HM-48
Groundwater Monitoring Data

Parameter Name	HM-48 3/31/2005	HM-48 6/10/2005	HM-48 9/8/2005	HM-48 12/7/2005	HM-48 3/8/2006	HM-48 3/30/2006	HM-48 6/7/2006	HM-48 6/12/2006	HM-48 9/13/2006	HM-48 9/28/2006	HM-48 12/13/2006	HM-48 12/14/2006	HM-48 3/7/2007	HM-48 3/19/2007
	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
General Chemistry (mg/L)														
Chloride	NA	160	190	160	150	NA	130	NA	200	NA	140	NA	140	NA
Nitrogen, Nitrate(As N)	NA	2.0	2.2	3.5	1.7	NA	1.4	NA	1.1	NA	1.9	NA	2.5	NA
Phosphorus, Total (As P)	NA	0.073	< 0.02	0.072	NA	NA	< 0.02	NA	0.067	NA	NA	NA	< 0.02	NA
Sulfate	NA	**1400**	**1100**	**1100**	**970**	NA	**940**	NA	**1400**	NA	**920**	NA	**870**	NA
Total Dissolved Solids(residue, filterable)	NA	**2600**	**2500**	**2300**	**2500**	NA	**2000**	NA	**1900**	NA	**2400**	NA	**1800**	NA
Metals (mg/L)														
Arsenic, Dissolved	NA	**0.053**	**0.03**	**0.036**	**0.044**	NA	**0.034**	NA	**0.045**	NA	**0.046**	NA	**0.043**	NA
Barium, Dissolved	NA	< 0.03	0.047	< 0.03	NA	NA	0.025	NA	< 0.03	NA	NA	NA	0.02	NA
Beryllium, Dissolved	NA	NA	< 0.015	< 0.03	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA
Boron, Dissolved	NA	**3.7**	**3.9**	2.3	**3.2**	NA	**3.6**	NA	2.9	NA	**3.2**	NA	2.6	NA
Cadmium, Dissolved	NA	NA	< 0.015	< 0.03	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA
Calcium, Dissolved	NA	98	100	84	71	NA	70	NA	75	NA	67	NA	50	NA
Chromium, Dissolved	NA	< 0.03	< 0.015	< 0.03	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.03	NA	< 0.015	NA
Magnesium, Dissolved	NA	51	52	40	35	NA	34	NA	35	NA	30	NA	25	NA
Manganese, Dissolved	NA	< 0.1	< 0.5	< 1	< 0.5	NA	< 0.5	NA	< 1	NA	< 1	NA	< 0.5	NA
Molybdenum, Dissolved	NA	0.063	0.076	**0.1**	0.076	NA	**0.078**	NA	0.073	NA	0.074	NA	0.056	NA
Nickel, Dissolved	NA	NA	< 0.025	< 0.05	< 0.025	NA	< 0.025	NA	< 0.05	NA	NA	NA	< 0.025	NA
Selenium, Dissolved	NA	0.048	0.025	0.029	0.032	NA	0.02	NA	0.02	NA	0.023	NA	0.016	NA
Sodium, Dissolved	NA	670	620	530	540	NA	540	NA	550	NA	470	NA	420	NA
Titanium, Dissolved	NA	< 0.1	< 0.05	< 0.1	< 0.05	NA	< 0.05	NA	< 0.1	NA	< 0.1	NA	< 0.05	NA
Vanadium, Dissolved	NA	< 0.03	0.028	< 0.03	0.024	NA	0.023	NA	< 0.03	NA	< 0.4	NA	0.026	NA
TPH (mg/L)														
DRO (C10-C22)	NA	< 0.2	< 0.2	< 0.2	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05	NA
ORO (C22-C32)	NA	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA
Total (C10-C32)	NA	< 0.4	< 0.4	< 0.4	< 0.4	NA	< 0.4	NA	< 0.4	NA	< 0.4	NA	< 0.4	NA
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	< 0.05	< 0.05	< 0.05	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA
VOC (µg/L)														
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Bromobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Bromodichloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Bromoform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Bromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
n-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
sec-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
tert-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Chlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Chloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Chloroform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Chloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
2-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
4-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2-Dibromo-3-chloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Dibromochloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2-Dibromoethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Dibromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,3-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,4-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Dichlorodifluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1-Dichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2-Dichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1-Dichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
cis-1,2-Dichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
trans-1,2-Dichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,3-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
2,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
cis-1,3-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Ethylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Ethylene	NA	< 3	< 3	< 3	< 1	NA	< 3	NA	< 3	NA	< 1	NA	< 3	NA
Hexachlorobutadiene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Isopropylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
4-Isopropyltoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	< 0.5	< 0.5	< 1	< 0.5	NA	< 0.5	NA	< 1	NA	< 1	NA	< 1	NA
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene (VOC)	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
n-Propylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Styrene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1,1,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1,2,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Tetrachloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Toluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2,3-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2,4-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1,1-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,1,2-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Trichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Trichlorofluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2,3-Trichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,2,4-Trimethylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
1,3,5-Trimethylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Vinyl chloride	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
m,p-Xylene	NA	< 1	< 1	< 0.5	< 1	NA	< 0.5	NA	< 1	NA	< 1	NA	< 1	NA
o-Xylene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Parameter Name	HM-48 6/14/2007	HM-48 7/3/2007	HM-48 9/5/2007	HM-48 9/10/2007	HM-48 12/7/2007	HM-48 12/14/2007	HM-48 3/6/2008	HM-48 6/5/2008	HM-48 6/11/2008	HM-48 9/11/2008	HM-48 12/12/2008	HM-48 3/5/2009	HM-48 3/9/2009	HM-48 6/11/2009	HM-48 9/17/2009	HM-48 12/12/2009	HM-48 3/12/2010	HM-48 6/6/2010	HM-48 6/6/2010
	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
General Chemistry (mg/L)																			
Chloride	150	NA	130	NA	120	NA	120	130	NA	130	**730**	100	NA	**650**	140	110	100	150	130
Nitrogen, Nitrate(As N)	0.89	NA	2.0	NA	1.9	NA	1.1	0.67	NA	1.8	< 0.1	1.0	NA	< 0.2	< 0.1	1.4	0.91	0.91	0.87
Phosphorus, Total (As P)	< 0.02	NA	0.057	NA	0.02	NA	0.12	0.04	NA	0.058	0.31	< 0.02	NA	0.26	0.091	0.041	0.068	0.076	0.064
Sulfate	**880**	NA	**830**	NA	**890**	NA	**760**	**920**	NA	**890**	410	**760**	NA	320	**540**	**770**	**640**	**850**	**850**
Total Dissolved Solids(residue, filterable)	**1700**	NA	**1400**	NA	**1800**	NA	**1700**	**1900**	NA	**1800**	**3300**	**1500**	NA	**3100**	**1700**	**1300**	**1400**	**1900**	**1800**
Metals (mg/L)																			
Arsenic, Dissolved	**0.058**	NA	**0.044**	NA	**0.045**	NA	**0.046**	**0.048**	NA	**0.047**	**0.07**	**0.072**	NA	**0.053**	**0.031**	**0.05**	**0.046**	**0.029**	**0.031**
Barium, Dissolved	0.027	NA	0.018	NA	0.02	NA	0.019	0.022	NA	0.019	0.034	0.02	NA	0.044	0.078	0.02	0.038	0.032	0.026
Beryllium, Dissolved	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	NA	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Boron, Dissolved	**3.9**	NA	2.9	NA	**3.1**	NA	3.0	3.0	NA	2.8	**7.1**	2.5	NA	**6.4**	3.0	2.2	**5.7**	2.9	2.6
Cadmium, Dissolved	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Calcium, Dissolved	74	NA	62	NA	59	NA	57	66	NA	59	53	51	NA	52	47	56	57	75	70
Chromium, Dissolved	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	0.003	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Magnesium, Dissolved	37	NA	30	NA	31	NA	30	31	NA	28	92	26	NA	80	24	23	65	37	34
Manganese, Dissolved	< 0.5	NA	< 0.1	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1	< 0.1	< 0.1	NA	< 0.1	**1.6**	< 0.1	< 0.1	**0.13**	**0.1**
Molybdenum, Dissolved	0.066	NA	0.061	NA	0.072	NA	0.075	0.074	NA	0.075	0.02	0.069	NA	0.02	0.038	0.06	0.029	0.057	0.057
Nickel, Dissolved	< 0.025	NA	< 0.005	NA	< 0.005	NA	< 0.005	< 0.005	NA	< 0.005	0.027	< 0.005	NA	0.024	< 0.005	< 0.005	0.021	< 0.005	< 0.005
Selenium, Dissolved	0.014	NA	0.019	NA	0.023	NA	0.017	0.016	NA	0.018	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sodium, Dissolved	660	NA	500	NA	500	NA	470	550	NA	490	1100	450	NA	1100	550	410	900	540	440
Titanium, Dissolved	< 0.05	NA	< 0.01	NA	< 0.1	NA	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Vanadium, Dissolved	0.02	NA	0.027	NA	0.031	NA	0.029	0.023	NA	0.028	< 0.003	0.025	NA	< 0.003	0.013	0.027	< 0.003	0.02	0.019
TPH (mg/L)																			
DRO (C10-C22)	< 0.05	NA	< 0.05	NA	< 0.05	NA	< 0.05	< 0.05	NA	< 0.2	1.1	< 0.2	NA	0.94	< 0.2	< 0.2	< 0.2	0.18	< 0.1
ORO (C22-C32)	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	< 0.2	NA	< 0.2	0.41	< 0.2	NA	0.27	< 0.2	< 0.2	< 0.2	< 0.1	0.11
Total (C10-C32)	< 0.4	NA	< 0.4	NA	< 0.4	NA	< 0.4	< 0.4	NA	< 0.4	1.5	< 0.4	NA	1.2	< 0.4	< 0.4	< 0.4	0.18	0.11
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	< 0.2	NA	< 0.05	< 0.05	< 0.05	NA	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
VOC (µg/L)																			
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Butylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
sec-Butylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
tert-Butylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Chlorotoluene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Chlorotoluene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromo-3-chloropropane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 1	< 1	< 1	< 1	< 1	< 1
Dibromochloromethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dibromoethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibromomethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2,2-Dichloropropane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloropropene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene	< 1	NA	< 3	NA	< 3	NA	< 3	< 3	NA	< 3	< 0.5	< 3	NA	< 3	< 3	< 3	< 3	< 3	< 3
Hexachlorobutadiene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1
Isopropylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 1	< 1
4-Isopropyltoluene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	< 1	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene (VOC)	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5
n-Propylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trichlorobenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,3-Trichloropropane	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2,4-Trimethylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Vinyl chloride	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m,p-Xylene	< 1	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 0.5	< 0.5
o-Xylene	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Parameter Name	HM-48 9/22/2010	HM-48 9/22/2010	HM-48 11/18/2010	HM-48 12/13/2010	HM-48 2/28/2011	HM-48 2/28/2011	HM-48 6/9/2011	HM-48 9/14/2011	HM-48 12/12/2011	Current Screening Levels			
	Result	Result	Result	Result	Result	Result	Result	Result	Result	Nevada Primary MCL	Nevada Secondary MCL	NDEP BCL - Residential Water 2012	EPA RSL - Tap Water 2011
General Chemistry (mg/L)													
Chloride	155	152	NA	102	159	164	155	120	150	NA	400	NA	NA
Nitrogen, Nitrate(As N)	1.2	1.3	NA	< 1	1.4	1.3	1.8	< 2	1.6	10	NA	10	25
Phosphorus, Total (As P)	< 0.1	< 0.1	NA	0.18	< 0.1	< 0.1	0.13	0.14	0.36	NA	NA	NA	NA
Sulfate	**708**	**714**	NA	214	**677**	**675**	**720**	**800**	**810**	NA	500	NA	NA
Total Dissolved Solids(residue, filterable)	**1920**	**1870**	NA	**1430**	**2070**	**2190**	**2260**	**1682**	**1642**	NA	1000	NA	NA
Metals (mg/L)													
Arsenic, Dissolved	**0.0267**	**0.0272**	NA	**0.0162**	**0.0325**	**0.0358**	**0.0410**	**0.033**	**0.038**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.0408	0.0383	NA	0.140	0.102	0.0987	0.0389	0.022	0.025	2	NA	2	2.9
Beryllium, Dissolved	< 0.001	< 0.001	NA	< 0.001	< 0.001	< 0.001	< 0.001	< 0.003	< 0.003	0.004	NA	0.004	0.016
Boron, Dissolved	3.04	2.92	NA	1.22	**3.12**	3.05	**3.18**	2.1	2.0	NA	NA	7.3	3.1
Cadmium, Dissolved	< 0.005	< 0.005	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.003	< 0.003	0.005	NA	0.005	0.0069
Calcium, Dissolved	56.1	46.0	NA	28.7	53.9	53.4	68.4	66	88	NA	NA	NA	NA
Chromium, Dissolved	< 0.005	< 0.005	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.1	NA	NA	NA
Magnesium, Dissolved	35.2	32.0	NA	34.6	37.8	37.0	40.5	33	42	NA	150	207	NA
Manganese, Dissolved	0.0949	0.0936	NA	< 0.005	**0.811**	**0.771**	**0.392**	0.046	0.070	NA	0.1	5.11	0.32
Molybdenum, Dissolved	0.0523	0.0524	NA	< 0.02	0.0412	0.0400	0.0440	0.048	0.051	NA	NA	0.183	0.078
Nickel, Dissolved	< 0.005	< 0.005	NA	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	NA	NA	0.73	0.3
Selenium, Dissolved	< 0.015	< 0.015	NA	< 0.015	< 0.015	< 0.015	< 0.015	< 0.02	< 0.02	0.05	NA	0.05	0.078
Sodium, Dissolved	590	473	NA	372	672	662	598	410	410	NA	NA	NA	NA
Titanium, Dissolved	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.005	NA	NA	146	NA
Vanadium, Dissolved	< 0.01	0.0115	NA	< 0.01	0.0160	0.0158	0.0158	0.011	0.013	NA	NA	0.183	0.078
TPH (mg/L)													
DRO (C10-C22)	< 0.5	< 0.5	NA	0.91	0.60	0.68	< 0.5	570	480	NA	NA	NA	NA
ORO (C22-C32)	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 50	NA	NA	NA	NA
Total (C10-C32)	< 0.5	< 0.5	NA	0.99	0.65	0.73	< 0.5	NA	480	NA	NA	NA	NA
Total (C6-C32)	NA	NA	NA	NA	NA	NA	NA	570	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 50	< 50	NA	NA	NA	NA
VOC (µg/L)													
Acetone	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 50	NA	NA	21,800	12,000
Benzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.39
Bromobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	87.6	54
Bromodichloromethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	80	NA	0.117	0.12
Bromoform	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	80	NA	8.51	7.9
Bromomethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	8.66	7
n-Butylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	254	780
sec-Butylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	254	NA
tert-Butylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	254	NA
Carbon Disulfide	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	1040	720
Carbon tetrachloride	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.39
Chlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	100	NA	100	72
Chloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	23.2	NA
Chloroform	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	0.193	0.19
Chloromethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	2.7	190
2-Chlorotoluene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	91.25	180
4-Chlorotoluene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	NA	190
1,2-Dibromo-3-chloropropane	< 2.5	< 2.5	NA	< 2.5	< 2.5	< 2.5	< 2.5	< 5	< 5	0.2	NA	0.2	0.00032
Dibromochloromethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	80	NA	0.147	0.15
1,2-Dibromoethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	0.05	NA	0.05	0.0065
Dibromomethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	8.16	7.9
1,2-Dichlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	600	NA	600	280
1,3-Dichlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	86.7	NA
1,4-Dichlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	75	NA	75	0.42
Dichlorodifluoromethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	395	190
1,1-Dichloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	2.42	2.4
1,2-Dichloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.15
1,1-Dichloroethene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	7	NA	7	260
cis-1,2-Dichloroethene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	70	NA	70	28
trans-1,2-Dichloroethene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	100	NA	100	86
1,2-Dichloropropane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.38
1,3-Dichloropropane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	8.25	290
2,2-Dichloropropane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	NA	NA
1,1-Dichloropropene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	NA	NA
Ethylbenzene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 5	700	NA	700	1.3
Ethylene	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 0.013	< 0.013	NA	NA	NA	NA
Hexachlorobutadiene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	0.862	0.26
Isopropylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	679	390
4-Isopropyltoluene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	834	NA
4-Methyl-2-Pentanone	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	1990	1000
Methylene chloride	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	4.7
Methyl-tert-butyl ether	NA	NA	< 1	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	12.5	12
Naphthalene (VOC)	< 10	< 10	NA	NA	< 10	< 10	< 10	< 5	< 5	NA	NA	0.143	0.14
n-Propylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	254	530
Styrene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	100	NA	100	1100
1,1,1,2-Tetrachloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	0.524	0.5
1,1,2,2-Tetrachloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	0.0671	0.066
Tetrachloroethene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.072
Toluene	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5	< 5	1000	NA	1000	860
1,2,3-Trichlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	NA	5.2
1,2,4-Trichlorobenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	70	NA	70	0.99
1,1,1-Trichloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	200	NA	200	7500
1,1,2-Trichloroethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.24
Trichloroethene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	5	NA	5	0.44
Trichlorofluoromethane	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	1290	1100
1,2,3-Trichloropropane	< 2.5	< 2.5	NA	< 2.5	< 2.5	< 2.5	< 2.5	< 5	< 5	NA	NA	0.00224	0.00065
1,2,4-Trimethylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	14.5	87
Vinyl chloride	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	2	NA	2	0.015
m,p-Xylene	< 2	< 2	NA	< 2	< 2	< 2	< 2	< 10	< 10	10,000	NA	10,000	190
o-Xylene	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 5	< 5	NA	NA	1220	190
Total Xylenes	NA	NA	< 3	< 3	< 3	< 3	< 3	< 15	< 15	10,000	NA	10,000	190

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-8 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* — Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other
Data Validation Qualifiers:
CU = The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
H1 = Analysis conducted outside the EPA method holding time.
L3 = Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

