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SAMPLING AND ANALYSIS PLAN

Vacant 7-Acre Parcel
APN: 002-770-005
Wells
Elko County
Nevada
NDEP Contract #10-008-04
Task M02-13

Prepared for:

State of Nevada
Department of Conservation and Natural Resources
Division of Environmental Protection
Bureau of Corrective Actions
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701-5249

On behalf of:

City of Wells

January 24, 2013

Sampling and Analysis Plan for:

Limited Phase II Environmental Site Assessment for
APN: 002-770-005
Wells, Nevada

January 31, 2013

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Mary Siders

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Coordinator: _____
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1. INTRODUCTION

McGinley and Associates, Inc. (MGA) has prepared this Sampling and Analysis Plan (SAP) for assessment activities to be conducted on a vacant property located in Wells, Nevada. These assessment activities are being funded by the State of Nevada Brownfields Program. This SAP was prepared in accordance with the Nevada Division of Environmental Protection (NDEP) Quality Assurance Program Plan (QA Program Plan) for the Nevada Brownfields Program (NBP) (NDEP, 2007).

This SAP addresses the field sampling, analytical, quality control, and data review procedures for the collection and analysis of soil and groundwater samples to evaluate contamination from orphaned underground storage tanks at the site and past hydrocarbon releases from former service stations and truck stops located in the vicinity.

1.1 Site Name

Vacant Property: 7-Acre Parcel.

1.2 Site Location and Description

The subject property consists of a vacant seven-acre parcel of land located in Wells, Nevada. The parcel is listed with Elko County, Nevada as Assessor's Parcel Number (APN) 002-770-005. Geographically, the subject property is located in the N ½ of the SW ¼ of Section 10, Township 37 North, Range 62 East of the Mount Diablo Base and Meridian (MDB&M). The location of the site is indicated on Figure 1.

The subject property is a vacant unoccupied parcel of land approximately seven acres in size. Access to the property can be gained from 6th Street to the southwest. The parcel has a slight grade and generally slopes to the north-northeast. The layout of the subject property is illustrated on Figure 2. Notable findings observed during a Phase I ESA site visit included: two cover plate fixtures containing buried conduit; construction material debris; several 55-gallon drums; and one abandoned rusted rectangular tank, approximately 80 gallons in volume. The debris consisted of concrete rubble, bricks, rusted pipes, apparent wood beams/columns, and other similar items that appeared to be evidence of a former building structure or multiple building structures. One area of the debris consisted of concrete sections with metal bollards near two cover plate fixtures containing buried conduit. The shape of the concrete sections with metal bollards appeared similar to construction materials used for a former fuel island.

1.3 Responsible Agency

This project is being conducted for the NDEP through State of Nevada Brownfields program (NBP). The investigation will conform to the NBP's QA Program Plan (NDEP, 2007).

1.4 Project Organization

Title/Responsibility	Name	Phone
City of Wells		
Site Contact	Jolene Supp	(775) 752-3355
NDEP		
Program Coordinator for the Nevada Brownfields Program – Project coordination, liaison with City of Wells	Jeff Collins	(775) 687-9381
Case Officer – Review SAP, quality assurance	David Friedman	(775) 687-9385
Quality Coordinator for the Nevada	Mary Siders	(775) 687-9496

Brownfields Program – Review SAP, quality assurance		
USEPA		
USEPA Project Manager – Work plan review	Eugenia Chow	(415) 415-972-3160
USEPA QA Manager	Gail Morison	(415) 972-3807
McGinley and Associates, Inc.		
Principal – Senior review	Joe McGinley	(775) 829-2245
Project Manager – Project management, regulatory liaison, coordinate field activities, data review, report preparation.	Brett Bottenberg	(702) 260-4961
Quality Manager – Oversee implementation of SAP, review QA/QC procedures, data validation.	Brian Rakvica	(702) 260-4961
Environmental Scientist – Conduct sampling activities	Justin Fike	(775) 829-2245
GIS Services – Mapping support	Mike Parenti	(702) 260-4961
Administrative Assistant – Administrative support	Linda Comstock	(775) 829-2245
Contractors/Vendors		
ESC Lab Sciences	Dave Veratti	(615) 758-5858
GPRS	Jim Cox	(775) 560-8913
Earth Probe Environmental Field Services	Patrick Casey	(801) 466-3752

1.5 Statement of the Specific Problem

The City of Wells has proposed to redevelop the subject property with a visitor center and convention center. In 2010, the property was turned over to the City of Wells by the former owner, Century Casinos Nevada. Under the State of Nevada Brownfields Program, a Phase I ESA was performed on the property in 2012.