Table E-23 SA-10 Monitoring Well HM-50 and HM-50R
Groundwater Monitoring Data

ParameterName	HM-50 3/31/2005 Result	HM-50 6/10/2005 Result	HM-50 9/8/2005 Result	HM-50 12/7/2005 Result	HM-50 3/8/2006 Result	HM-50 3/30/2006 Result	HM-50 6/7/2006 Result	HM-50 6/12/2006 Result	HM-50 9/13/2006 Result	HM-50 9/28/2006 Result	HM-50 12/13/2006 Result	HM-50 12/14/2006 Result	HM-50 3/7/2007 Result	HM-50 3/19/2007 Result	HM-50 6/14/2007 Result	HM-50 7/3/2007 Result	HM-50 9/5/2007 Result	HM-50 9/10/2007 Result	HM-50 12/7/2007 Result	HM-50 12/14/2007 Result	HM-50 3/6/2008 Result	HM-50 6/5/2008 Result	HM-50 6/11/2008 Result	HM-50 9/11/2008 Result	HM-50 12/12/2008 Result	HM-50 3/5/2009 Result	HM-50 3/9/2009 Result	HM-50 6/11/2009 Result	HM-50 9/17/2009 Result	HM-50 12/12/2009 Result	HM-50 6/9/2010 Result	HM-50R[5] 9/14/2011 Result	HM-50R[5] 12/12/2011 Result	Current Screening Levels Federal/Nevada Primary MCL[1]	Current Screening Levels Nevada Secondary MCL[2]	Current Screening Levels NDEP BCL - Residential Water[3]	Current Screening Levels EPA Tap Water[4]
General Chemistry (mg/L)																																					
Chloride	NA	210	180	120	110	NA	110	NA	370	NA	110	NA	110	NA	280	NA	180	NA	130	NA	220	200	NA	200	160	180	NA	230	NA	NA	NA	NA	NA	NA	400	NA	NA
Nitrogen, Nitrate(As N)	NA	0.22	1.0	0.42	0.38	NA	0.31	NA	< 0.1	NA	< 1	NA	< 1	NA	< 0.1	NA	< 0.1	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	NA	NA	NA	NA	10	NA	10	25
Phosphorus, Total (As P)	NA	0.82	0.58	0.36	NA	NA	0.36	NA	0.97	NA	0.24	NA	0.033	NA	1.2	NA	0.43	NA	0.39	NA	0.057	0.64	NA	0.46	0.34	0.56	NA	0.48	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	NA	400	**540**	**540**	460	NA	450	NA	320	NA	390	NA	440	NA	**750**	NA	**1200**	NA	430	NA	**760**	**1100**	NA	**1000**	**620**	**700**	NA	**630**	NA	NA	NA	NA	NA	NA	500	NA	NA
Total Dissolved Solids(residue, filterable)	NA	**3300**	**3400**	**2700**	**2900**	NA	**2700**	NA	**3500**	NA	440	NA	**2300**	NA	**2200**	NA	**2100**	NA	**2200**	NA	**3000**	**2300**	NA	**2300**	**2400**	**3000**	NA	**3100**	NA	NA	NA	NA	NA	NA	1000	NA	NA
Metals (mg/L)																																					
Arsenic, Dissolved	NA	**0.056**	**0.1**	**0.12**	**0.13**	NA	**0.093**	NA	**0.11**	NA	**0.077**	NA	**0.064**	NA	**0.027**	NA	< 0.01	NA	**0.11**	NA	**0.092**	**0.044**	NA	**0.053**	**0.086**	**0.12**	NA	**0.087**	NA	NA	NA	NA	NA	0.01	NA	0.01	0.000045
Barium, Dissolved	NA	< 0.03	0.27	0.034	NA	NA	0.035	NA	0.22	NA	NA	NA	0.02	NA	0.09	NA	0.075	NA	0.072	NA	0.17	0.099	NA	0.057	0.042	0.065	NA	0.23	NA	NA	NA	NA	NA	2	NA	2	2.9
Beryllium, Dissolved	NA	NA	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	NA	NA	NA	NA	0.004	NA	0.004	0.016
Boron, Dissolved	NA	**4.1**	**3.4**	2.0	2.4	NA	2.7	NA	**5.5**	NA	2.7	NA	1.8	NA	**4.1**	NA	2.5	NA	2.4	NA	**4.0**	2.0	NA	2.4	2.4	2.9	NA	**3.5**	NA	NA	NA	NA	NA	NA	NA	7.3	3.1
Cadmium, Dissolved	NA	NA	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	< 0.003	< 0.003	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	NA	NA	NA	NA	0.005	NA	0.005	0.0069
Calcium, Dissolved	NA	11	5.2	NA	NA	NA	NA	NA	< 5	NA	NA	NA	< 2.5	NA	15	NA	66	NA	< 5	NA	15	110	NA	40	3.3	3.4	NA	9.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	NA	< 0.03	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.03	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	0.0034	0.004	NA	< 0.003	< 0.003	< 0.003	NA	< 0.003	NA	NA	NA	NA	NA	0.1	NA	NA	NA
Magnesium, Dissolved	NA	45	19	NA	NA	NA	0.98	NA	13	NA	< 1	NA	0.92	NA	23	NA	37	NA	2.1	NA	53	55	NA	28	6.3	9.8	NA	29	NA	NA	NA	NA	NA	NA	150	207	NA
Manganese, Dissolved	NA	< 0.1	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 1	NA	< 1	NA	< 0.5	NA	< 0.5	NA	< 0.1	NA	< 0.1	NA	< 0.1	< 0.1	NA	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	NA	NA	NA	NA	NA	0.1	5.11	0.32
Molybdenum, Dissolved	NA	0.066	0.071	0.037	0.035	NA	0.033	NA	**0.16**	NA	< 0.05	NA	0.028	NA	0.065	NA	0.012	NA	0.039	NA	0.068	0.05	NA	0.055	0.046	0.063	NA	0.062	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
Nickel, Dissolved	NA	NA	< 0.025	< 0.025	< 0.025	NA	< 0.025	NA	< 0.05	NA	NA	NA	< 0.025	NA	< 0.025	NA	< 0.005	NA	< 0.005	NA	0.0068	< 0.005	NA	< 0.005	< 0.005	0.0075	NA	0.0062	NA	NA	NA	NA	NA	NA	NA	0.73	0.3
Selenium, Dissolved	NA	< 0.005	0.0069	< 0.0025	0.0018	NA	0.005	NA	0.007	NA	< 0.002	NA	< 0.0025	NA	0.018	NA	< 0.005	NA	< 0.005	NA	0.014	0.012	NA	0.012	< 0.01	< 0.02	NA	< 0.01	NA	NA	NA	NA	NA	0.05	NA	0.05	0.078
Sodium, Dissolved	NA	1600	1100	870	970	NA	1200	NA	1600	NA	750	NA	710	NA	900	NA	700	NA	870	NA	980	770	NA	760	960	1100	NA	1200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, Dissolved	NA	< 0.1	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.1	NA	< 0.1	NA	< 0.05	NA	< 0.05	NA	< 0.01	NA	< 0.1	NA	< 0.01	< 0.01	NA	< 0.01	< 0.01	< 0.01	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	146	NA
Vanadium, Dissolved	NA	< 0.03	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.4	NA	< 0.015	NA	0.025	NA	< 0.003	NA	< 0.003	NA	0.0099	0.018	NA	0.013	< 0.003	0.0073	NA	0.0068	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
TPH (mg/L)																																					
DRO (C10-C22)	NA	16	5.9	4.5	0.29	NA	0.24	NA	0.75	NA	0.23	NA	0.21	NA	1.9	NA	< 0.05	NA	0.22	NA	0.37	0.4	NA	0.69	0.36	0.51	NA	0.82	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORO (C22-C32)	NA	8.6	5.0	5.3	2.5	NA	0.44	NA	0.57	NA	< 0.2	NA	0.36	NA	0.3	NA	< 0.2	NA	1.1	NA	0.53	0.22	NA	0.32	0.46	0.39	NA	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total (C10-C32)	NA	25	11	9.4	4.6	NA	0.95	NA	5.8	NA	< 0.4	NA	0.6	NA	1.2	NA	< 0.4	NA	2.7	NA	2.8	0.61	NA	1.0	0.82	0.9	NA	0.82	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	1.2	0.26	0.3	2.1	NA	0.52	NA	5.2	NA	< 0.2	NA	0.24	NA	0.86	NA	< 0.2	NA	1.5	NA	2.3	0.39	NA	0.22	0.51	0.39	NA	0.28	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (µg/L)																																					
Benzene	NA	**0.66**	**0.61**	< 0.5	< 0.5	NA	< 0.5	NA	**0.59**	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	**1.2**	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	**0.71**	NA	NA	NA	NA	NA	5	NA	5	0.39
Bromobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	87.6	54
Bromodichloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	80	NA	0.117	0.12
Bromoform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	80	NA	8.51	7.9
Bromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	8.66	7
n-Butylbenzene	NA	26	< 0.5	2.0	1.8	NA	1.6	NA	1.2	NA	3.2	NA	1.2	NA	3.2	NA	< 0.5	NA	1.9	NA	1.7	1.4	NA	0.77	2.6	2.6	NA	1.8	NA	NA	NA	NA	NA	NA	NA	254	780
sec-Butylbenzene	NA	8.7	1.4	3.0	3.3	NA	< 0.5	NA	< 0.5	NA	2.2	NA	1.6	NA	2.2	NA	< 0.5	NA	2.8	NA	3.9	3.7	NA	2.5	4.3	4.1	NA	3.0	NA	NA	NA	NA	NA	NA	NA	254	NA
tert-Butylbenzene	NA	1.8	1.3	0.63	0.62	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	0.7	0.7	NA	< 0.5	0.73	0.78	NA	0.62	NA	NA	NA	NA	NA	NA	NA	254	NA
Carbon tetrachloride	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.39
Chlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	100	NA	100	72
Chloroethane	NA	< 0.5	2.8	< 0.5	< 0.5	NA	< 0.5	NA	4.7	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	23.2	NA
Chloroform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	0.193	0.19
Chloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	2.7	190
2-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	91.25	180
4-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	190
1,2-Dibromo-3-chloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 1	NA	NA	NA	NA	NA	0.2	NA	0.2	0.00032
Dibromochloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	80	NA	0.147	0.15
1,2-Dibromoethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	0.05	NA	0.05	0.0065
Dibromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	8.16	7.9
1,2-Dichlorobenzene	NA	12	13	1.8	1.6	NA	1.1	NA	2.5	NA	0.72	NA	< 0.5	NA	0.72	NA	< 0.5	NA	2.4	NA	5.5	4.2	NA	2.4	3.6	3.8	NA	5.1	NA	NA	NA	NA	NA	600	NA	600	280
1,3-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	86.7	NA
1,4-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	75	NA	75	0.42
Dichlorodifluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	395	190
1,1-Dichloroethane	NA	**5.4**	**10**	< 0.5	< 0.5	NA	< 0.5	NA	**8.8**	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	1.7	NA	**8.3**	< 0.5	NA	1.1	0.94	1.5	NA	**4.3**	NA	NA	NA	NA	NA	NA	NA	2.42	2.4
1,2-Dichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.15
1,1-Dichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	7	NA	7	260
cis-1,2-Dichloroethene	NA	5.2	2.0	< 0.5	< 0.5	NA	< 0.5	NA	0.74	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	0.73	< 0.5	NA	< 0.5	< 0.5	0.58	NA	1.1	NA	NA	NA	NA	NA	70	NA	70	28
trans-1,2-Dichloroethene	NA	7.4	7.6	< 0.5	< 0.5	NA	< 0.5	NA	2.2	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	3.0	NA	16	2.6	NA	2.3	1.6	2.1	NA	2.4	NA	NA	NA	NA	NA	100	NA	100	86
1,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.38
1,3-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	8.25	290
2,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	**5.2**	0.82	0.68	0.83	NA	0.58	NA	**1.3**	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	**1.5**	NA	**4.3**	**2.7**	NA	**1.7**	**2.1**	**2.3**	NA	**3.1**	NA	NA	NA	NA	NA	700	NA	700	1.3
Ethylene	NA	7.1	< 3	< 3	< 1	NA	< 3	NA	40	NA	< 1	NA	< 3	NA	< 1	NA	< 3	NA	4.3	NA	9.5	< 3	NA	3.5	4.1	3.5	NA	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	0.862	0.26
Isopropylbenzene	NA	9.5	1.3	1.7	2.0	NA	1.3	NA	1.9	NA	0.99	NA	0.7	NA	0.99	NA	< 0.5	NA	2.5	NA	4.8	4.7	NA	2.5	3.7	3.9	NA	4.4	NA	NA	NA	NA	NA	NA	NA	679	390
4-Isopropyltoluene	NA	110	30	43	43	NA	36	NA	29	NA	29	NA	19	NA	29	NA	< 0.5	NA	6.1	NA	15	7.3	NA	3.5	1.9	6.4	NA	4.0	NA	NA	NA	NA	NA	NA	NA	834	NA
Methylene chloride	NA	< 0.5	< 0.5	< 1	< 0.5	NA	< 0.5	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	< 1	< 1	NA	< 1	NA	NA	NA	NA	NA	5	NA	5	4.7
Naphthalene (VOC)	NA	**4.0**	**5.0**	**5.4**	**2.4**	NA	**1.5**	NA	**2.6**	NA	**1.5**	NA	**1.0**	NA	**1.5**	NA	< 0.5	NA	**2.2**	NA	**3.8**	**3.4**	NA	**2.1**	**3.7**	**3.4**	NA	**3.6**	NA	NA	NA	NA	NA	NA	NA	0.143	0.14
n-Propylbenzene	NA	8.6	4.0	< 0.5	5.5	NA	3.9	NA	4.8	NA	1.2	NA	2.1	NA	1.2	NA	< 0.5	NA	6.7	NA	12	10	NA	6.0	10	10	NA	8.9	NA	NA	NA	NA	NA	NA	NA	254	530
Styrene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	100	NA	100	1100
1,1,1,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	0.524	0.5
1,1,2,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	0.0671	0.066
Tetrachloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.072
Toluene	NA	3.0	0.8	< 0.5	< 0.5	NA	< 0.5	NA	1.2	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	0.99	NA	5.8	1.9	NA	< 0.5	< 0.5	1.3	NA	2.7	NA	NA	NA	NA	NA	1000	NA	1000	860
1,2,3-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	5.2
1,2,4-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	70	NA	70	0.99
1,1,1-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	200	NA	200	7500
1,1,2-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.24
Trichloroethene	NA	**4.5**	**3.3**	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	5	NA	5	0.44
Trichlorofluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	1290	1100
1,2,3-Trichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	0.00224	0.00065
1,2,4-Trimethylbenzene	NA	**140**	**22**	12	**32**	NA	**22**	NA	**29**	NA	**17**	NA	11	NA	**17**	NA	< 0.5	NA	**39**	NA	**74**	**69**	NA	**39**	**58**	**61**	NA	**57**	NA	NA	NA	NA	NA	NA	NA	14.6	15
1,3,5-Trimethylbenzene	NA	**72**	**45**	**16**	**16**	NA	9.7	NA	11	NA	6.2	NA	4.4	NA	6.2	NA	< 0.5	NA	14	NA	**26**	**24**	NA	14	**20**	**22**	NA	**19**	NA	NA	NA	NA	NA	NA	NA	14.5	87
Vinyl chloride	NA	**87**	**64**	**3.7**	**3.7**	NA	**2.0**	NA	**210**	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	**49**	NA	**210**	**36**	NA	**22**	< 0.5	< 0.5	NA	**54**	NA	NA	NA	NA	NA	2	NA	2	0.015
m,p-Xylene	NA	16	1.9	< 0.5	2.1	NA	1.4	NA	3.3	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	2.8	NA	8.3	4.8	NA	2.0	2.7	3.1	NA	3.0	NA	NA	NA	NA	NA	10,000	NA	10,000	190
o-Xylene	NA	18	14	1.8	2.1	NA	1.4	NA	3.4	NA	1.2	NA	0.73	NA	1.2	NA	< 0.5	NA	3.8	NA	11	7.5	NA	3.8	4.6	5.6	NA	8.7	NA	NA	NA	NA	NA	NA	NA	1220	190

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-8 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL :*** *Primary Maximum Contaminant Level (MCL)* -- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL :*** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water :*** *NDEP Basic Comparison Level (Residential Water)* — Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water :*** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).
[5]***HM-50R:*** *Free product was discovered during the sampling of well HM-50R for 3rd and 4th Quarters in 2011, thus no sample was collected.*

Table E-24 SA-10 Monitoring Well HM-51
Groundwater Monitoring Data

Parameter Name	HM-51 3/31/2005 Result	HM-51 6/10/2005 Result	HM-51 9/8/2005 Result	HM-51 12/7/2005 Result	HM-51 3/8/2006 Result	HM-51 3/30/2006 Result	HM-51 6/7/2006 Result	HM-51 6/12/2006 Result	HM-51 9/13/2006 Result	HM-51 9/28/2006 Result	HM-51 12/13/2006 Result	HM-51 12/14/2006 Result	HM-51 3/7/2007 Result	HM-51 3/19/2007 Result	HM-51 6/14/2007 Result	HM-51 7/3/2007 Result	HM-51 9/5/2007 Result	HM-51 9/10/2007 Result	HM-51 12/7/2007 Result	HM-51 12/14/2007 Result	HM-51 3/6/2008 Result	HM-51 6/11/2008 Result	HM-51 9/11/2008 Result	HM-51 12/12/2008 Result	HM-51 3/5/2009 Result	HM-51 6/11/2009 Result	HM-51 12/12/2009 Result	HM-51 6/9/2010 Result	Current Screening Levels: Federal/Nevada Primary MCL[1]	Nevada Secondary MCL[2]	NDEP BCL - Residential Water[3]	EPA Tap Water[4]
General Chemistry (mg/L)																																
Chloride	NA	88	66	70	77	NA	150	NA	62	NA	77	NA	93	NA	83	NA	130	NA	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	400	NA	NA
Nitrogen, Nitrate(As N)	NA	0.34	1.0	0.4	4.6	NA	0.34	NA	< 0.1	NA	< 0.2	NA	< 1	NA	< 0.1	NA	< 0.1	NA	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	NA	10	25
Phosphorus, Total (As P)	NA	0.27	0.11	0.03	NA	NA	0.27	NA	NA	NA	0.3	NA	< 0.02	NA	0.55	NA	0.45	NA	0.32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	NA	330	190	120	290	NA	**1200**	NA	200	NA	200	NA	320	NA	220	NA	**730**	NA	**760**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500	NA	NA
Total Dissolved Solids(residue, filterable)	NA	**1000**	810	810	**1300**	NA	**2700**	NA	790	NA	210	NA	**1000**	NA	900	NA	**1600**	NA	**1800**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	NA	NA
Metals (mg/L)																																
Arsenic, Dissolved	NA	< 0.02	< 0.01	< 0.005	< 0.002	NA	< 0.001	NA	< 0.05	NA	< 0.004	NA	< 0.005	NA	< 0.01	NA	**0.023**	NA	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01	NA	0.01	0.000045
Barium, Dissolved	NA	< 0.03	0.059	0.051	NA	NA	0.11	NA	0.091	NA	0.066	NA	0.054	NA	0.086	NA	0.097	NA	0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	2	2.9
Beryllium, Dissolved	NA	NA	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004	NA	0.004	0.016
Boron, Dissolved	NA	1.0	0.39	< 0.25	1.1	NA	2.7	NA	0.87	NA	**3.6**	NA	0.7	NA	1.5	NA	2.5	NA	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.3	3.1
Cadmium, Dissolved	NA	NA	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	NA	NA	< 0.015	NA	< 0.015	NA	< 0.003	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005	NA	0.005	0.0069
Calcium, Dissolved	NA	10	16	13	22	NA	82	NA	30	NA	21	NA	20	NA	27	NA	37	NA	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	NA	< 0.03	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.06	NA	< 0.015	NA	< 0.015	NA	0.0033	NA	< 0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	NA	NA	NA
Magnesium, Dissolved	NA	13	16	16	24	NA	49	NA	28	NA	21	NA	21	NA	30	NA	11	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	150	207	NA
Manganese, Dissolved	NA	< 0.1	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 1	NA	< 2	NA	< 0.5	NA	< 0.5	NA	< 0.1	NA	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	5.11	0.32
Molybdenum, Dissolved	NA	< 0.05	< 0.025	< 0.025	< 0.025	NA	< 0.025	NA	< 0.05	NA	< 0.05	NA	< 0.025	NA	< 0.025	NA	0.07	NA	0.0085	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
Nickel, Dissolved	NA	NA	< 0.025	< 0.025	< 0.025	NA	< 0.025	NA	< 0.05	NA	NA	NA	< 0.025	NA	< 0.025	NA	< 0.005	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.73	0.3
Selenium, Dissolved	NA	< 0.005	< 0.005	0.0079	0.0011	NA	0.0076	NA	< 0.0025	NA	0.016	NA	0.0031	NA	0.01	NA	0.014	NA	< 0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05	NA	0.05	0.078
Sodium, Dissolved	NA	360	190	220	280	NA	710	NA	260	NA	240	NA	260	NA	270	NA	690	NA	640	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Titanium, Dissolved	NA	< 0.1	< 0.05	< 0.05	< 0.05	NA	< 0.05	NA	< 0.1	NA	< 0.2	NA	< 0.05	NA	< 0.05	NA	< 0.01	NA	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	146	NA
Vanadium, Dissolved	NA	< 0.03	< 0.015	< 0.015	< 0.015	NA	< 0.015	NA	< 0.03	NA	< 0.4	NA	< 0.015	NA	< 0.015	NA	0.032	NA	0.0047	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
TPH (mg/L)																																
DRO (C10-C22)	NA	0.64	0.64	0.74	0.087	NA	0.069	NA	0.091	NA	0.064	NA	0.065	NA	0.06	NA	0.07	NA	< 0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORO (C22-C32)	NA	< 0.2	< 0.2	< 0.2	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	0.3	NA	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total (C10-C32)	NA	0.75	0.74	0.82	0.6	NA	0.49	NA	0.67	NA	< 0.4	NA	< 0.4	NA	< 0.4	NA	0.92	NA	0.43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	NA	0.17	< 0.05	0.067	0.53	NA	0.44	NA	0.63	NA	0.36	NA	< 0.2	NA	0.32	NA	0.62	NA	0.43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (µg/L)																																
Benzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.39
Bromobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87.6	54
Bromodichloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.117	0.12
Bromoform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	8.51	7.9
Bromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.66	7
n-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	254	780
sec-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	254	NA
tert-Butylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	254	NA
Carbon tetrachloride	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.39
Chlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	100	72
Chloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.2	NA
Chloroform	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.193	0.19
Chloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	190
2-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	91.25	180
4-Chlorotoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	190
1,2-Dibromo-3-chloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	NA	0.2	0.00032
Dibromochloromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.147	0.15
1,2-Dibromoethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05	NA	0.05	0.0065
Dibromomethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.16	7.9
1,2-Dichlorobenzene	NA	0.53	0.55	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	600	NA	600	280
1,3-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	86.7	NA
1,4-Dichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	NA	75	0.42
Dichlorodifluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	395	190
1,1-Dichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.42	2.4
1,2-Dichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.15
1,1-Dichloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	NA	7	260
cis-1,2-Dichloroethene	NA	2.6	0.79	0.63	0.6	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	70	NA	70	28
trans-1,2-Dichloroethene	NA	1.1	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	100	86
1,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.38
1,3-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.25	290
2,2-Dichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	**2.3**	**1.7**	**1.5**	**1.5**	NA	0.97	NA	**1.3**	NA	0.67	NA	0.78	NA	0.67	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	700	NA	700	1.3
Ethylene	NA	< 3	< 3	< 3	< 1	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.862	0.26
Isopropylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	679	390
4-Isopropyltoluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	0.51	NA	< 0.5	NA	0.51	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	834	NA
Methylene chloride	NA	< 0.5	< 0.5	< 1	< 0.5	NA	< 0.5	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	4.7
Naphthalene (VOC)	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.143	0.14
n-Propylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	254	530
Styrene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	100	1100
1,1,1,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.524	0.5
1,1,2,2-Tetrachloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0671	0.066
Tetrachloroethene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.072
Toluene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	NA	1000	860
1,2,3-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2
1,2,4-Trichlorobenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	70	NA	70	0.99
1,1,1-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	200	NA	200	7500
1,1,2-Trichloroethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.24
Trichloroethene	NA	**2.2**	**1.5**	**0.97**	**0.72**	NA	**0.52**	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	5	0.44
Trichlorofluoromethane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1290	1100
1,2,3-Trichloropropane	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00224	0.00065
1,2,4-Trimethylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.6	15
1,3,5-Trimethylbenzene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.5	87
Vinyl chloride	NA	**3.4**	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	NA	2	0.015
m,p-Xylene	NA	< 1	< 1	< 0.5	< 1	NA	< 0.5	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,000	NA	10,000	190
o-Xylene	NA	< 0.5	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1220	190

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-8 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL :*** *Primary Maximum Contaminant Level (MCL)* -- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL :*** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water :*** *NDEP Basic Comparison Level (Residential Water)* -- Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. *Source: Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water :*** *EPA Regional Screening Level (RSL) (Tapwater)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-25 SA-11 Former Gasoline UST and Warehouse 1
Soil Data

	RB-16	RB-16	RB-16	RB-40	RB-40	RB-41	RB-41	RB-50	RB-50	RB-73	RB-73	RB-75	RB-75					
	12/3/1998	12/3/1998	12/3/1998	12/5/1998	12/5/1998	12/5/1998	12/5/1998	12/8/1998	12/8/1998	4/20/2000	4/20/2000	4/20/2000	4/20/2000					
	0.5 ft	5 ft	10 ft	0.5 ft	5 ft	0.5 ft	5 ft	5 ft	10 ft	0.5 ft	5 ft	5 ft	10 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Metals (mg/L)																		
TCLP Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	< 0.02	0.23	< 0.02	NA	NA	NA	NA	NA
TCLP Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.57	0.56	0.31	0.7	NA	NA	NA	NA	NA
TCLP Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	< 0.02	< 0.02	< 0.02	NA	NA	NA	NA	NA
TPH (mg/kg)																		
DRO	< 20	< 20	< 20	< 20	< 20	< 20	1800	< 20	63	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	< 0.25	< 0.25	< 0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	< 20	< 20	< 20	NA	NA	NA	NA	< 20	63	430	59	120	< 10	NA	NA	NA	NA	NA
VOCs (ug/kg)																		
Acetone	< 25	31	59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400	630,000,000	100,000,000	800
Benzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	2.6	0.2	5400	4500	2
Bromobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	21	680,000	NA	NA
Bromodichloromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	22	0.032	1400	3600	30
Bromoform	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	21	2.1	220,000	242,000	40
Bromomethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	1.8	32,000	42,900	10
2-Butanone	< 25	<25	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	393,000	NA
n-Butylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	1.9	0.15	3000	4070	3
Chlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	68	49	1,400,000	695,000	70
Chloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	1,100,000	NA
Chloroform	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	22	0.053	1500	1710	30
Chloromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	NA	49	500,000	8950	NA
2-Chlorotoluene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	21	0.039	3300	6150	20
1,2-Dibromoethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	0.014	0.0018	170	185	NA
Dibromomethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	300	400,000	340,000	NA
Dichloromethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
Ethylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	NA	0.5	22,000	24,600	100
2-Hexanone	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	1,400,000	2,150,000	NA
Iodomethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	990	21,000,000	237,000	NA
Styrene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	2.3	0.033	2600	3280	3
Toluene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	1.6	0.077	5300	5800	0.9
Trichloroethene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 40	< 40	< 40	< 40	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	NA	< 20	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	9800	190	2,700,000	214,000	10,000
o-xylene	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	< 20	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figures A-12 and A-13 for sampling locations

Footnotes:

[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-26 SA-11 Former Gasoline UST and Warehouse 1
Groundwater Data Collected from Soil Borings

	RB-16	RB-40	RB-50	RB-73	RB-75				
	12/3/1998	12/5/1998	12/8/1998	4/21/2000	4/21/2000	Current Screening Levels			
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL Residential Water[3]**	**EPA Tap Water[4]**
Petroleum Hydrocarbons (mg/L)									
TPH-extractable	-	0.5	< 0.5	340	0.74	NA	NA	NA	NA
VOCs (ug/L)									
sec-Butylbenzene	< 50	-	-	2.2	< 1.0	NA	NA	254	NA
1,1-Dichloroethane	< 50	-	-	1.3	< 1.0	NA	NA	2.42	2.4
cis-1,2-Dichloroethene	**200**	-	-	15	1.4	70	NA	70	28
trans-1,2-Dichloroethene	< 50	-	-	1.6	< 1.0	100	NA	100	86
Naphthalene	< 100	-	-	< 2.0	**3.5**	NA	NA	0.143	0.14
Trichloroethene	**110**	-	-	**3.3**	< 1.0	5	NA	5	0.44
1,2,4-Trimethylbenzene	< 50	-	-	< 1.0	4.2	NA	NA	14.6	15
1,3,5-Trimethylbenzene	< 50	-	-	< 1.0	1.1	NA	NA	14.5	87
Vinyl Chloride	< 20	-	-	**1.5**	**3.7**	2	NA	2	0.015
Dissolved Metals (mg/L)									
Aluminum	-	-	-	< 0.05	0.14	NA	0.2	36.5	16
Arsenic	-	-	-	**0.046**	< 0.005	0.01	NA	0.01	0.000045
Barium	-	-	-	0.014	0.012	2	NA	2	2.9
Boron	-	-	-	3.9	0.82	NA	NA	7.3	3.1
Calcium	-	-	-	4.7	42	NA	NA	NA	NA
Chromium (Total)	-	-	-	0.035	< 0.011	0.1	NA	NA	NA
Magnesium	-	-	-	13	24	NA	150	207	NA
Molybdenum	-	-	-	0.12	0.066	NA	NA	0.183	0.078
Potassium	-	-	-	20	19	NA	NA	NA	NA
Selenium	-	-	-	0.028	< 0.008	0.05	NA	0.05	0.078
Sodium	-	-	-	770	330	NA	NA	NA	NA
Vanadium	-	-	-	0.027	< 0.005	NA	NA	0.183	0.078

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figures A-12 and A-13 for sampling locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tapwater)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-27 SA-12 Former 850,000-gallon AST
Soil Data

	Diesel-AST 11/3/2009 0 - 0.5 ft			Diesel-P1 11/2/2009 9 - 9 ft			Diesel-P2 11/2/2009 4 - 4 ft			Diesel-P3 11/2/2009 8.5 - 8.5 ft			Diesel-P4 11/3/2009 5 - 5 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
TPH (mg/kg)																				
DRO	16	-	-	1400	-	J	4800	-	J	< 11	-	J	< 10	-	J	NA	NA	NA	NA	NA
GRO	< 0.86	-	-	< 0.88	-	-	6.7	-	J	< 0.88	-	-	< 1.2	-	-	NA	NA	NA	NA	NA
ORO	32	-	-	800	-	J	440	-	J	< 11	-	J	< 10	-	J	NA	NA	NA	NA	NA
TPH	NA	-	-	2200	-	J	5200	-	J	< 11	-	J	< 10	-	J	NA	NA	NA	NA	NA
VOCs (ug/kg)																				
Acetone	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	-	-	NA	2400	630,000,000	100,000,000	800
Benzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	2.6	0.2	5400	4500	2
Bromobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	36	1,800,000	695,000	NA
Bromodichloromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	22	0.032	1400	3600	30
Bromoform	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	21	2.1	220,000	242,000	40
Bromomethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	1.8	32,000	42,900	10
2-Butanone	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	-	-	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	223,000	NA
tert-Butylbenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	393,000	NA
n-Butylbenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	1.9	0.15	3000	4070	3
Chlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	68	49	1,400,000	695,000	70
Chloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	1,100,000	NA
Chloroform	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	22	0.053	1500	1710	30
Chloromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	49	500,000	8950	NA
2-Chlorotoluene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	NA	-	-	NA	-	-	< 9	-	-	NA	-	-	NA	-	-	0.086	0.00014	69	58.3	NA
Dibromochloromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	21	0.039	3300	6150	20
1,2-Dibromoethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	0.014	0.0018	170	185	NA
Dibromomethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	72	0.4	12,000	14,300	100
1,1-Dichloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	1.4	0.042	2200	2410	1
1,1-Dichloroethene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	29	25	690,000	600,000	30
Dichlorodifluoromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	300	400,000	340,000	NA
Dichloromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	1.7	0.13	4700	4540	1
1,3-Dichloropropane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	NA	NA
Ethylbenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	780	1.5	27,000	21,000	700
Hexachlorobutadiene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	0.5	22,000	24,600	100
Isopropyl benzene	NA	-	-	NA	-	-	12	-	-	NA	-	-	NA	-	-	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	-	-	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	NA	-	-	NA	-	-	**2400**	-	-	NA	-	-	NA	-	-	NA	0.47	18,000	17,400	4000
n-Propylbenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	990	21,000,000	237,000	NA
Styrene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	0.026	2800	2590	0.2
Tetrachloroethene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	2.3	0.033	2600	3280	3
Toluene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	70	2600	38,000,000	1,390,000	100
Trichloroethene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	1.8	0.16	6400	5490	3
Trichlorofluoromethane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	NA	-	-	NA	-	-	**340**	-	-	NA	-	-	NA	-	-	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	NA	-	-	NA	-	-	8.6	-	-	NA	-	-	NA	-	-	NA	120	10,000,000	254,000	NA
Vinyl Chloride	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	0.69	0.0053	1700	1860	0.7
m,p-xylene	NA	-	-	NA	-	-	< 9	-	-	NA	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000
o-xylene	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	-	-	NA	190	3,000,000	282,000	9000
Xylenes, Total	NA	-	-	NA	-	-	< 13	-	-	NA	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-14 for sampling locations
Footnotes:
[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).
[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).
Data Validation Flags:
J = Associated value is an estimate

Table E-28 SA-13 Diesel Fuel Unloading Area
Soil Data

Parameter Name	RB-12 12/2/1998 0.5 ft Result	RB-12 12/2/1998 5 ft Result	RB-12 12/2/1998 10 ft Result	RB-13 12/2/1998 0.5 ft Result	RB-13 12/2/1998 5 ft Result	RB-14 12/3/1998 0.5 ft Result	RB-14 12/3/1998 5 ft Result	RB-14 12/3/1998 10 ft Result	RB-37 12/5/1998 5 ft Result	RB-38 12/5/1998 5 ft Result	RB-38 12/5/1998 10 ft Result	RB-39 12/5/1998 5 ft Result	RB-43 12/7/1998 5 ft Result	RB-44 12/7/1998 5 ft Result	RB-45 12/7/1998 5 ft Result	RB-46 12/7/1998 5 ft Result	RB-47 12/7/1998 5 ft Result	RB-48 12/7/1998 5 ft Result	RB-49 12/7/1998 5 ft Result	RB-51 12/8/1998 5 ft Result	RGRFCNTR 6/12/1999 14 ft Result	RGRFNE 6/11/1999 14 ft Result	RGRFNW 6/12/1999 14 ft Result	RGRFSE 6/16/1999 14 ft Result	RGRFSW 6/16/1999 14 ft Result	Current Screening Levels: EPA MCL-based SSL[1]	EPA Risk-based SSL[2]	EPA RSL Industrial Soil[3]	NDEP BCL Outdoor Worker[4]	NDEP LBCL (DAF 1)[5]
Metals (mg/kg)																														
Arsenic	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29	0.0013	1.6	1.77	1
Barium	NA	NA	NA	NA	NA	**94**	46	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	82	120	190,000	100,000	82
Cadmium	NA	NA	NA	NA	NA	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	0.52	NA	560	0.4
Chromium (total)	NA	NA	NA	NA	NA	5.0	3.7	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180,000	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	4.7	3.3	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	800	800	NA
Mercury	NA	NA	NA	NA	NA	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	0.033	43	341	0.104
Selenium	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.26	0.4	5100	5680	0.3
Silver	NA	NA	NA	NA	NA	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	5100	5680	2
TPH (mg/kg)																														
DRO	< 20	23,000	1600	3000	1800	67	< 20	< 20	9800	< 20	240	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	< 20	23,000	1600	3000	1800	67	< 20	< 20	NA	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	71	20	< 20	20	9500	190	NA	NA	NA	NA	NA
VOCs (ug/kg)																														
Acetone	NA	NA	NA	NA	NA	< 25	96	71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400	630,000,000	100,000,000	800
Benzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6	0.2	5400	4500	2
Bromobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36	1,800,000	695,000	NA
Bromochloromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	680,000	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22	0.032	1400	3600	30
Bromoform	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	2.1	220,000	242,000	40
Bromomethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	32,000	42,900	10
2-Butanone	NA	NA	NA	NA	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	223,000	NA
tert-Butylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	393,000	NA
n-Butylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	0.15	3000	4070	3
Chlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68	49	1,400,000	695,000	70
Chloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100,000	NA
Chloroform	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	22	0.053	1500	1710	30
Chloromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49	500,000	8950	NA
2-Chlorotoluene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.086	0.00014	69	58.3	NA
Dibromochloromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	0.039	3300	6150	20
1,2-Dibromoethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014	0.0018	170	185	NA
Dibromomethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72	0.4	12,000	14,300	100
1,1-Dichloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4	0.042	2200	2410	1
1,1-Dichloroethene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29	25	690,000	600,000	30
Dichlorodifluoromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300	400,000	340,000	NA
Dichloromethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7	0.13	4700	4540	1
1,3-Dichloropropane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	780	1.5	27,000	21,000	700
Hexachlorobutadiene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	22,000	24,600	100
2-Hexanone	NA	NA	NA	NA	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	1,400,000	2,150,000	NA
Iodomethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropyl benzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	< 25	< 25	< 25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47	18,000	17,400	4000
n-Propylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	990	21,000,000	237,000	NA
Styrene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.026	2800	2590	0.2
Tetrachloroethene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3	0.033	2600	3280	3
Toluene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6	0.077	5300	5800	0.9
Trichloroethene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8	0.16	6400	5490	3
Trichlorofluoromethane	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120	10,000,000	254,000	NA
Vinyl Chloride	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.69	0.0053	1700	1860	0.7
m,p-xylene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9800	190	2,700,000	214,000	10,000
o-xylene	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figures A-15 and A-16 for sampling locations