The Phase I ESA performed by MGA on the subject property discovered the following recognized environmental conditions (RECs):

- Potential orphaned USTs at the subject property; and
- Past hydrocarbon release events at the Four-Way Truck Stop, Former Chevron Service Station, and Former Fearless Farris Stinker Station.

These RECs will need to be addressed prior to redevelopment of the property.

2. BACKGROUND

According to the Elko County, Nevada Assessor's Office, the subject property comprises an area of approximately seven acres on a single parcel of land. Available records indicate no building structures are located on the property. The subject property is listed as Assessor's Parcel Number (APN) 002-770-005 and is currently owned by the City of Wells. Prior owners were listed as Century Casino Nevada, Inc. from 2001 to 2009 and Chevron USA, Inc. from an unknown date to 2001.

Review of historical aerial photographs, depicts the subject property as undeveloped in 1980, 1994, 1999 and 2006. However, for the year 1967, several shadows observed in the photo imply one or several onsite structures existed on the subject property. Unfortunately, it is difficult to discern details of the structure(s), due to the scale and lack of clarity of this photograph. In the

1980, 1994, 1999, and 2006 aerial photographs reviewed, the subject property and surrounding properties appear consistent with observations made during the Phase I ESA site reconnaissance.

2.1 Sampling Area Description

The study area (the Site) occupies 7 acres in Wells, Nevada (Figure 1). The area is bounded on the north by commercial property with one building, the south by a gas station with convenience store, the east by commercial property with several buildings, and to the west by 6th Street with several commercial properties beyond. As shown on Figure 2, the Site is a vacant parcel.

2.2 Operational History

Based on available historical information, it appears that the site was developed in the past. Aerial photographs suggest that the site may have been developed with several structures in 1967. However, the photograph is not clear and it is difficult to discern details of the structures.

In addition, ownership information provided by the Elko County Assessor's Office appears to indicate that the property may have formerly been a gas station. Chevron USA, Inc. is listed as an owner up until 2001. The number of years owned by Chevron prior to 2001 is unknown.

2.3 Previous Investigations/Regulatory Involvement

In May of 2012, MGA conducted a Phase I ESA on the study area. The ESA was conducted in compliance with the American Society for Testing and Materials (ASTM) Standard E-1527-05 to identify any recognized environmental conditions (RECs) at the Site. The proposed sampling assessment is based on the findings of this Phase I ESA which are previously presented in Section 1.5 of this Sampling and Analysis Plan.

2.4 Geological Information

The geology of the subject property has been mapped as Quaternary Alluvium (Coats, 1975). The deposits are described as relatively thin, coarse, and poorly sorted silt, sand, and gravel. Surface soils at the subject site have been mapped as Valmy-Enko association with slopes ranging from zero to four percent. The soil unit is described as well drained with moderately low to high permeability and moderate to high water capacity (Natural Resources Conservation Service, 2011).

Groundwater conditions on the subject property have not been positively ascertained. However, information obtained from files available for review (Facility ID #6-000029) at the Nevada Division of Environmental Protection (NDEP) and an online database maintained by the Nevada Division of Water Resources (DWR), indicates that depth to groundwater ranges from approximately 5 to 15 feet below ground surface (fbgs). No wells were observed on the subject property; however, the DWR online database shows multiple groundwater monitoring wells potentially located on the subject property and at the Shell gas station to the south. Groundwater flow direction appears to be generally towards the north-northeast.

2.5 Environmental and/or Human Impact

No adverse human health effects associated with potential contamination at this site have been reported or documented. However, the potential exists for receptors to interact with the soils once disturbed.

3. PROJECT DATA QUALITY OBJECTIVES

3.1 Project Task and Problem Definition

The purpose of this investigation is to assess the soil and groundwater for contamination from historical site use, orphaned USTs, and off-site leaking underground storage tanks (LUSTs). Definitive data will be collected to determine the extent of soil and groundwater contamination, if any.

3.2 Data Quality Objectives (DQOs)

The DQO process (EPA 2006) is a systematic planning tool that is used to establish performance or acceptance criteria. These criteria, in turn, serve as the basis for designing a plan for collecting data of sufficient quality and quantity to support the goals of a study. The DQO process consists of seven iterative steps, as described in the following sections and summarized in Table 1.

3.2.1 Step 1: State the Problem

Possible historic use of the site as a gas station and evidence of a former fueling island may indicate that orphaned USTs still exist on the subject property. In addition, LUSTs on other properties located adjacent or in the immediate vicinity may have impacted the groundwater beneath the subject property. However, the nature and extent of contamination in the soils and groundwater, if any, is not known. Additional data are needed to define the nature and extent, if any, of contamination within the soil and groundwater.

3.2.2 Step 2: Identify Decisions

Analytical data for collected samples will be evaluated to determine if concentrations of contaminants of concern (COC) exceed Nevada reportable concentrations (RCs). Analytical data will be compared to reportable concentrations (RCs) as published in the State of Nevada Division of Environmental Protection (NDEP) Draft Guidelines for Discovery Events document (NAC 445A.345 to 445A.348 as modified by adopted regulation R-189-08). Results of the investigation will be used to determine if additional assessment and/or regulatory notification with subsequent clean-up are required.

3.2.3 Step 3: Identify Inputs

Information required to address project objectives includes historical data, proposed quantitative data to be collected under this study, and soil/groundwater RCs. Analytical testing of soil and groundwater samples shall be conducted by ESC Lab Sciences of Mount Juliet, Tennessee. ESC's DQOs for the analytical testing are provided in Appendix A.

3.2.4 Step 4: Define Study Boundaries

The proposed investigation shall extend from the surface to groundwater. The duration of the assessment activities described in this SAP is approximately one week.

3.2.5 Step 5: Develop Decision Rules

Decision rules are specified in Table 1, and describe actions based on qualitative and definitive data. Laboratory analytical data for the sampled media will be compared to State of Nevada RCs. For contaminants detected above RCs, Nevada statutes require that site-specific action levels be an appropriate level of concentration that is based on the protection of public health and safety and the environment as determined through the use of the Integrated Risk Information System (IRIS) adopted by the USEPA, to be used when inhalation, ingestion, or dermal exposure is the primary exposure pathway; or a background concentration.

3.2.6 Step 6: Specify Tolerable Limits on Decision Errors

This is not a statistically based study; therefore, sampling locations will be selected based on professional judgment and site knowledge.

3.2.7 Step 7: Optimize the Sampling Design

Optimization was completed via discussions with the project team and by reviewing historical information indicating locations of potential contamination. The number of samples selected is believed to be adequate to complete an initial assessment of site conditions.

The DQOs are summarized in Table 1. Analytical testing of samples shall be conducted by Alpha, as noted above. Alpha's DQOs for the analytical testing are provided in Appendix A.

3.3 Data Quality Indicators (DQIs)

Data quality indicators (precision, accuracy, representativeness, completeness, comparability and sensitivity [i.e., PARCCS parameters]) refer to quality control criteria established for various aspects of data gathering, sampling, and/or analyses. Precision is the degree of mutual agreement between or among independent measurements of a similar property (usually reported as standard deviation (SD) or relative percent difference) and relates to the analysis of duplicate laboratory or field samples. Accuracy is the degree of agreement of a measurement with a known or true value and is determined by comparing the reported laboratory value for a sample to a known or true concentration (i.e. matrix spikes, surrogate spikes, laboratory control samples and performance samples). Representativeness is the expression of the degree to which data accurately and precisely represent a characteristic of an environmental condition or population and relates to the method of collecting samples and determining sampling locations. Completeness is expressed as the percent of valid usable data obtained compared to the amount that was expected. Comparability expresses the degree of confidence with which one data set can be compared to another. Sensitivity is defined by the laboratory detection limits and are generally expressed in terms of method detection limits (MDLs) or reporting limits (RLs).