Footnotes:
[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* — Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).
[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-29 SA-13 Diesel Fuel Unloading Area
Groundwater Data

	RB-13	RB-38	RB-39	RB-44	RB-45	RB-47	RB-48	RB-51				
	12/2/1998	12/5/1998	12/5/1998	12/7/1998	12/7/1998	12/7/1998	12/7/1998	12/8/1998	**Current Screening Levels**			
ParameterName	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
TPH (mg/L)												
DRO (C10-C22)	-	-	-	-	-	-	-	-	NA	NA	NA	NA
ORO (C22-C32)	-	-	-	-	-	-	-	-	NA	NA	NA	NA
Total (C10-C32)	140	17	1000	<0.5	<0.5	<0.5	<0.5	190	NA	NA	NA	NA
Volatile Fuel Hydrocarbons	-	-	-	-	-	-	-	-	NA	NA	NA	NA
VOC (µg/L)												
1,3,5-Trimethylbenzene	-	-	-	-	-	-	-	7	592	NA	14.5	87
Ethylbenzene	-	-	-	-	-	-	-	**3**	700	NA	700	1.3
Naphthalene	-	-	-	-	-	-	-	**14**	4	NA	0.143	0.14
o-Xylene	-	-	-	-	-	-	-	4	NA	NA	1220	190
m,p-Xylene	-	-	-	-	-	-	-	3	10000	NA	10000	190

Notes:
NA - Not Applicable
Only detected VOCs listed
Results that exceed a screening level are in **bold**.
Refer to Figure A-8 for sampling locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water:*** *EPA Regional Screening Level (RSL) (Tap Water)* **-** - Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-30 SA-14 Former Product Lines and USTs
Historic Free Product Maximum Thickness

Well	Maximum Product Measured (ft)	Date
HM-5 (redrilled as HM-5A)	9.15	4/11/1991
HM-5A	8.6	6/19/2003
HM-7	5	8/5/1993
HM-10	7.96	7/22/1991
HM-11	5.4	4/23/1993
HM-12	1.22	1/4/2006
HM-14	5	8/5/1993
HM-17	1.9	7/1/1992
HM-18	0.45	2/1987
HM-20	4	6/11/2008
HM-21	0.41	9/25/2003
HM-38	7.85	6/19/2003
HM-39	9.19	6/19/2003
HM-42	16.42	6/19/2003
HM-44	6.05	9/25/2003
HM-45	7.99	9/25/2003
HM-46	6.89	3/19/2003
HM-47	6.69	12/4/2006
HM-50R	0.54	12/12/2011
HR-1	2.81	12/12/2009
HR-2	3.57	4/23/1993
HR-4	10.02	12/16/2008
T1-S	0.29	9/25/2003
T4-S	0.06	3/19/2003

Table E-31 SA-14 Former Product Lines and USTs
Groundwater Data

	HM-2 11/18/2010			HM-15 11/18/2010			HM-19 11/18/2010			HM-28 11/18/2010			HM-29 11/18/2010			HM-30 11/18/2010			HM-31R 11/18/2010			Current Screening Levels			
ParameterName	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
PAH (µg/L)																									
Acenaphthene	< 0.1	-	-	1.2	-	-	< 0.1	-	-	< 0.1	-	-	0.16	-	-	2.0	-	-	2.2	-	-	NA	NA	6.24	400
Anthracene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	0.23	-	-	NA	NA	6.25	1300
Benzo(a)anthracene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	0.0921	0.029
Benzo(a)pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	0.2	0.0029
Benzo(b)fluoranthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	0.0921	0.029
Benzo(g,h,i)perylene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	1100	NA
Benzo(j)fluoranthene	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	NA	NA	NA	0.056
Benzo(k)fluoroanthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	0.921	0.29
1,1-Biphenyl	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	NA	NA	1830	0.83
Chrysene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	9.21	2.9
Fluoranthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	1460	630
Indeno(1,2,3-cd)pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	0.0921	0.029
Naphthalene (PAH)	< 0.1	-	-	**0.26**	-	-	< 0.1	-	-	0.13	-	-	< 0.1	-	-	**0.99**	-	-	**29.2**	-	-	NA	NA	0.143	0.14
Phenanthrene	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	1.0	-	-	6.0	-	-	NA	NA	6.22	NA
Pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	NA	NA	6.22	87
VOC (µg/L)																									
Benzene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	**3.7**	-	-	5	NA	5	0.39
Ethylbenzene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	**11.5**	-	-	700	NA	700	1.3
Methyl-tert-butyl ether	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	NA	NA	12.5	12
Toluene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	1000	NA	1000	860
Total Xylenes	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-	6.0	-	-	10,000	NA	10,000	190

	HM-32 11/18/2010			HM-33 11/18/2010			HM-34 11/18/2010			HM-36 11/18/2010			HM-43 11/18/2010			HM-48 11/18/2010				Current Screening Levels			
ParameterName	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**		**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
PAH (µg/L)																							
Acenaphthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	6.24	400
Anthracene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	6.25	1300
Benzo(a)anthracene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	0.0921	0.029
Benzo(a)pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	0.2	0.0029
Benzo(b)fluoranthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	0.0921	0.029
Benzo(g,h,i)perylene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	1100	NA
Benzo(j)fluoranthene	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-		NA	NA	NA	0.056
Benzo(k)fluoroanthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	0.921	0.29
1,1-Biphenyl	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-	< 10	-	-		NA	NA	1830	0.83
Chrysene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	9.21	2.9
Fluoranthene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	1460	630
Indeno(1,2,3-cd)pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	0.0921	0.029
Naphthalene (PAH)	< 0.1	-	-	**0.19**	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	**0.48**	-	-		NA	NA	0.143	0.14
Phenanthrene	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-		NA	NA	6.22	NA
Pyrene	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-	< 0.1	-	-		NA	NA	6.22	87
VOC (µg/L)																							
Benzene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-		5	NA	5	0.39
Ethylbenzene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-		700	NA	700	1.3
Methyl-tert-butyl ether	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-		NA	NA	12.5	12
Toluene	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-	< 1	-	-		1000	NA	1000	860
Total Xylenes	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-	< 3	-	-		10,000	NA	10,000	190

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-18 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL :*** *Primary Maximum Contaminant Level (MCL)* -- Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL :*** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water :*** *NDEP Basic Comparison Level (Residential Water)* — Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water :*** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-32 SA-15 Free Product Recovery System
Soil Data

	DieselComp-1 3/8/2007 0 - 1 ft			DieselComp-2 3/8/2007 0 - 1 ft			DieselComp-3 3/8/2007 0 - 1 ft			Diesel-P2 11/2/2009 4 - 4 ft			Diesel-P3 11/2/2009 8.5 - 8.5 ft			Current Screening Levels				
Parameter Name	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**Result**	**Lab Qualifier**	**Validation Qualifier**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
TPH (mg/kg)																				
DRO	6040	-	-	< 20	-	-	4670	-	-	4800	-	J	< 11	-	J	NA	NA	NA	NA	NA
GRO	< 10	-	-	< 10	-	-	< 10	-	-	6.7	-	J	< 0.88	-	-	NA	NA	NA	NA	NA
ORO	47	-	-	< 20	-	-	37	-	-	440	-	J	< 11	-	J	NA	NA	NA	NA	NA
TPH	6087	-	-	NA	-	-	4707	-	-	5200	-	J	< 11	-	J	NA	NA	NA	NA	NA
VOCs (ug/kg)																				
Acetone	NA	-	-	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	2400	630,000,000	100,000,000	800
Benzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	2.6	0.2	5400	4500	2
Bromobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	36	1,800,000	695,000	NA
Bromodichloromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	22	0.032	1400	3600	30
Bromoform	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	21	2.1	220,000	242,000	40
Bromomethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	1.8	32,000	42,900	10
2-Butanone	NA	-	-	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	223,000	NA
tert-Butylbenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	393,000	NA
n-Butylbenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	1.9	0.15	3000	4070	3
Chlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	68	49	1,400,000	695,000	70
Chloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	1,100,000	NA
Chloroform	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	22	0.053	1500	1710	30
Chloromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	49	500,000	8950	NA
2-Chlorotoluene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	NA	-	-	NA	-	-	NA	-	-	< 9	-	-	NA	-	-	0.086	0.00014	69	58.3	NA
Dibromochloromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	21	0.039	3300	6150	20
1,2-Dibromoethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	0.014	0.0018	170	185	NA
Dibromomethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	72	0.4	12,000	14,300	100
1,1-Dichloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	1.4	0.042	2200	2410	1
1,1-Dichloroethene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	29	25	690,000	600,000	30
Dichlorodifluoromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	300	400,000	340,000	NA
Dichloromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	1.7	0.13	4700	4540	1
1,3-Dichloropropane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	NA	NA
Ethylbenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	780	1.5	27,000	21,000	700
Hexachlorobutadiene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	0.5	22,000	24,600	100
Isopropyl benzene	NA	-	-	NA	-	-	NA	-	-	12	-	-	NA	-	-	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	NA	-	-	NA	-	-	NA	-	-	< 45	-	-	NA	-	-	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	NA	-	-	NA	-	-	NA	-	-	**2400**	-	-	NA	-	-	NA	0.47	18,000	17,400	4000
n-Propylbenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	990	21,000,000	237,000	NA
Styrene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	0.026	2800	2590	0.2
Tetrachloroethene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	2.3	0.033	2600	3280	3
Toluene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	70	2600	38,000,000	1,390,000	100
Trichloroethene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	1.8	0.16	6400	5490	3
Trichlorofluoromethane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	NA	-	-	NA	-	-	NA	-	-	**340**	-	-	NA	-	-	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	NA	-	-	NA	-	-	NA	-	-	8.6	-	-	NA	-	-	NA	120	10,000,000	254,000	NA
Vinyl Chloride	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	0.69	0.0053	1700	1860	0.7
m,p-xylene	NA	-	-	NA	-	-	NA	-	-	< 9	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000
o-xylene	NA	-	-	NA	-	-	NA	-	-	< 4.5	-	-	NA	-	-	NA	190	3,000,000	282,000	9000
Xylenes, Total	NA	-	-	NA	-	-	NA	-	-	< 13	-	-	NA	-	-	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-19 for sampling locations

Footnotes:
[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).
[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Data Validation Flags:
J = Associated value is an estimate

Table E-33 SA-16 Vehicle Maintenance Area
Soil Data (Page 1 of 2)

	IMW-CS1	IMW-CS1	IMW-CS1	IMW-CS2	IMW-CS2	IMW-CS2	IMW-CS3	IMW-CS3	IMW-CS3	IMW-CS3	RB-10	RB-10	RB-10	RB-10A	RB-11	RB-11	RB-11	RB-65	RB-65	RB-9	RB-9	RB-9					
	5/6/1986	5/6/1986	5/6/1986	5/6/1986	5/6/1986	5/6/1986	5/7/1986	5/7/1986	5/7/1986	5/7/1986	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	12/2/1998	4/18/2000	4/18/2000	12/2/1998	12/2/1998	12/2/1998					
	5 ft	10 ft	15 ft	5 ft	10 ft	15 ft	5 ft	10 ft	15 ft	20 ft	0.5 ft	5 ft	10 ft	15 ft	0.5 ft	5 ft	10 ft	0.5 ft	5 ft	0.5 ft	5 ft	10 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
TPH (mg/kg)																											
DRO	< 5	< 5	< 5	< 5	< 5	1600	< 5	< 5	< 5	< 5	3000	< 20	< 20	< 20	< 20	3800	8700	< 1000	12	1020	< 20	< 20	NA	NA	NA	NA	NA
GRO	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	< 1000	< 10	NA	NA	NA	NA	NA	NA	NA	NA
ORO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8600	12	NA	NA	NA	NA	NA	NA	NA	NA
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3000	< 20	< 20	< 20	< 20	3800	8700	8600	24	1020	< 20	< 20	NA	NA	NA	NA	NA
VOCs (ug/kg)																											
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	240	87	65	42	86	320	< 2500	NA	NA	36	64	46	NA	2400	630,000,000	100,000,000	800
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	2.6	0.2	5400	4500	2
Bromobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	36	1,800,000	695,000	NA
Bromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	21	680,000	NA	NA
Bromodichloromethane	< 2	< 2	< 2	< 2	< 2	NA	NA	< 2	< 2	< 2	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	22	0.032	1400	3600	30
Bromoform	< 4.5	< 4.5	< 4.5	< 4.5	< 4.5	NA	NA	< 4.5	< 4.5	< 4.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	21	2.1	220,000	242,000	40
Bromomethane	< 3	< 3	< 3	< 3	< 3	NA	NA	< 3	< 3	< 3	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	1.8	32,000	42,900	10
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	< 25	< 25	< 25	< 25	150	< 2500	NA	NA	< 25	< 25	< 25	NA	1000	200,000,000	34,100,000	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	223,000	NA
tert-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	393,000	NA
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	2500	51,000,000	237,000	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	NA	NA	< 5	< 5	< 5	NA	210	3,700,000	721,000	2000
Carbon Tetrachloride	< 4	< 4	< 4	< 4	< 4	NA	NA	< 4	< 4	< 4	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	1.9	0.15	3000	4070	3
Chlorobenzene	< 8	< 8	< 8	< 8	< 8	NA	NA	< 8	< 8	< 8	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	68	49	1,400,000	695,000	70
Chloroethane	< 5	< 5	< 5	< 5	< 5	NA	NA	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	1,100,000	NA
2-Chloroethylvinylether	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	NA	NA	< 1.5	< 1.5	< 1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	NA	NA	< 2.5	< 2.5	< 2.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	22	0.053	1500	1710	30
Chloromethane	< 1	< 1	< 1	< 1	< 1	NA	NA	< 1	< 1	< 1	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	NA	49	500,000	8950	NA
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	NA	< 3.5	< 3.5	< 3.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	21	0.039	3300	6150	20
1,2-Dibromoethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	0.014	0.0018	170	185	NA
Dibromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	NA	NA	< 20	< 20	< 20	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 30	< 30	< 30	< 30	< 30	NA	NA	< 30	< 30	< 30	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	NA	NA	< 2.5	< 2.5	< 2.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	NA	< 3.5	< 3.5	< 3.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	NA	< 3.5	< 3.5	< 3.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 4.5	< 4.5	< 4.5	< 4.5	< 4.5	NA	NA	< 4.5	< 4.5	< 4.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	29	25	690,000	600,000	30
Dichlorodifluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	300	400,000	340,000	NA
Dichloromethane	**150**	**150**	**170**	**180**	**180**	**190**	**150**	**150**	**310**	**290**	**11**	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	NA	NA	< 1.5	< 1.5	< 1.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	1.7	0.13	4700	4540	1
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 50	< 1000	< 20	< 20	< 10	< 10	< 10	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	NA	< 3.5	< 3.5	< 3.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	NA	NA	< 5.5	< 5.5	< 5.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	**410**	**2700**	< 20	< 20	< 5	< 5	< 5	780	1.5	27,000	21,000	700
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	NA	0.5	22,000	24,600	100
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	< 25	< 25	< 25	< 25	< 125	< 2500	NA	NA	< 25	< 25	< 25	NA	7.9	1,400,000	2,150,000	NA
Iodomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	NA	NA	< 5	< 5	< 5	NA	NA	NA	NA	NA
Isopropyl benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	370	**1700**	< 20	< 20	< 5	6.0	< 5	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	3000	< 20	< 20	< 5	< 5	< 5	NA	NA	NA	647,000	NA
4-Methyl-2-Pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 25	< 25	< 25	< 25	< 25	< 125	< 2500	NA	NA	< 25	< 25	< 25	NA	230	53,000,000	17,200,000	NA
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	NA	NA	< 5	< 5	< 5	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	**9.0**	< 10	< 10	< 10	**4300**	**21,000**	< 40	< 40	< 10	< 10	< 10	NA	0.47	18,000	17,400	4000
n-Propylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	820	**3900**	< 20	< 20	< 5	< 5	< 5	NA	990	21,000,000	237,000	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	NA	NA	< 1.5	< 1.5	< 1.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 1.5	< 1.5	< 1.5	< 1.5	**7.3**	NA	NA	< 1.5	< 1.5	< 1.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	2.3	0.033	2600	3280	3
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	< 5	< 5	< 5	< 5	270	**3200**	< 20	< 20	< 5	< 5	< 5	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	NA	NA	< 1.5	< 1.5	< 1.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	NA	NA	< 1.5	< 1.5	< 1.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	1.6	0.077	5300	5800	0.9
Trichloroethene	< 3	< 3	< 3	< 3	< 3	NA	NA	< 3	< 3	< 3	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	1.8	0.16	6400	5490	3
Trichlorofluoromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 50	< 1000	< 20	< 20	< 10	< 10	< 10	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 40	< 40	< 5	< 5	< 5	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	**3900**	**20,000**	< 20	< 20	< 5	< 5	< 5	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	**1200**	**5700**	< 20	< 20	< 5	< 5	< 5	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	NA	NA	< 2.5	< 2.5	< 2.5	< 5	< 5	< 5	< 5	< 5	< 25	< 500	< 20	< 20	< 5	< 5	< 5	0.69	0.0053	1700	1860	0.7
m,p-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.0	< 5	< 5	< 5	< 5	**2300**	**12,000**	< 20	< 20	< 5	< 5	< 5	9800	190	2,700,000	214,000	10,000
o-xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	**1100**	**5600**	< 20	< 20	< 5	< 5	< 5	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-19 for sampling locations