Precision and Accuracy: The measurement quality objectives (MQOs) for precision and accuracy for the analyses of the specific COCs are summarized in Table 2.

Representativeness: Sample locations will be selected using professional judgment and knowledge of site history. Sample locations will adequately represent site conditions in the area being investigated.

Completeness: Data collection may be inhibited by geologic conditions and/or underground utilities. The project goal is to obtain at least 90% of the soil samples outlined in this SAP.

Comparability: The laboratory that will be used for analytical testing of soil samples collected during this investigation (Alpha) is certified by the State of Nevada for standard analyses under the Clean Water Act and the Safe Drinking Water Act as described in Appendix A of the NBP QA Program Plan (NDEP, 2007). Relevant SOPs from Alpha for the analyses to be conducted during this investigation are provided in Appendix B.

Sensitivity: The laboratory reporting limit for each analyte is summarized in Table 3. The reporting limits are well below the action levels and provisional action levels and are adequate for this investigation

3.4 Data Review and Validation

Data verification is the process of evaluating the completeness, correctness, conformance, and compliance of a specific data set against the method, procedural, or contractual requirements. Data verification evaluates whether sampling protocols, SOPs, and analytical methods were followed during data generation. Verification also involves examining the data for errors or omissions. Field and laboratory staff will verify that the work is producing appropriate outputs.

Data validation is a systematic process for reviewing a body of data against a pre-established set of acceptance criteria defined in this plan. Data validation is an analyte- and sample-specific process that extends the evaluation of data beyond data verification and is performed to determine the analytical quality of a specific data set. Validation involves a detailed examination of the data package to determine whether MQOs for precision, accuracy, and sensitivity have been met. For this environmental assessment, the intent of the data review and validation process is to verify that the specified levels of precision, accuracy, reproducibility, completeness, comparability, and analytical sensitivity of the final results are achieved, with respect to the project MQOs, and that the data fulfill project DQOs.

MGA's QA officer will supervise or perform data quality assessment tasks. MGA will consistently evaluate and document measurement data to monitor consistency with MQOs, to quantitatively assess data quality, and to identify potential limitations to data use. MGA will review field and analytical laboratory data generated for this project, including the following:

- Chain of custody documentation;
- Laboratory batch QC frequency; and,
- Results of batch and field QC analyses;

Laboratory Data: The laboratory will generate and review all laboratory data. Each data point will be assessed as non-qualified or qualified based upon the acceptance criteria. Data may be qualified as "estimated" (J-qualified); these data are used as is. Some data may be qualified as "rejected" (R-qualified) if critical QC parameters are not met; these data are unusable for any purpose. Sample re-analysis, for data not meeting MQOs, will be considered as a possible corrective action. Third-party data validation will not be performed.

3.5 Data Management

Sampling will be conducted in accordance with MGA's standard operating procedures (SOPs). A unique identification number will be assigned to each sample. The number will be an alphanumeric sequence that serves as an acronym to identify the sample. The following format will be used for the sample designation:

3.5.1 Soil Samples

Soil samples collected for this project will be identified based on the following unique identification system:

Sample ID: LVBRN017-SS-1-5.0

LVBRN017 - MGA Project Number

SS-1 – Soil Sample Number (i.e., #1)

5.0 – Depth of soil sample (i.e., 5.0 feet below ground surface)

3.5.2 Groundwater Samples

Groundwater samples collected for this project will be identified based on the following unique identification system:

Sample ID: LVBRN017-GW-1

LVBRN017 - MGA Project Number

GW-1 – GW Sample from Boring Number (i.e., #1)

Field logs shall be maintained throughout the project. The following information shall be included on the field logs: description of activities conducted, dates and times, field observations, deviations from sampling program, names of on-site personnel, sampling locations.

Samples shall be preserved or cooled as required for each laboratory analysis. Samples shall be delivered or shipped to the laboratory under chain-of-custody protocol.

3.6 Assessment Oversight

Prior to commencing with field activities, the SAP will be reviewed by the Project Team. The MGA QA Officer will oversee QC of all field activities. If modifications to the proposed sampling program are required due to field conditions, the Project Manager shall be notified for direction. Any modifications to the sampling plan will be documented in the field logs and in the project report as "deviations from the sampling plan."