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-33 SA-16 Vehicle Maintenance Area
Soil Data (Page 2 of 2)

	RB-65	RB-65	RB-65	RB-65	RB-65	RB-66	RB-66	RB-66	RB-66	RB-66	RB-67	RB-67	RB-67	RB-67	RB-68	RB-68	RB-68	RB-68	RB-68	RB-68	RB-84					
	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/18/2000	4/19/2000	4/19/2000	4/19/2000	4/19/2000	4/20/2000	4/20/2000	4/20/2000	4/20/2000	4/20/2000	4/20/2000	4/27/2000					
	7 ft	10 ft	15 ft	20 ft	25 ft	0.5 ft	5 ft	10 ft	15 ft	20 ft	0.5 ft	5 ft	10 ft	15 ft	0.5 ft	5 ft	10 ft	15 ft	20 ft	25 ft	5 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
TPH (mg/kg)																										
DRO	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GRO	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORO	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	< 10	31	23	63	< 10	590	190	< 10	210	150	55	< 10	18	< 10	9800	900	6200	20,000	250	15	2000	NA	NA	NA	NA	NA
VOCs (ug/kg)																										
Benzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 80	< 32	< 80	**510**	< 20	< 20	< 20	2.6	0.2	5400	4500	2
Bromobenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	21	680,000	NA	NA
Bromodichloromethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	22	0.032	1400	3600	30
Bromoform	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 50	< 200	< 200	< 20	< 20	< 20	21	2.1	220,000	242,000	40
Bromomethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	1.8	32,000	42,900	10
sec-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1400	< 80	650	4000	28	< 20	< 20	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	393,000	NA
n-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	50	< 20	< 20	< 20	< 20	2300	< 80	**3700**	**9300**	67	< 20	< 20	NA	2500	51,000,000	237,000	NA
Carbon Tetrachloride	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	1.9	0.15	3000	4070	3
Chlorobenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	68	49	1,400,000	695,000	70
Chloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	1,100,000	NA
Chloroform	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	22	0.053	1500	1710	30
Chloromethane	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 800	< 800	< 80	< 40	< 40	NA	49	500,000	8950	NA
2-Chlorotoluene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 400	< 800	< 80	< 40	< 40	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	21	0.039	3300	6150	20
1,2-Dibromoethane	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 800	< 800	< 80	< 40	< 40	0.014	0.0018	170	185	NA
Dibromomethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	300	400,000	340,000	NA
Dichloromethane	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 800	< 800	< 80	< 40	< 40	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	NA	NA	NA	NA
Ethylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	**240**	< 32	**320**	**3700**	< 20	< 20	< 20	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 400	< 800	< 80	< 40	< 40	NA	0.5	22,000	24,600	100
Isopropyl benzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	390	< 80	210	**2000**	< 20	< 20	< 20	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	36	< 20	< 20	< 20	< 20	480	< 80	530	3100	30	< 20	< 20	NA	NA	NA	647,000	NA
Naphthalene (VOC)	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	**96**	< 40	< 40	< 40	< 40	**2500**	< 320	**2600**	**13,000**	**130**	< 40	< 40	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	650	< 80	560	**3900**	< 20	< 20	< 20	NA	990	21,000,000	237,000	NA
Styrene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 50	< 200	< 200	< 20	< 20	< 20	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	< 80	< 200	< 200	< 20	< 40	< 20	2.3	0.033	2600	3280	3
Toluene	< 20	< 20	< 20	< 20	< 20	86	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 80	< 32	< 80	< 80	< 20	< 20	< 20	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 400	< 800	< 80	< 40	< 40	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 400	< 800	< 80	< 40	< 40	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	1.6	0.077	5300	5800	0.9
Trichloroethene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 40	< 40	< 40	< 40	< 40	< 160	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 800	< 320	< 800	< 800	< 80	< 40	< 40	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	**99**	< 20	< 20	< 20	< 20	**5100**	**100**	**6200**	**28,000**	**180**	< 20	< 20	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	93	< 20	< 20	< 20	< 20	**1800**	< 80	**1700**	**8000**	49	< 20	< 20	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 200	< 80	< 200	< 200	< 20	< 20	< 20	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 20	< 20	< 20	< 20	< 20	94	< 20	< 20	< 20	25	< 20	< 20	< 20	< 20	**1500**	< 32	**370**	**3500**	48	< 20	< 20	9800	190	2,700,000	214,000	10,000
o-xylene	< 20	< 20	< 20	< 20	< 20	< 80	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	**780**	< 32	< 80	**380**	27	< 20	< 20	NA	190	3,000,000	282,000	9000
Xylenes, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2280**	< 80	**370**	**3880**	75	< 40	NA	9800	190	2,700,000	214,000	10,000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-19 for sampling locations
Footnotes:

[1]***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2]***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3]***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4]***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers. Source: *Updated User's Guide and Tables* (January 2012).

[5]***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-34 SA-16 Vehicle Maintenance Area
Groundwater Data From Soil Borings

	IMW-CS1	IMW-CS2	IMW-CS3	RB-10A	RB-65	RB-66	RB-67	RB-68				
	5/22/1986	5/22/1986	5/22/1986	12/2/1998	4/18/2000	4/18/2000	4/19/2000	4/20/2000	**Current Screening Levels**			
Parameter	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL Residential Water[3]**	**EPA Tap Water[4]**
Dissolved Metals (mg/L)												
Aluminum	-	-	-	-	0.0067	0.14	<0.05	<0.05	NA	0.2	36.5	16
Arsenic	-	-	-	-	<0.005	<0.005	<0.005	**0.02**	0.01	NA	0.01	0.000045
Barium	-	-	-	-	0.029	0.011	0.024	0.019	2	NA	2	2.9
Boron	-	-	-	-	1.3	1.1	1.5	1.8	NA	NA	7.3	3.1
Calcium	-	-	-	-	220	210	240	220	NA	NA	NA	NA
Chromium (Total)	-	-	-	-	0.008	0.008	<0.005	<0.005	0.1	NA	NA	NA
Magnesium	-	-	-	-	130	140	140	140	NA	150	207	NA
Manganese	-	-	-	-	**0.25**	0.059	**0.29**	**0.45**	NA	0.1	5.11	0.32
Mercury	-	-	-	-	**0.0006**	0.0005	<0.0005	<0.0005	0.002	NA	0.002	0.00063
Molybdenum	-	-	-	-	0.024	0.026	0.061	0.058	NA	NA	0.183	0.078
Potassium	-	-	-	-	40	26	45	38	NA	NA	NA	NA
Selenium	-	-	-	-	0.016	0.014	0.016	<0.005	0.05	NA	0.05	0.078
Sodium	-	-	-	-	350	380	620	560	NA	NA	NA	NA
Vanadium	-	-	-	-	<0.005	<0.005	<0.005	0.006	NA	NA	0.183	0.078
Petroleum Hydrocarbons (mg/L)												
TPH-Diesel	< 4.0	986,000	8.2	-	-	-	-	-	NA	NA	NA	NA
TPH-Gasoline	< 4.0	< 4.0	< 4.0	-	-	-	-	-	NA	NA	NA	NA
TPH-extractable	-	-	-	-	< 0.5	< 0.5	< 0.5	110	NA	NA	NA	NA
VOCs (ug/L)												
1,1,1-Trichloroethane	0.20	< 0.03	< 0.03	< 0.005	-	-	-	-	200	NA	200	7500
dichloromethane	< 0.07	< 0.07	1.1	< 0.005	-	-	-	-	5	NA	5	4.7
1,2,4 - Trimethylbenzene	-	-	-	-	< 2.0	2.5	< 2.0	**120**	NA	NA	14.6	15
1,2 - Dichloroethane	<0.05	<0.05	<0.05	<0.05	< 1.0	< 1.0	< 1.0	**5**	5	NA	5	0.15
1,3,5 - Trimethylbenzene	-	-	-	-	< 2.0	2.7	< 2.0	**26**	NA	NA	14.5	87
4 - Isopropyltoluene	-	-	-	-	< 1.0	< 1.0	< 1.0	5.8	NA	NA	834	NA
Benzene	-	-	-	-	< 1.0	< 1.0	< 1.0	**69**	5	NA	5	0.39
n-Butylbenzene	-	-	-	-	< 1.0	< 1.0	< 1.0	22	NA	NA	254	780
sec - Butylbenzene	-	-	-	-	< 1.0	< 1.0	< 1.0	6	NA	NA	254	NA
Ethylbenzene	-	-	-	-	< 1.0	< 1.0	< 1.0	**14**	700	NA	700	1.3
Isopropylbenzene	-	-	-	-	< 1.0	< 1.0	< 1.0	8.8	NA	NA	679	390
Naphthalene	-	-	-	-	< 4.0	< 4.0	< 4.0	**120**	NA	NA	0.143	0.14
n-Propylbenzene	-	-	-	-	< 1.0	< 1.0	< 1.0	13	NA	NA	254	530
Toluene	-	-	-	-	< 2.0	2.2	< 2.0	35	1000	NA	1000	860
Total Xylenes	-	-	-	-	< 2.0	2.1	< 2.0	157	10000	NA	10000	190

Notes:

NA - Not Applicable

Only detected VOCs listed

Results that exceed a screening level are in **bold**.

Refer to Figure A-8 for monitoring well locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)*- - Federal standards adopted by that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-35 SA-1 Unit 4 Treated Water Pond
Pond Water Data

	P-3 4/20/2000	Current Screening Levels			
Parameter Name	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)					
Total Dissolved Solids(residue, filterable)	**6723**	NA	1000	NA	NA
Metals (mg/L)					
Aluminum, Dissolved	<0.05	NA	0.2	36.5	16
Arsenic, Dissolved	**0.011**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.016	2	NA	2	2.9
Boron, Dissolved	**5.3**	NA	NA	7.3	3.1
Calcium, Dissolved	7.6	NA	NA	NA	NA
Chromium, Dissolved	<0.005	0.1	NA	NA	NA
Iron, Dissolved	<0.05	NA	0.6	25.6	11
Lead, Dissolved	<0.005	0.015	NA	0.015	NA
Magnesium, Dissolved	<0.1	NA	150	207	NA
Manganese, Dissolved	<0.005	NA	0.1	5.11	0.32
Mercury, Dissolved	<0.0005	0.002	NA	0.002	0.00063
Molybdenum, Dissolved	**0.11**	NA	NA	0.183	0.078
Potassium, Dissolved	71	NA	NA	NA	NA
Selenium, Dissolved	0.05	0.05	NA	0.05	0.078
Sodium, Dissolved	2700	NA	NA	NA	NA
Titanium, Dissolved	<0.05	NA	NA	146	NA
Vanadium, Dissolved	0.033	NA	NA	0.183	0.078

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for sampling locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]**EPA Tap Water:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-36 SA-2 Unit 4 Cooling Tower
Groundwater Data

Parameter Name	Unit 4 Dewatering Well Effluent 3/25/1993 Result	Unit 4 Dewatering Well Effluent 7/1/1993 Result	Unit 4 Dewatering Well Effluent 7/22/1993 Result	Unit 4 Dewatering Well Effluent 8/23/1993 Result	Unit 4 Dewatering Well Effluent 9/14/2011 Result	Unit 4 Dewatering Well Effluent 12/12/2011 Result	Unit 4 Dewatering Well Effluent 3/5/2012 Result	Current Screening Levels: Federal/Nevada Primary MCL[1]	Nevada Secondary MCL[2]	NDEP BCL -Residential Water[3]	EPA Tap Water[4]
General Chemistry (mg/L)											
Alkalinity - Carbonate	< 30	< 30	< 30	< 30	-	-	-	NA	NA	NA	NA
Alkalinity - Bicarbonate	430	410	390	420	-	-	-	NA	NA	NA	NA
Total Alkalinity	430	410	390	420	-	-	-	NA	NA	NA	NA
Chloride	380	350	360	380	290	300	280	NA	400	NA	NA
Nitrogen, Nitrate (As N)	-	-	-	-	< 5	0.56	< 0.1	10	NA	10	25
ph (field) (S.U.)	7.7	7.9	7.7	7.4	7.4	7.2	7.3	NA	6.5 - 8.5	NA	NA
Phosphorus, Total (As P)	-	-	-	-	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA
Specific Conductance (µmhos/cm)	4400	3900	4600	4200	-	-	-	NA	NA	NA	NA
Sulfate	**1300**	**1300**	**1300**	**1400**	**980**	**980**	**990**	NA	500	NA	NA
Sulfide	-	-	-	-	< 0.05	< 0.05	< 0.05	NA	NA	NA	NA
Sulfite	-	-	-	-	< 2	< 2	< 2	NA	NA	NA	NA
Suspended Solids (residue,non-filterable)	-	-	-	-	< 15	< 15	< 15	NA	NA	NA	NA
Total Dissolved Solids (residue, filterable)	**3100**	**3100**	**3100**	**3000**	**2288**	**2260**	**2336**	NA	1000	NA	NA
Total Organic Carbon	-	-	-	-	< 1	< 1	< 1	NA	NA	NA	NA
Metals (mg/L)											
Arsenic, Dissolved	-	-	-	-	**0.042**	**0.036**	**0.035**	0.01	NA	0.01	0.000045
Barium, Dissolved	-	-	-	-	0.013	0.014	0.012	2	NA	2	2.9
Beryllium, Dissolved	-	-	-	-	< 0.003	< 0.003	< 0.003	0.004	NA	0.004	0.016
Boron, Dissolved	-	-	-	-	1.3	1.4	1.5	NA	NA	7.3	3.1
Cadmium, Dissolved	-	-	-	-	< 0.003	< 0.003	< 0.003	0.005	NA	0.005	0.0069
Calcium, Dissolved	170	180	180	170	130	160	130	NA	NA	NA	NA
Chromium, Dissolved	-	-	-	-	< 0.005	< 0.005	< 0.005	0.1	NA	NA	NA
Fluoride, Dissolved	-	-	-	-	< 5	**3.5**	**3.3**	4	2	4	0.62
Magnesium, Dissolved	150	150	150	140	110	130	120	NA	150	207	NA
Manganese, Dissolved	-	-	-	-	< 0.005	< 0.005	< 0.005	NA	0.1	5.11	0.32
Molybdenum, Dissolved	-	-	-	-	0.030	0.033	0.030	NA	NA	0.183	0.078
Nickel, Dissolved	-	-	-	-	< 0.005	< 0.005	< 0.005	NA	NA	0.73	0.3
Potassium, Dissolved	30	31	32	31	-	-	-	NA	NA	NA	NA
Selenium, Dissolved	-	-	-	-	0.021	< 0.02	< 0.02	0.05	NA	0.05	0.078
Silica, Dissolved	40	52	34	48	-	-	-	NA	NA	NA	NA
Sodium, Dissolved	590	630	630	600	400	450	450	NA	NA	NA	NA
Strontium, Dissolved	-	-	-	-	3.0	3.4	3.6	NA	NA	NA	NA
Titanium, Dissolved	-	-	-	-	< 0.005	< 0.005	< 0.005	NA	NA	146	NA
Vanadium, Dissolved	-	-	-	-	0.0030	0.012	0.0054	NA	NA	0.183	0.078
Zinc, Dissolved	-	-	-	-	< 0.005	< 0.005	< 0.005	NA	5	11	4.7

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for sampling locations

Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* - Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-37 SA-2 Unit 4 Cooling Tower
Southgate Spring Monitoring Data