4. SAMPLING RATIONALE

Borings to groundwater are proposed to be advanced at locations within the subject property based on a ground penetration radar study that will look for orphaned tanks. Other borings will be advanced at locations most likely to be impacted by off-site sources. Groundwater samples will be collected from each boring once groundwater is encountered. In addition, soil samples will be collected from various depths within each boring based on photo ionization detector readings made during boring advancement.

An adequate number of samples will be collected to initially assess site conditions. Professional judgment shall be used to select sampling locations that are likely to provide data to address project DQOs (Table 1). Decision statements formulated in the project DQOs are largely concerned with delineating the extent and magnitude of contamination. It is estimated that a maximum of five groundwater samples and ten soil samples will be collected for this assessment.

4.1 Soil Sampling

Once groundwater boring locations are chosen, a direct push drill rig will be utilized to advance each boring to groundwater. Continuous soil samples will be collected from each boring and select depths from each boring will be chosen for sample analysis. Selection of depth will be based on PID screening performed during boring advancement. MGAs SOP for PID soil screening can be found in Appendix B. A minimum of two soil samples will be collected from each boring.

4.2 Groundwater Sampling

A direct push drill rig will be utilized to advance each boring until groundwater is encountered. At this time, a point-in-time groundwater "grab sampler" will be used to collect samples to define groundwater conditions during the single sampling event. One groundwater sample will be collected from each boring.

4.3 Sediment Sampling

Sampling of sediments is not included in the scope of this investigation.

4.4 Biological Sampling

Biological sampling is not included in the scope of this investigation.

5. REQUEST FOR ANALYSIS

Laboratory analyses for each collected sample are discussed in Section 5.1 below.

5.1 Analyses Narrative

5.1.1 Soil Samples

It is anticipated that three to five borings will be advanced on the subject property. A minimum of two soil samples will be collected from each boring for analytical testing. The soil samples will be collected as described in Section 4.1 and analyzed for the following:

- Semi-volatile organic compounds (SVOCs): EPA Method 8270C;
- Volatile organic compounds (VOCs): EPA Method 8260B; and
- Total petroleum hydrocarbons (TPH) full range: EPA Method 8015.

5.2 Analytical Laboratory

All analytical testing shall be conducted by Alpha. Analytical testing and sample handling shall be conducted in accordance with Alpha's SOPs (Appendices A and B).

6. FIELD METHODS AND PROCEDURES

6.1 Field Equipment

6.1.1 List of Equipment Needed

- Field logbook and field data sheets;
- Personal protective equipment (Level D);
- Tape measure;
- Camera;
- Direct push drilling rig;
- 30-gallon drums;
- PID instrument;
- 4-oz glass sample containers;
- Volatile organic analysis (VOA) vials;
- 2-Liter glass amber jars;
- Point-in-time groundwater "grab samplers"
- Cooler and ice;
- Sample labels;
- Pick axe;
- Shovel;
- Stainless steel bowls and scoops; and
- Decontamination supplies;

6.1.2 Calibration of Field Equipment

All field equipment will be calibrated according to the manufacturer's guidelines and specifications.

6.2 Field Screening

Field screening will not be utilized in this investigation.

6.3 Soil Sampling

6.3.1 Surface Samples

Surface samples are not anticipated to be collected for this project. However, if surface soil sampling is performed, sample collection will be conducted in accordance with MGA's SOP as presented in Appendix C.

6.3.2 Sub-surface Samples

Sub-surface soil samples will be collected in accordance with MGA's SOP as presented in Appendix C.

6.4 Sediment Sampling

Not applicable as sediment sampling is not included in the scope of this investigation.

6.5 Groundwater Sampling

Groundwater samples will be collected in accordance with MGA's SOP as presented in Appendix C.

6.6 Decontamination Procedures

All field equipment which comes in contact with potentially contaminated soil and/or groundwater will be decontaminated in accordance with MGA's SOP as presented in Appendix C. Decontamination will occur prior to and after each use of a piece of equipment.

7. SAMPLE CONTAINERS, PRESERVATION AND STORAGE

7.1 Soil Sampling

7.1.1 Soil Sample Containers

Soil samples will be collected in dedicated sample containers provided by the analytical laboratory. The soil samples will be delivered to the laboratory within an acceptable period of time. Appendix C provides MGA's SOPs for sampling.