Parameter Name	SGSPR 3/8/2006 Result	SGSPR 6/6/2006 Result	SGSPR 9/12/2006 Result	SGSPR 12/13/2006 Result	SGSPR 3/6/2007 Result	SGSPR 6/14/2007 Result	SGSPR 9/6/2007 Result	SGSPR 12/5/2007 Result	SGSPR 3/4/2008 Result	SGSPR 6/4/2008 Result	SGSPR 9/10/2008 Result	SGSPR 12/13/2008 Result	SGSPR 3/3/2009 Result	SGSPR 6/11/2009 Result	SGSPR 9/17/2009 Result	SGSPR 12/10/2009 Result	SGSPR 3/10/2010 Result	SGSPR 6/9/2010 Result	SGSPR 6/9/2010 Result	SGSPR 9/16/2010 Result	SGSPR 12/8/2010 Result	SGSPR 3/9/2011 Result	SGSPR 6/13/2011 Result	SGSPR 9/15/2011 Result	SGSPR 12/12/2011 Result	Current Screening Levels: Federal/Nevada Primary MCL[1]	Nevada Secondary MCL[2]	NDEP BCL - Residential Water[3]	EPA Tap Water[4]
General Chemistry																													
pH (lab)	7.6	7.7	7.4	7.9	7.5	7.8	7.2	7.1	7.6	7.3	7.2	**9.7**	7.6	6.8	7.6	7.0	7.7	7.7	7.6	7.6	7.8	8.0	8.0	NA	NA	NA	6.5 - 8.5	NA	NA
General Chemistry (µmhos/cm)																													
Specific Conductance	4400	4900	5300	4700	4600	4600	5000	5400	5800	5900	5200	11,000	6200	4800	4900	4600	5200	4500	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry (mg/L)																													
Chloride	370	390	**420**	390	**410**	370	380	**400**	**410**	**460**	**420**	**450**	**420**	**400**	**410**	**420**	**400**	**420**	**420**	NA	NA	NA	NA	NA	NA	NA	400	NA	NA
Hardness as CaCO3	1000	1200	1100	1100	1000	1100	1200	1400	1400	1700	1300	570	< 5	1100	1100	1100	1200	1300	1300	1260	1150	1060	1210	1042	1150	NA	NA	NA	NA
Nitrate + Nitrite (As N)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.68	< 0.5	0.65	0.35	0.49	0.75	NA	NA	NA	NA
Nitrogen, Ammonia(As N)	0.18	**0.56**	0.072	**0.26**	< 0.03	**0.27**	0.14	< 0.03	0.18	**0.45**	0.075	**0.23**	**0.23**	< 0.1	0.16	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	0.209	NA
Nitrogen, Nitrate(As N)	1.2	0.35	< 0.1	0.32	0.22	0.29	0.79	0.73	1.2	1.7	3.7	0.82	1.3	1.5	1.8	0.53	0.6	0.71	0.69	NA	NA	NA	NA	NA	NA	10	NA	10	25
Nitrogen, Nitrite(As N)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	< 0.2	NA	NA	NA	NA	NA	NA	NA	1	NA	1	1.6
Total Nitrogen	1.433	1.6	< 0.1	0.9	0.77	0.43	0.93	0.73	1.85	2.15	3.8	2.1	22	2.0	2.7	0.53	1.2	1.4	1.4	1.0	1.2	1.6	0.35	2.4	0.75	NA	NA	NA	NA
Phosphorus, Total (As P)	0.072	0.095	0.08	0.071	0.092	0.065	0.089	0.11	0.1	0.072	0.065	0.27	10	0.22	41	0.071	0.11	0.11	0.12	< 0.1	0.54	< 0.1	< 0.1	0.48	< 0.1	NA	NA	NA	NA
Sulfate	**1700**	**1800**	**2000**	**1700**	**2000**	**1600**	**1800**	**2000**	**2100**	**2400**	**2100**	**3900**	**2300**	**1800**	**1800**	**1900**	**1700**	**1900**	**1900**	**1960**	**2030**	**2660**	**3400**	**1900**	**1800**	NA	500	NA	NA
Total Dissolved Solids(residue, filterable)	**3800**	**3800**	**4000**	**2100**	**3900**	**3400**	**3600**	**4000**	**4200**	**4600**	**3900**	**7400**	**4500**	**3700**	**3400**	**3600**	**3700**	**3700**	**3800**	**4150**	**3480**	**3690**	**3760**	**3830**	**3508**	NA	1000	NA	NA
Total Kjeldahl Nitrogen	0.233	NA	NA	0.58	NA	NA	< 0.4	< 0.4	0.65	< 0.4	< 0.4	1.3	20	0.47	0.9	< 0.4	0.62	0.71	0.72	0.36	1.2	0.93	< 0.2	1.9	< 0.1	NA	NA	NA	NA
Metals (mg/L)																													
Aluminum, Dissolved	< 5	NA	< 2.5	< 5	< 1.2	< 0.5	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	NA	NA	NA	NA	NA	NA	NA	0.2	36.5	16
Aluminum, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.3**	**1.2**	**330**	**0.52**	**1.9**	**1.3**	**0.27**	**0.82**	**0.66**	NA	NA	NA	NA	NA	NA	NA	0.2	36.5	16
Antimony, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	< 0.02	< 0.01	< 0.01	< 0.015	< 0.015	NA	NA	0.006	0.006
Arsenic, Dissolved	**0.12**	**0.096**	**0.15**	**0.13**	**0.1**	**0.1**	**0.12**	**0.11**	**0.11**	**0.1**	**0.13**	**0.2**	**0.16**	**0.08**	**0.076**	**0.12**	**0.12**	**0.13**	**0.13**	NA	NA	NA	NA	NA	NA	0.01	NA	0.01	0.000045
Arsenic, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.12**	**0.23**	**0.66**	**0.1**	**0.12**	**0.14**	**0.13**	**0.11**	**0.13**	**0.132**	**0.123**	**0.124**	**0.130**	**0.16**	**0.14**	0.01	NA	0.01	0.000045
Barium, Dissolved	< 0.06	0.022	< 0.03	< 0.06	0.019	0.022	0.024	0.021	0.022	0.026	0.021	0.0057	0.046	0.024	0.026	0.024	0.023	0.025	0.024	NA	NA	NA	NA	NA	NA	2	NA	2	2.9
Barium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	0.027	**6.3**	0.031	0.047	0.055	0.022	0.035	0.031	0.0375	0.0449	0.123	0.0340	0.19	0.016	2	NA	2	2.9
Beryllium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.001	< 0.002	< 0.001	< 0.001	< 0.003	< 0.003	0.004	NA	0.004	0.016
Boron, Dissolved	**3.1**	2.6	**4.9**	**3.9**	2.7	**3.1**	**3.7**	2.9	**3.1**	**3.1**	3.0	**8.4**	**4.1**	2.8	2.7	2.6	2.6	3.0	3.0	NA	NA	NA	NA	NA	NA	NA	NA	7.3	3.1
Boron, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.2**	**8.5**	**4.6**	2.9	**3.1**	2.8	2.8	2.8	3.0	2.96	2.79	2.71	2.88	2.3	2.6	NA	NA	7.3	3.1
Cadmium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	< 0.01	< 0.005	< 0.005	< 0.003	< 0.003	0.005	NA	0.005	0.0069
Calcium, Dissolved	170	210	190	200	170	190	210	210	250	290	220	9.2	240	210	200	200	210	230	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	56	2600	200	220	220	240	230	230	219	211	191	212	200	210	NA	NA	NA	NA
Chromium, Dissolved	< 0.06	NA	< 0.03	< 0.06	< 0.015	< 0.006	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.02	0.0033	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	NA	NA	NA	NA	NA	NA	0.1	NA	NA	NA
Chromium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.003	0.023	**0.76**	0.0043	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.005	< 0.01	0.0111	< 0.005	0.020	< 0.005	0.1	NA	NA	NA
Copper, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	< 0.02	< 0.01	< 0.01	0.010	< 0.005	NA	NA	1.3	0.62
Fluoride, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 20	**5.3**	**19.4**	**4.4**	**5.2**	**4.9**	4	2	4	0.062
Iron, Dissolved	< 4	< 1	< 2	< 4	< 1	< 0.4	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	NA	NA	NA	NA	NA	NA	0.6	25.6	11
Iron, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.1**	**0.92**	**180**	0.36	**1.2**	**0.78**	< 0.2	0.49	0.42	0.463	**0.773**	**2.56**	0.330	**7.2**	< 0.1	NA	0.6	25.6	11
Lead, Dissolved	< 0.1	NA	< 0.05	< 0.1	**0.026**	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	0.015	NA	0.015	NA
Lead, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.01	< 0.01	**0.21**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.005	< 0.005	< 0.015	< 0.015	0.015	NA	0.015	NA
Magnesium, Dissolved	140	**160**	**150**	**150**	**150**	**150**	**170**	**190**	**180**	**210**	**160**	100	**180**	**150**	130	130	140	**160**	**160**	NA	NA	NA	NA	NA	NA	NA	150	207	NA
Magnesium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**160**	100	**360**	**150**	140	**150**	**150**	**170**	**170**	**172**	**151**	141	**167**	130	**150**	NA	150	207	NA
Manganese, Dissolved	< 2	NA	< 1	< 2	< 0.5	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.13**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA	0.1	5.11	0.32
Manganese, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.1	< 0.1	**6.4**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.0331	0.0500	0.0709	0.0400	**0.19**	< 0.005	NA	0.1	5.11	0.32
Mercury, Dissolved	< 0.0002	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	NA	NA	NA	NA	NA	NA	0.002	NA	0.002	0.00063
Mercury, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.002	NA	0.002	0.00063
Molybdenum, Dissolved	< 0.1	0.062	0.073	< 0.1	0.037	0.054	0.055	0.068	0.069	0.07	0.065	**0.13**	0.077	0.053	0.052	0.055	0.051	0.058	0.057	NA	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
Molybdenum, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.065	**0.13**	0.077	0.051	0.056	0.057	0.055	0.056	0.059	0.0467	0.0490	0.0530	0.0490	0.046	0.047	NA	NA	0.183	0.078
Nickel, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.005	< 0.01	< 0.005	< 0.005	0.0060	< 0.005	NA	NA	0.73	0.3
Potassium, Dissolved	40	45	45	44	38	41	45	52	55	66	53	92	62	50	58	63	48	51	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	59	99	150	53	65	68	57	51	54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	0.016	0.0077	< 0.01	0.0082	0.0063	0.0073	0.0073	0.0058	0.0076	0.0078	0.0057	**0.055**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	0.05	NA	0.05	0.078
Selenium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005	0.036	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.03	< 0.015	< 0.015	< 0.02	< 0.02	0.05	NA	0.05	0.078
Silver, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.007	< 0.014	< 0.007	< 0.007	< 0.01	< 0.01	NA	NA	0.1825	0.071
Sodium, Dissolved	830	730	910	680	610	750	790	810	900	950	770	2900	1100	700	700	730	710	780	790	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	830	2800	1200	750	760	820	840	740	810	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.02	< 0.04	< 0.02	< 0.02	< 0.03	< 0.03	NA	NA	0.002	0.00016
Titanium, Dissolved	< 0.2	< 0.05	< 0.1	< 0.2	< 0.05	< 0.02	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	NA	NA	NA	NA	NA	NA	146	NA
Titanium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.049	0.05	13	0.017	0.083	0.06	< 0.01	0.036	0.027	NA	NA	NA	NA	NA	NA	NA	NA	146	NA
Vanadium, Dissolved	< 0.06	< 0.015	< 0.03	< 0.06	< 0.015	0.012	0.01	0.015	0.013	0.013	0.014	**0.12**	0.026	0.014	0.014	0.016	0.014	0.012	0.012	NA	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
Vanadium, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018	**0.12**	**0.48**	0.015	0.019	0.018	0.016	0.014	0.013	NA	NA	NA	NA	NA	NA	NA	NA	0.183	0.078
Zinc, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.05	< 0.1	< 0.05	< 0.05	0.035	< 0.005	NA	5	11	4.7

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for monitoring locations
Footnotes:
[1] ***Federal/Nevada Primary MCL :*** *Primary Maximum Contaminant Level (MCL)-* - Federal standardsadopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2] ***Nevada Secondary MCL :*** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3] ***NDEP BCL - Residential Water :*** *NDEP Basic Comparison Level (Residential Water)* — Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4] ***EPA Tap Water :*** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (Nove

Table E-38 SA-3 Unit 4 Cooling Tower Catch Basin
Pond Water Data

	P-4 4/20/2000	Current Screening Levels			
Parameter Name	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)					
Total Dissolved Solids(residue, filterable)	**7650**	NA	1000	NA	NA
Metals (mg/L)					
Aluminum, Dissolved	**2.4**	NA	0.2	36.5	16
Arsenic, Dissolved	<0.05	0.01	NA	0.01	0.000045
Barium, Dissolved	0.088	2	NA	2	2.9
Boron, Dissolved	**10**	NA	NA	7.3	3.1
Calcium, Dissolved	200	NA	NA	NA	NA
Chromium, Dissolved	0.017	0.1	NA	NA	NA
Iron, Dissolved	<0.05	NA	0.6	25.6	11
Lead, Dissolved	<0.005	0.015	NA	0.015	NA
Magnesium, Dissolved	83	NA	150	207	NA
Manganese, Dissolved	<0.005	NA	0.1	5.11	0.32
Mercury, Dissolved	<0.0005	0.002	NA	0.002	0.00063
Molybdenum, Dissolved	**0.27**	NA	NA	0.183	0.078
Potassium, Dissolved	70	NA	NA	NA	NA
Selenium, Dissolved	**0.09**	0.05	NA	0.05	0.078
Sodium, Dissolved	2200	NA	NA	NA	NA
Titanium, Dissolved	<0.05	NA	NA	146	NA
Vanadium, Dissolved	**0.094**	NA	NA	0.183	0.078

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for sampling locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-39 SA-4 Unit 4 Coal Pile Area
Soil Data

	RB-36 12/5/1998 0.5 ft	RB-36 12/5/1998 5 ft	RB-36 12/5/1998 10 ft	RB-85 7/13/2000 1 ft	RB-85 7/13/2000 5 ft	RB-85 7/13/2000 10 ft	RB-85 7/13/2000 15 ft	RB-86 7/18/2000 1 ft	RB-86 7/18/2000 5 ft	RB-86 7/18/2000 10 ft	RB-86 7/18/2000 15 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Metals (mg/kg)																
Arsenic	< 5	< 5	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	0.29	0.0013	1.6	1.77	1
Barium	49	**300**	71	NA	NA	NA	NA	NA	NA	NA	NA	82	120	190,000	100,000	82
Cadmium	< 0.5	**1.8**	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	0.38	0.52	NA	560	0.4
Chromium (total)	2.7	24	8.9	NA	NA	NA	NA	NA	NA	NA	NA	180,000	NA	NA	NA	NA
Lead	< 2.5	**25**	6.6	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	800	800	NA
Mercury	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	NA	NA	0.1	0.033	43	341	0.104
Selenium	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	NA	NA	0.26	0.4	5100	5680	0.3
Silver	< 1	< 1	< 1	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	5100	5680	2
TPH (mg/kg)																
TPH	NA	NA	NA	68	< 10	290	< 10	16	< 10	88	200	NA	NA	NA	NA	NA
VOCs (ug/kg)																
Benzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	2.6	0.2	5400	4500	2
Bromobenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	36	1,800,000	695,000	NA
Bromochloromethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	21	680,000	NA	NA
Bromodichloromethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	22	0.032	1400	3600	30
Bromoform	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	21	2.1	220,000	242,000	40
Bromomethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	1.8	32,000	42,900	10
sec-Butylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	223,000	NA
tert-Butylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	393,000	NA
n-Butylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	2500	51,000,000	237,000	NA
Carbon Tetrachloride	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	1.9	0.15	3000	4070	3
Chlorobenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	68	49	1,400,000	695,000	70
Chloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	1,100,000	NA
Chloroform	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	22	0.053	1500	1710	30
Chloromethane	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	NA	49	500,000	8950	NA
2-Chlorotoluene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	0.086	0.00014	69	58.3	NA
Dibromochloromethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	21	0.039	3300	6150	20
1,2-Dibromoethane	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	0.014	0.0018	170	185	NA
Dibromomethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	72	0.4	12,000	14,300	100
1,1-Dichloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	1.4	0.042	2200	2410	1
1,1-Dichloroethene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	29	25	690,000	600,000	30
Dichlorodifluoromethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	300	400,000	340,000	NA
Dichloromethane	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	1.7	0.13	4700	4540	1
1,3-Dichloropropane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	NA	NA
1,1-Dichloropropene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	780	1.5	27,000	21,000	700
Hexachlorobutadiene	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	NA	0.5	22,000	24,600	100
Isopropyl benzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	NA	NA	647,000	NA
Methyl-tert-butyl ether	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	NA	0.47	18,000	17,400	4000
n-Propylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	990	21,000,000	237,000	NA
Styrene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	0.026	2800	2590	0.2
Tetrachloroethene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	2.3	0.033	2600	3280	3
Toluene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	1.6	0.077	5300	5800	0.9
Trichloroethene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	1.8	0.16	6400	5490	3
Trichlorofluoromethane	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	NA	NA	NA	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 50	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	120	10,000,000	254,000	NA
Vinyl Chloride	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	0.69	0.0053	1700	1860	0.7
m,p-xylene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	9800	190	2,700,000	214,000	10,000
o-xylene	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-23 for sampling locations

Footnotes:
[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).
[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).
[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).
[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).
[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 20012).

Table E-40 SA-4 Coal Pile Area
Groundwater Screening Level Comparison Summary
March 2003 to December 2011

													Current Screening Levels			
Parameter Name	**Total # of Samples**	**# Above Federal/Nevada Primary MCL**	**% Above Federal/Nevada Primary MCL**	**# Above Nevada Secondary MCL**	**% Above Nevada Secondary MCL**	**# Above NDEP BCL - Residential Water**	**% Above NDEP BCL - Residential Water**	**# Above EPA Tap Water**	**% Above EPA Tap Water**	**Min**	**Max**	**Median**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)																
Chloride	183	-	-	69	37.7%	-	-	-	-	105	2900	300	NA	400	NA	NA
Fluoride	42	34	80.95%	38	90.48%	34	80.95%	38	90.48%	< 1	49	6.65	4	2	4	0.62
Nitrogen, Nitrate(As N)	181	1	0.55%	-	-	1	0.55%	0	0.00%	< 0.1	13	< 1	10	NA	10	25
Phosphorus (total)	176	-	-	-	-	-	-	-	-	0.02	30	0.14	NA	NA	NA	NA
Sulfate	182	-	-	155	85.16%	-	-	-	-	< 1	10000	1300	NA	500	NA	NA
TDS (residue, filterable)	186	-	-	186	100%	-	-	-	-	1600	18000	2800	NA	1000	NA	NA
Metals (mg/L)																
Arsenic	181	149	82.32%	-	-	149	82.32%	154	85.08%	< 0.002	2.3	0.071	0.01	NA	0.01	0.000045
Barium	171	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.005	0.98	0.014	2	NA	2	2.9
Beryllium	165	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.001	< 0.03	< 0.003	0.004	NA	0.004	0.016
Boron	184	-	-	-	-	59	32.07%	166	90.22%	2.5	56	4.55	NA	NA	7.3	3.1
Cadmium	165	5	3.03%	-	-	5	3.03%	5	3.03%	< 0.003	0.046	< 0.003	0.005	NA	0.005	0.0069
Calcium	184	-	-	-	-	-	-	-	-	4.5	330	90	NA	NA	NA	NA
Chromium	181	0	0.00%	-	-	-	-	-	-	< 0.003	0.091	< 0.01	0.1	NA	NA	NA
Magnesium	185	-	-	58	31.35%	51	27.57%	-	-	11	1200	80	NA	150	207	NA
Manganese	185	-	-	50	27.03%	0	0.00%	9	4.86%	< 0.005	0.65	< 0.5	NA	0.1	5.11	0.32
Molybdenum	180	-	-	-	-	10	5.56%	55	30.56%	< 0.005	0.36	0.0395	NA	NA	0.183	0.078
Nickel	167	-	-	-	-	0	0.00%	0	0.00%	< 0.005	0.029	< 0.025	NA	NA	0.73	0.3
Selenium	179	3	1.68%	-	-	3	1.68%	3	1.68%	< 0.002	0.33	< 0.03	0.05	NA	0.05	0.078
Sodium	184	-	-	-	-	-	-	-	-	< 0.5	22000	840	NA	NA	NA	NA
Strontium	42	-	-	-	-	-	-	-	-	2.3	11	6.6	NA	NA	NA	NA
Titanium	179	-	-	-	-	0	0.00%	-	-	< 0.005	0.11	< 0.02	NA	NA	146	NA
Vanadium	174	-	-	-	-	1	0.57%	1	0.57%	0.003	0.45	< 0.015	NA	NA	0.183	0.078
Zinc	43	-	-	0	0.00%	0	0.00%	0	0.00%	< 0.005	0.18	0.01	NA	5	11	4.7

Notes:
Monitoring wells used in analysis include: HM-19, HM-20, HM-24, HM-28, HM-31R, HM-52, HM-52R, HM-53, HM-54
NA - Not Applicable
Refer to Figure A-22 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-41 SA-5 Area of Previous Fly Ash Fill
Soil Data

	RB-89	RB-89	RB-89	RB-89	RB-89	RB-89	RB-89	RB-89	RB-89	RB-89	RB-90	RB-90	RB-90	RB-90	RB-90	RB-90	RB-90	RB-90	RB-90	RB-90					
	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/26/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000					
	1 ft	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft	35 ft	40 ft	45 ft	1 ft	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft	35 ft	40 ft	45 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
TPH (mg/kg)																									
TPH	17	< 10	16	16	16	< 10	93	< 10	< 10	< 10	< 10	11	200	< 10	< 10	< 10	< 10	< 10	< 10	30	NA	NA	NA	NA	NA
VOCs (ug/kg)																									
Benzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	2.6	0.2	5400	4500	2
Bromobenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	21	680,000	NA	NA
Bromodichloromethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	22	0.032	1400	3600	30
Bromoform	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	21	2.1	220,000	242,000	40
Bromomethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	1.8	32,000	42,900	10
sec-Butylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	393,000	NA
n-Butylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	2500	51,000,000	237,000	NA
Carbon Tetrachloride	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.9	0.15	3000	4070	3
Chlorobenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	68	49	1,400,000	695,000	70
Chloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	1,100,000	NA
Chloroform	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	22	0.053	1500	1710	30
Chloromethane	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	NA	49	500,000	8950	NA
2-Chlorotoluene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	21	0.039	3300	6150	20
1,2-Dibromoethane	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	0.014	0.0018	170	185	NA
Dibromomethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	300	400,000	340,000	NA
Dichloromethane	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	NA	NA
Ethylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	NA	0.5	22,000	24,600	100
Isopropyl benzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	NA	NA	647,000	NA
Methyl-tert-butyl ether	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	990	21,000,000	237,000	NA
Styrene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	2.3	0.033	2600	3280	3
Toluene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.6	0.077	5300	5800	0.9
Trichloroethene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 40	< 80	< 80	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	< 80	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	9800	190	2,700,000	214,000	10,000
o-xylene	< 20	< 40	< 40	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-23 for sampling locations

Footnotes:

[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* — Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* - - Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 20012).

Table E-42 SA-5 Area of Previous Fly Ash Fill
Groundwater Data

	RB-89 8/10/2000	RB-90 7/25/2000	Current Screening Levels			
ParameterName	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry						
Chloride (mg/L)	**410**	-	NA	400	NA	NA
Nitrogen, Nitrate (as N) (mg/L)	0.8	-	10	NA	10	25
pH (S.U.)	7.84	-	NA	6.5-8.5	NA	NA
Sulfate (mg/L)	**1300**	-	NA	500	NA	NA
Phosphorus (mg/L)	0.03	-	NA	NA	NA	NA
Total Dissolved Solids (TDS)	**2500**	-	NA	1000	NA	NA
Metals (mg/L)						
Aluminum	**2.9**	-	NA	0.20	36.50	16
Arsenic	< 0.005	< 0.005	0.01	NA	0.01	0.000045
Barium	0.039	0.036	2.0	NA	2.00	2.9
Beryllium	-	-	0.004	NA	0.004	0.016
Boron	1.3	-	NA	NA	7.30	3.1
Cadmium	-	< 0.005	0.005	NA	0.005	0.0069
Calcium	200	-	NA	NA	NA	NA
Chromium	0.01	0.024	0.1	NA	NA	NA
Iron	**3.2**	-	NA	0.6	25.6	11
Lead	< 0.005	< 0.005	0.015	NA	0.015	NA
Magnesium	95	-	NA	150	207	NA
Manganese	**0.25**	-	NA	0.1	5.110	0.32
Mercury	< 0.0005	< 0.0005	**0.002**	NA	0.002	0.00063
Molybdenum	0.035	-	NA	NA	0.183	0.078
Potassium	30	-	NA	NA	NA	NA
Selenium	0.022	0.074	0.05	NA	0.05	0.078
Silver	0.012	< 0.005	NA	0.10	0.1825	0.071
Sodium	400	-	NA	NA	NA	NA
Titanium	0.1	-	NA	NA	146	NA
Vanadium	< 0.005	-	NA	NA	0.183	0.078
TPH (mg/L)						
Total (C10-C32)	< 0.50	-	NA	NA	NA	NA
PAHs (µg/L)						
Napthalene	< 20	< 40	NA	NA	0.143	0.14
VOCs (µg/L)						
1,1,1,2-Tetrachloroethane	< 10	< 20	NA	NA	0.524	0.5
1,1,1-Trichloroethane	< 10	< 20	200	NA	200	7500
1,1,2,2-Tetrachloroethane	< 10	< 20	NA	NA	0.0671	0.066
1,1,2-Trichloroethane	< 10	< 20	5.0	NA	5	0.24
1,1-Dichloroethane	< 10	< 20	NA	NA	2.42	2.4
1,1-Dichloroethene	< 10	< 20	7.0	NA	7	260
1,1-Dichloropropene	< 10	< 20	NA	NA	NA	NA
1,2,3-Trichlorobenzene	< 20	< 40	NA	NA	NA	5.2
1,2,3-Trichloropropane	< 20	< 40	NA	NA	0.00224	0.00065
1,2,4-Trichlorobenzene	< 20	< 40	70	NA	70	0.99
1,2,4-Trimethylbenzene	< 10	< 20	NA	NA	14.6	15
1,2-Dibromo-3-chloropropane	< 20	< 40	0.2	NA	0.2	0.00032
1,2-Dibromoethane	< 20	< 40	0.05	NA	0.05	0.0065
1,2-Dichlorobenzene	< 10	< 20	600	NA	600	280
1,2-Dichloroethane	< 10	< 20	5.0	NA	5	0.15
1,2-Dichloropropane	< 10	< 20	5.0	NA	5	0.38
1,3,5-Trimethylbenzene	< 10	< 20	NA	NA	14.5	87
1,3-Dichlorobenzene	< 10	< 20	NA	NA	86.7	NA
1,3-Dichloropropane	< 10	< 20	NA	NA	8.25	290
1,4-Dichlorobenzene	< 10	< 20	75	NA	75	0.42
2,2-Dichloropropane	< 10	< 20	NA	NA	NA	NA
2-Butanone	-	-	NA	NA	7,060	4900
2-Chlorotoluene	< 10	< 20	NA	NA	91.25	180
4-Chlorotoluene	< 10	< 20	NA	NA	NA	190
4-Isopropyltoluene	< 10	< 20	NA	NA	834	NA
Benzene	< 10	< 20	5.0	NA	5.00	0.39
Bromobenzene	< 10	< 20	NA	NA	87.6	54
Bromodichloromethane	< 10	< 20	80	NA	0.117	0.12
Bromoform	< 10	< 20	80	NA	8.51	7.9
Bromomethane	< 10	< 20	NA	NA	8.7	7
Carbon tetrachloride	< 10	< 20	5.0	NA	5.00	0.39
Chlorobenzene	< 10	< 20	100	NA	100	72
Chloroethane	< 10	< 20	NA	NA	23.2	NA
Chloroform	< 10	< 20	NA	NA	0.19	0.19
Chloromethane	< 20	< 40	NA	NA	2.7	190
cis-1,2-Dichloroethene	< 10	< 20	70.0	NA	70.0	28
cis-1,3-Dichloropropene	< 10	< 20	NA	NA	NA	NA
Dibromochloromethane	< 10	< 20	80	NA	0.147	0.15
Dibromomethane	< 10	< 20	NA	NA	8.16	7.9
Dichlorodifluoromethane	< 10	< 20	NA	NA	395	190
Ethylbenzene	< 10	< 20	700	NA	700	1.3
Hexachlorobutadiene	< 20	< 40	NA	NA	0.862	0.26
Isopropylbenzene	< 10	< 20	NA	NA	679	390
Methylene chloride	< 20	< 40	5.0	NA	5.00	4.7
MTBE	< 10	< 20	NA	NA	12.5	12
n-Butylbenzene	< 10	< 20	NA	NA	254	780
n-Propylbenzene	< 10	< 20	NA	NA	254	530
sec-Butylbenzene	< 10	< 20	NA	NA	254	NA
Styrene	< 10	< 20	100	NA	100	1100
tert-Butylbenzene	< 10	< 20	NA	NA	254	NA
Tetrachloroethene	< 10	< 20	5.0	NA	5.00	0.072
Toluene	< 10	< 20	1,000	NA	1,000	860
trans-1,2-Dichloroethene	< 10	< 20	100	NA	100	86
trans-1,3-Dichloropropane	< 10	< 20	NA	NA	NA	NA
Trichloroethene	< 10	< 20	5.0	NA	5.00	0.44
Trichlorofluoromethane	< 10	< 20	NA	NA	1,290	1100
Vinyl chloride	< 10	< 20	2.0	NA	2.00	0.015

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for sampling locations
Footnotes:
[1]***Federal/Nevada Primary MCL:*** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.
[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-43 SA-7 Unit 4 Settling Pond
Pond Water Data

	P-5 4/20/2000	Current Screening Levels			
Parameter Name	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)					
Total Dissolved Solids (residue, filterable)	**7537**	NA	1000	NA	NA
METALS (mg/L)					
Aluminum, Dissolved	**0.65**	NA	0.2	36.5	16
Arsenic, Dissolved	**0.039**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.069	2	NA	2	2.9
Boron, Dissolved	**11**	NA	NA	7.3	3.1
Calcium, Dissolved	200	NA	NA	NA	NA
Chromium, Dissolved	0.02	0.1	NA	NA	NA
Iron, Dissolved	<0.05	NA	0.6	25.6	11
Lead, Dissolved	<0.005	0.015	NA	0.015	NA
Magnesium, Dissolved	51	NA	150	207	NA
Manganese, Dissolved	<0.005	NA	0.1	5.11	0.32
Mercury, Dissolved	<0.0005	0.002	NA	0.002	0.00063
Molybdenum, Dissolved	**0.4**	NA	NA	0.183	0.078
Potassium, Dissolved	86	NA	NA	NA	NA
Selenium, Dissolved	**0.089**	0.05	NA	0.05	0.078
Sodium, Dissolved	2400	NA	NA	NA	NA
Titanium, Dissolved	<0.05	NA	NA	146	NA
Vanadium, Dissolved	0.076	NA	NA	0.183	0.078

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-22 for sampling locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-44 SA-8 Units 1,2,3 Catch Basin
Pond Water Data

	P-1 4/20/2000	Current Screening Levels			
Parameter Name	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL - Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)					
Total Dissolved Solids(residue, filterable)	**5030**	NA	1000	NA	NA
Metals (mg/L)					
Aluminum, Dissolved	**0.82**	NA	0.2	36.5	16
Arsenic, Dissolved	**0.11**	0.01	NA	0.01	0.000045
Barium, Dissolved	0.21	2	NA	2	2.9
Boron, Dissolved	2.5	NA	NA	7.3	3.1
Calcium, Dissolved	410	NA	NA	NA	NA
Chromium, Dissolved	<0.005	0.1	NA	NA	NA
Iron, Dissolved	0.085	NA	0.6	25.6	11
Lead, Dissolved	<0.005	0.015	NA	0.015	NA
Magnesium, Dissolved	**180**	NA	150	207	NA
Manganese, Dissolved	<0.005	NA	0.1	5.11	0.32
Mercury, Dissolved	<0.0005	0.002	NA	0.002	0.00063
Molybdenum, Dissolved	0.059	NA	NA	0.183	0.078
Potassium, Dissolved	66	NA	NA	NA	NA
Selenium, Dissolved	<0.005	0.05	NA	0.05	0.078
Sodium, Dissolved	720	NA	NA	NA	NA
Titanium, Dissolved	<0.05	NA	NA	146	NA
Vanadium, Dissolved	0.014	NA	NA	0.183	0.078

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figure A-22 for sampling locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)-* **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-45 SA-19 Unit 1,2,3 Scrubbers and Unit 4 Absorber
Groundwater Screening Level Comparison Summary
June 2005 to December 2011

													Current Screening Levels			
Parameter Name	**Total # of Samples**	**# Above Federal/Nevada Primary MCL**	**% Above Federal/Nevada Primary MCL**	**# Above Nevada Secondary MCL**	**% Above Nevada Secondary MCL**	**# Above NDEP BCL - Residential Water**	**% Above NDEP BCL - Residential Water**	**# Above EPA Tap Water**	**% Above EPA Tap Water**	**Min**	**Max**	**Median**	**Federal/Nevada Primary MCL**	**Nevada Secondary MCL**	**NDEP BCL - Residential Water**	**EPA Tap Water**
General Chemistry (mg/L)																
Chloride	26	-	-	26	100%	-	-	-	-	480	2800	1100	NA	400	NA	NA
Nitrogen, Nitrate(As N)	26	-	-	-	-	-	-	-	-	< 0.1	5.4	< 2	10	NA	10	25
Phosphorus (total)	25	-	-	-	-	-	-	-	-	0.038	4200	0.58	NA	NA	NA	NA
Sulfate	26	-	-	26	100%	-	-	-	-	2200	32000	23500	NA	500	NA	NA
TDS (residue, filterable)	26	-	-	26	100%	-	-	-	-	3600	55000	35500	NA	1000	NA	NA
Dissolved Metals (mg/L)																
Arsenic	26	26	100%	-	-	26	100%	26	100%	0.14	2.3	0.72	0.01	NA	0.01	0.000045
Barium	24	-	-	-	-	-	-	-	-	0.0068	0.056	0.028	2	NA	2	2.9
Beryllium	24	-	-	-	-	-	-	-	-	< 0.001	< 0.075	< 0.0075	0.004	NA	0.004	0.016
Boron	26	-	-	-	-	25	96.15%	26	100%	3.4	23	17	NA	NA	7.3	3.1
Cadmium	24	1	4.17%	-	-	1	4.17%	1	4.17%	< 0.003	0.025	< 0.01	0.005	NA	0.005	0.0069
Calcium	26	-	-	-	-	-	-	-	-	3.5	260	49.55	NA	NA	NA	NA
Chromium	26	-	-	-	-	-	-	-	-	< 0.003	< 0.075	< 0.015	0.1	NA	NA	NA
Magnesium	26	-	-	-	-	-	-	-	-	5.8	117	29	NA	150	207	NA
Manganese	26	-	-	2	7.69%	-	-	2	7.69%	< 0.01	0.49	< 0.5	NA	0.1	5.11	0.32
Molybdenum	26	-	-	-	-	25	96.15%	26	100%	0.12	1.4	0.515	NA	NA	0.183	0.078
Nickel	24	-	-	-	-	-	-	-	-	0.005	0.033	0.00855	NA	NA	0.73	0.3
Selenium	26	10	38.46%	-	-	10	38.46%	3	11.54%	0.0058	0.15	0.04	0.05	NA	0.05	0.078
Sodium	26	-	-	-	-	-	-	-	-	510	19000	11500	NA	NA	NA	NA
Titanium	26	-	-	-	-	-	-	-	-	< 0.005	< 0.25	< 0.05	NA	NA	146	NA
Vanadium	25	-	-	-	-	9	36%	16	64%	0.0058	0.28	0.133	NA	NA	0.183	0.078
Zinc	2	-	-	-	-	-	-	-	-	0.028	0.037	0.0325	NA	5	11	4.7

Notes:
Monitoring wells used in analysis include: HM-32 and HM-32R
NA - Not Applicable
Refer to Figure A-22 for monitoring well locations
Footnotes:
[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)* **--** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).
[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).
[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-46 SA-18 Northern Station Sources
Soil Data

	RB-87	RB-87	RB-87	RB-87	RB-87	RB-87	RB-87	RB-87	RB-87	RB-88	RB-88	RB-88	RB-88	RB-88	RB-88	RB-88	RB-88	RB-88	RB-88					
	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	7/24/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000	8/10/2000					
	1 ft	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft	35 ft	45 ft	1 ft	5 ft	10 ft	15 ft	20 ft	25 ft	30 ft	35 ft	40 ft	45 ft	Current Screening Levels				
Parameter Name	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**EPA MCL-based SSL[1]**	**EPA Risk-based SSL[2]**	**EPA RSL Industrial Soil[3]**	**NDEP BCL Outdoor Worker[4]**	**NDEP LBCL (DAF 1)[5]**
Metals (mg/kg)																								
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29	0.0013	1.6	1.77	1
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	41	NA	NA	NA	NA	NA	NA	NA	NA	NA	82	120	190,000	100,000	82
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	0.52	NA	560	0.4
Chromium (total)	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	180,000	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	800	800	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	0.033	43	341	0.104
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.26	0.4	5100	5680	0.3
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.6	5100	5680	2
TPH (mg/kg)																								
TPH	12	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	26	< 10	< 10	12	< 10	< 10	NA	NA	NA	NA	NA
VOCs (ug/kg)																								
Benzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	2.6	0.2	5400	4500	2
Bromobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	36	1,800,000	695,000	NA
Bromochloromethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	21	680,000	NA	NA
Bromodichloromethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	22	0.032	1400	3600	30
Bromoform	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	21	2.1	220,000	242,000	40
Bromomethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	1.8	32,000	42,900	10
sec-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	223,000	NA
tert-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	393,000	NA
n-Butylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	2500	51,000,000	237,000	NA
Carbon Tetrachloride	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1.9	0.15	3000	4070	3
Chlorobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	68	49	1,400,000	695,000	70
Chloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	1,100,000	NA
Chloroform	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	22	0.053	1500	1710	30
Chloromethane	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	49	500,000	8950	NA
2-Chlorotoluene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	170	20,000,000	511,000	NA
4-Chlorotoluene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	180	20,000,000	NA	NA
1,2-Dibromo-3-Chloropropane	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	0.086	0.00014	69	58.3	NA
Dibromochloromethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	21	0.039	3300	6150	20
1,2-Dibromoethane	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	0.014	0.0018	170	185	NA
Dibromomethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	1.9	110,000	210,000	NA
1,2-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	580	270	9,800,000	373,000	900
1,3-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	373,000	NA
1,4-Dichlorobenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	72	0.4	12,000	14,300	100
1,1-Dichloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	0.68	17,000	23,300	1000
1,2-Dichloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1.4	0.042	2200	2410	1
1,1-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	2.5	93	1,100,000	1,400,000	3
cis-1,2-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	21	8.2	2,000,000	791,000	20
trans-1,2-Dichloroethene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	29	25	690,000	600,000	30
Dichlorodifluoromethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	300	400,000	340,000	NA
Dichloromethane	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	1.3	1.2	53,000	60,400	1
1,2-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1.7	0.13	4700	4540	1
1,3-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	99	20,000,000	71,600	1
2,2-Dichloropropane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
1,1-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA
Ethylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	780	1.5	27,000	21,000	700
Hexachlorobutadiene	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.5	22,000	24,600	100
Isopropyl benzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	640	11,000,000	647,000	NA
p-Isopropyltoluene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	647,000	NA
Methyl-tert-butyl ether	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	2.8	220,000	216,000	NA
Naphthalene (VOC)	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.47	18,000	17,400	4000
n-Propylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	990	21,000,000	237,000	NA
Styrene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	110	1200	36,000,000	1,730,000	200
1,1,1,2-Tetrachloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	0.19	9300	20,300	NA
1,1,2,2-Tetrachloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	0.026	2800	2590	0.2
Tetrachloroethene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	2.3	0.033	2600	3280	3
Toluene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	690	590	45,000,000	521,000	600
1,2,3-Trichlorobenzene	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	15	490,000	NA	NA
1,2,4-Trichlorobenzene	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	200	2.9	99,000	110,000	300
1,1,1-Trichloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	70	2600	38,000,000	1,390,000	100
1,1,2-Trichloroethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1.6	0.077	5300	5800	0.9
Trichloroethene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	1.8	0.16	6400	5490	3
Trichlorofluoromethane	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	690	3,400,000	1,980,000	NA
1,2,3-Trichloropropane	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	< 40	NA	0.00028	95	106	NA
1,2,4-Trimethylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	21	260,000	671,000	NA
1,3,5-Trimethylbenzene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	120	10,000,000	254,000	NA
Vinyl Chloride	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	0.69	0.0053	1700	1860	0.7
m,p-xylene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	9800	190	2,700,000	214,000	10,000
o-xylene	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	NA	190	3,000,000	282,000	9000

Notes:
NA - Not Applicable
Results that exceed a screening level are in **bold**.
Refer to Figure A-24 for sampling locations

Footnotes:

[1] ***EPA MCL-based SSL :*** *EPA Soil Screening Level (SSL) (MCL-Based)* —Maximum Contaminant Level (MCL) based soil contaminant concentrations below which no further action or study regarding the soil at a site is warranted under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA). This soil screening level was determined by EPA to be protective of groundwater. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a Leaching Basic Comparison Level (LBCL) for a particular parameter (November 2011).

[2] ***EPA Risk-based SSL :*** *EPA SSL (Risk-Based)* -- Soil concentrations derived for individual chemicals of concern from standardized sets of equations. These equations combine EPA chemical toxicity data with parameters defined by assumed future land uses and exposure scenarios, including receptor characteristics and potential exposure pathways. The soil leaching to groundwater SSL (Risk-Based) may be used when NDEP has not determined a LBCL for a particular parameter (November 2011).

[3] ***EPA RSL Industrial Soil :*** *EPA Regional Screening Level (RSL) (Industrial Soil)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991) and Soil Screening Guidance documents (1996 and 2002). The Industrial Soil RSL is protective of the human health of outdoor workers (November 2011).

[4] ***NDEP BCL Outdoor Worker :*** *NDEP Basic Comparison Level (BCL) (Outdoor Industrial/Commercial Worker)* -- Screening level determined by NDEP for the BMI Complex to be protective of the human health of outdoor workers from the *Updated User's Guide and Tables* (January 2012).

[5] ***NDEP LBCL (DAF1) :*** *NDEP Leaching BCL Dilution Attenuation Factor of 1 (LBCL DAF1)* -- Developed by NDEP for use at the BMI Complex and Common Areas in Henderson Nevada specifically for the soil leaching to groundwater migration pathway, and for certain constituents (January 2012).

Table E-47 SA-18 Northern Station Sources
Groundwater Data

	RB-87 7/27/2000	RB-88 7/28/2000	Current Screening Levels			
Parameter	**Result**	**Result**	**Federal/Nevada Primary MCL[1]**	**Nevada Secondary MCL[2]**	**NDEP BCL Residential Water[3]**	**EPA Tap Water[4]**
General Chemistry (mg/L)						
Alkalinity (Total)	100	-	NA	NA	NA	NA
Alkalinity (Bicarbonate)	< 0.1	-	NA	NA	NA	NA
Alkalinity (Carbonate)	< 0.1	-	NA	NA	NA	NA
Alkalinity (Hydroxide)	< 0.1	-	NA	NA	NA	NA
Nitrate as N	0.7	-	10	NA	10	25
Phosphorus (Ortho)	0.02	-	NA	NA	NA	NA
TDS (residue, filterable)	**2100**	-	NA	1000	NA	NA
General Chemistry (umhos/cm)						
Specific Conductivity	2580	-	NA	NA	NA	NA
General Chemistry						
pH	7.86	-	NA	6.5-8.5	NA	NA
Metals (mg/L)						
Aluminum (Dissolved)	< 0.05	-	NA	0.2	36.5	16
Arsenic (Dissolved)	< 0.001	< 0.001	0.01	NA	0.01	0.000045
Barium (Dissolved)	0.013	0.023	2	NA	2	2.9
Boron (Dissolved)	0.83	-	NA	NA	7.3	3.1
Cadmium (Dissolved)	-	< 0.005	0.005	NA	0.005	0.0069
Calcium (Dissolved)	160	-	NA	NA	NA	NA
Chromium (Dissolved)	0.013	0.024	0.1	NA	NA	NA
Iron (Dissolved)	**2**	-	NA	0.6	25.6	11
Lead (Dissolved)	< 0.001	< 0.001	0.015	NA	0.015	NA
Magnesium (Dissolved)	95	-	NA	150	207	NA
Manganese (Dissolved)	0.02	-	NA	0.1	5.11	0.32
Mercury (Dissolved)	< 0.005	< 0.0005	0.002	NA	0.002	0.00063
Molybdenum (Dissolved)	0.008	< 0.005	NA	NA	0.183	0.078
Potassium (Dissolved)	40	-	NA	NA	NA	NA
Selenium (Dissolved)	0.041	**0.084**	0.05	NA	0.05	0.078
Silver (Dissolved)	< 0.005	< 0.005	NA	NA	0.1825	0.071
Sodium (Dissolved)	270	-	NA	NA	NA	NA
Titanium (Dissolved)	< 0.05	-	NA	NA	146	NA
Vanadium (Dissolved)	< 0.005	-	NA	NA	0.183	0.078
Petroleum Hydrocarbons (mg/L)						
TPH-extractable	< 0.5	110	NA	NA	NA	NA
VOCs (ug/L)						
cis-1,2-Dichloroethene	< 1	5	70	NA	70	28
Trichloroethene	< 1	**69**	5	NA	5	0.44

Notes:

NA - Not Applicable

Results that exceed a screening level are in **bold**.

Refer to Figure A-24 for sampling locations

Footnotes:

[1]***Federal/Nevada Primary MCL*** **:** *Primary Maximum Contaminant Level (MCL)*- **-** Federal standards adopted by Nevada that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water (December 2009).

[2]***Nevada Secondary MCL*** **:** *Nevada Secondary MCL* -- Secondary standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water as defined by NAC 445A.455.

[3]***NDEP BCL - Residential Water*** **:** *NDEP Basic Comparison Level (Residential Water)* **—** Screening level determined by NDEP for the BMI Complex to be protective of exposure through residential water use. Residential water takes into account human exposure through ingestion of water and inhalation from exposure to vapors during showering or other activities. Source: *Updated User's Guide and Tables* (January 2012).

[4]***EPA Tap Water*** **:** *EPA Regional Screening Level (RSL) (Tap Water)* -- Generic screening levels based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for human long-term/chronic exposures and are based on the methods outlined in EPA's Risk Assessment Guidance for Superfund, Part B Manual (1991). The Tapwater RSL takes into account human exposure from direct ingestion of water and inhalation from exposure to vapors during showering or other activities (November 2011).

Table E-48 SA-18 Northern Station Sources
Groundwater Screening Level Comparison Summary
June 2005 to December 2011

Parameter	Total # of Samples	# Above Federal/Nevada Primary MCL	% Above Federal/Nevada Primary MCL	# Above Nevada Secondary MCL	% Above Nevada Secondary MCL	# Above NDEP BCL - Residential Water	% Above NDEP BCL - Residential Water	# Above EPA Tap Water	% Above EPA Tap Water	Min	Max	Median	Current Screening Levels			
													Federal/Nevada Primary MCL[1]	Nevada Secondary MCL[2]	BCL - Residential Water[3]	EPA Tap Water[4]
General Chemistry (mg/L)																
Chloride	161	-	-	53	32.92%	-	-	-	-	66.1	2400	210	NA	400	NA	NA
Nitrogen, Nitrate(As N)	159	19	11.95%	-	-	19	11.95%	-	-	< 0.1	25	0.68	10	NA	10	25
Phosphorus, Total (As P)	149	-	-	-	-	-	-	-	-	< 0.02	7	0.038	NA	NA	NA	NA
Sulfate	157	-	-	129	82.17%	-	-	-	-	170	7000	1500	NA	500	NA	NA
Sulfide	61	-	-	-	-	-	-	-	-	0.01	1.3	< 0.05	NA	NA	NA	NA
Sulfite	61	-	-	-	-	-	-	-	-	2	2	< 2	NA	NA	NA	NA
Suspended Solids (residue,non-filterable)	65	-	-	-	-	-	-	-	-	3.3	1146	35	NA	NA	NA	NA
Total Dissolved Solids(residue, filterable)	161	-	-	133	82.61%	-	-	-	-	470	14000	2700	NA	1000	NA	NA
Total Organic Carbon	60	-	-	-	-	-	-	-	-	1	3.2	< 3	NA	NA	NA	NA
Dissolved Metals (mg/L)																
Arsenic, Dissolved	158	111	70.25%	-	-	111	70.25%	127	80.38%	0.0021	0.11	0.015	0.01	NA	0.01	0.000045
Barium, Dissolved	147	-	-	-	-	-	-	-	-	0.0041	0.11	0.013	2	NA	2	2.9
Beryllium, Dissolved	149	-	-	-	-	-	-	-	-	< 0.001	< 0.06	< 0.003	0.004	NA	0.004	0.016
Boron, Dissolved	161	-	-	-	-	28	17.39%	103	63.98%	0.525	18	4.8	NA	NA	7.3	3.1
Cadmium, Dissolved	149	-	-	-	-	-	-	-	-	< 0.003	< 0.06	< 0.003	0.005	NA	0.005	0.0069
Calcium, Dissolved	162	-	-	-	-	-	-	-	-	15.3	1160	90.5	NA	NA	NA	NA
Chromium, Dissolved	157	-	-	-	-	-	-	-	-	0.003	0.0080	< 0.005	0.1	NA	NA	NA
Fluoride, Dissolved	66	37	56.06%	64	96.97%	37	56.06%	64	96.97%	< 1	12	4.65	4	2	4	0.62
Magnesium, Dissolved	159	-	-	26	16.35%	17	10.69%	-	-	5.11	430	51	NA	150	207	NA
Manganese, Dissolved	157	-	-	1	0.64%	-	-	-	-	< 0.005	0.16	< 0.1	NA	0.1	5.11	0.32
Molybdenum, Dissolved	160	-	-	-	-	48	30%	73	45.62%	< 0.005	0.78	0.057	NA	NA	0.183	0.078
Nickel, Dissolved	150	-	-	-	-	-	-	-	-	< 0.0005	0.0270	< 0.005	NA	NA	0.73	0.3
Potassium, Dissolved	13	-	-	-	-	-	-	-	-	18	89	26	NA	NA	NA	NA
Selenium, Dissolved	157	36	22.93%	-	-	36	22.93%	13	8.28%	0.00096	0.2000	0.015	0.05	NA	0.05	0.078
Sodium, Dissolved	162	-	-	-	-	-	-	-	-	120	3100	760	NA	NA	NA	NA
Strontium, Dissolved	60	-	-	-	-	-	-	-	-	0.692	4.7	2	NA	NA	NA	NA
Titanium, Dissolved	157	-	-	-	-	-	-	-	-	< 0.005	0.044	< 0.01	NA	NA	146	NA
Vanadium, Dissolved	159	-	-	-	-	-	-	-	-	< 0.003	0.04	0.0052	NA	NA	0.183	0.078
Zinc, Dissolved	59	-	-	-	-	-	-	-	-	< 0.005	0.18	< 0.1	NA	5	11	4.7
VOC (µg/L)																
1,1,1,2-Tetrachloroethane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	0.524	0.5
1,1,1-Trichloroethane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	200	NA	200	7500
1,1,2,2-Tetrachloroethane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	0.0671	0.066
1,1,2-Trichloroethane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.24
1,1-Dichloroethane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	2.42	2.4
1,1-Dichloroethene	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	7	NA	7	260
1,1-Dichloropropene	156	-	-	-	-	-	-	-	-	< 0.5	< 5	< 0.5	NA	NA	NA	NA
1,2,3-Trichlorobenzene	156	-	-	-	-	-	-	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	NA	5.2
1,2,3-Trichloropropane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	0.00224	0.00065
1,2,4-Trichlorobenzene	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	70	NA	70	0.99
1,2,4-Trimethylbenzene	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	14.6	15
1,2-Dibromo-3-chloropropane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	0.2	NA	0.2	0.00032
1,2-Dibromoethane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	0.05	NA	0.05	0.0065
1,2-Dichlorobenzene	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	600	NA	600	280
1,2-Dichloroethane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.15
1,2-Dichloropropane	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.38
1,3,5-Trimethylbenzene	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	14.5	87
1,3-Dichlorobenzene	156	-	-	-	-	0	0.00%	-	-	< 0.5	< 5	< 0.5	NA	NA	86.7	NA
1,3-Dichloropropane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	8.25	290
1,4-Dichlorobenzene	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	75	NA	75	0.42
2,2-Dichloropropane	156	-	-	-	-	-	-	-	-	< 0.5	< 5	< 0.5	NA	NA	NA	NA
2-Chlorotoluene	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	91.25	180
4-Chlorotoluene138	156	-	-	-	-	-	-	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	NA	190
4-Isopropyltoluene	156	-	-	-	-	0	0.00%	-	-	< 0.5	< 5	< 0.5	NA	NA	834	NA
4-Methyl-2-Pentanone	30	-	-	-	-	0	0.00%	0	0.00%	< 10	< 10	< 10	NA	NA	1990	1000
Acetone	30	-	-	-	-	0	0.00%	0	0.00%	< 10	< 50	< 10	NA	NA	21800	12000
Benzene	156	1	0.64%	-	-	1	0.64%	1	0.64%	< 0.5	14.4	< 0.5	5	NA	5	0.39
Bromobenzene	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	87.6	54
Bromodichloromethane	156	0	0.00%	-	-	1	0.64%	1	0.64%	< 0.5	1.4	< 0.5	80	NA	0.117	0.12
Bromoform	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	0.78	< 0.5	80	NA	8.51	7.9
Bromomethane	156	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	8.66	7
Carbon Disulfide	30	-	-	-	-	0	0.00%	0	0.00%	< 5	< 5	< 5	NA	NA	1040	720
Carbon tetrachloride	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.39
Chlorobenzene	156	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	100	NA	100	72
Chloroethane	156	-	-	-	-	0	0.00%	-	-	< 0.5	< 5	< 0.5	NA	NA	23.2	NA
Chloroform	151	-	-	-	-	1	0.66%	1	0.66%	< 0.5	2.4	< 0.5	NA	NA	0.193	0.19
Chloromethane	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	2.7	190
cis-1,2-Dichloroethene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	70	NA	70	28
cis-1,3-Dichloropropene	151	-	-	-	-	-	-	-	-	< 0.5	< 5	< 0.5	NA	NA	NA	NA
Dibromochloromethane	151	0	0.00%	-	-	1	0.66%	1	0.66%	< 0.5	0.57	< 0.5	80	NA	0.147	0.15
Dibromomethane	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	8.16	7.9
Dichlorodifluoromethane	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	395	190
Ethylbenzene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	700	NA	700	1.3
Hexachlorobutadiene	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	0.862	0.26
Isopropylbenzene	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	679	390
m,p-Xylene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 10	< 0.5	10000	NA	10000	190
Methylene chloride	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 1	5	NA	5	4.7
Methyl-tert-butyl ether	30	-	-	-	-	0	0.00%	0	0.00%	< 1	< 5	< 1	NA	NA	12.5	12
Naphthalene (VOC)	145	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 10	< 0.5	NA	NA	0.143	0.14
n-Butylbenzene	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	254	780
n-Propylbenzene	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	254	530
o-Xylene	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	1220	190
sec-Butylbenzene	151	-	-	-	-	0	0.00%	-	-	< 0.5	< 5	< 0.5	NA	NA	254	NA
Styrene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	100	NA	100	1100
tert-Butylbenzene	151	-	-	-	-	0	0.00%	-	-	< 0.5	< 5	< 0.5	NA	NA	254	NA
Tetrachloroethene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.072
Toluene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	2.8	< 0.5	1000	NA	1000	860
Total Xylenes	30	0	0.00%	-	-	0	0.00%	0	0.00%	< 3	< 15	< 3	10000	NA	10000	190
trans-1,2-Dichloroethene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	100	NA	100	86
Trichloroethene	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	5	NA	5	0.44
Trichlorofluoromethane	151	-	-	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	NA	NA	1290	1100
Vinyl chloride	151	0	0.00%	-	-	0	0.00%	0	0.00%	< 0.5	< 5	< 0.5	2	NA	2	0.015

Notes:
Monitoring wells used in analysis include: IMW-9R, IMW-12.5R, IMW-13R, IMW-14R, IMW-15, IMW-17
NA - Not Applicable
Refer to Figure A-24 for monitoring well locations

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