7.1.2 Soil Sample Preservation and Storage

Collected soil samples will be chilled to 4°C within a laboratory supplied cooler upon collection and during transport to the laboratory.

7.2 Groundwater Sampling

7.2.1 Groundwater Sample Containers

Groundwater samples will be collected in dedicated sample containers provided by the analytical laboratory. The groundwater samples will be delivered to the laboratory within an acceptable period of time. Appendix C provides MGA's SOPs for sampling.

7.2.2 Groundwater Sample Preservation and Storage

Collected groundwater samples will be preserved per the requirements of each specific analysis. In addition, groundwater samples will be chilled to 4°C within a laboratory supplied cooler upon collection and during transport to the laboratory.

8. DISPOSAL OF RESIDUAL MATERIALS

Investigation-derived waste generated during this investigation will be collected in 30-gallon waste drums and disposed per federal, state, and local regulations.

9. SAMPLE DOCUMENTATION AND SHIPMENT

9.1 Field Notes

9.1.1 Field Logbooks

Field logs will be completed describing all field activities. The following information will be included in the field logs:

- Project name and location;
- Sampling location and description utilizing a survey- or mapping-grade GPS unit;
- Site plan showing sample locations;
- Sampler's name (s);
- Date and time of sample collection;
- Type of sample (e.g., soil or groundwater);
- Type of sampling equipment used;
- Field instrument readings and calibration;
- Field observations and details related to analysis or integrity of samples (e.g., noticeable odors, colors, etc.);
- Sample preservation;
- Lot number of the sample containers, sample identification numbers and explanatory codes, and chain-of-custody form numbers; and
- Name of recipient laboratory.

9.1.2 Photographs

Photographs will be taken at select sampling locations. They will serve to verify information entered in the field logbook. For each photograph taken, the following information, at a minimum, will be written in the logbook:

- Time, date, location, and weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

9.2 Labeling

All samples collected will be labeled in a clear and precise manner for proper identification in the field and for tracking in the laboratory. The samples will have pre-assigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information:

- Sample location;
- Date and time of collection;
- Analytical parameter(s) requested; and
- Method of preservation.

9.3 Sample Chain-of-Custody Forms and Custody Seals

All samples shall be delivered to the laboratory under chain-of-custody protocol. A copy of Alpha's chain-of-custody form is provided in Appendix D. Laboratory supplied custody seals

shall be used to seal the screw lid of each sample container.

9.4 Packaging and Shipment

Samples shall be placed in a sturdy cooler. Bubble wrap shall be placed in the bottom of the cooler and sample containers shall be placed in containers provided by the laboratory. Ice shall be packed in zipper locked, double plastic bags. Empty space in the cooler shall be filled with bubble wrap. Appendix C provides MGA's SOP for sample packaging and shipping.

10. QUALITY CONTROL

10.1 Field Quality Control Samples

Samples will be collected in accordance with industry standard procedures. No equipment blanks will be collected during this investigation.

10.2 Background Samples

No background samples are anticipated to be collected during this investigation.

10.3 Field Screening and Confirmation Samples

No confirmation samples will be collected during this investigation.

10.4 Assessment of Field Variability (Field Duplicates or Co-located Samples)

One duplicate soil sample per 10 targeted samples will be collected for laboratory quality control purposes. When collecting a duplicate soil sample, the sample containers with the two different sample identification numbers will alternate in the filling sequence. The duplicate samples will be preserved, packaged, and sealed in the same manner as the other samples of the same matrix. A separate sample number and station number will be assigned to the duplicate sample such that it is blind to the laboratory.

10.5 Laboratory Quality Control Samples

Laboratory QC (e.g., matrix spike/matrix spike duplicate samples) samples will be analyzed to monitor the precision and accuracy of its analytical procedures.

11. FIELD VARIANCES

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this SAP. Modifications to the approved SAP will be documented in the sampling project report.

12. FIELD HEALTH AND SAFETY PROCEDURES

A site-specific Health and Safety Plan is provided in Appendix E. The HASP shall be reviewed by all on-site personnel prior to commencing with field activities.

13. SCHEDULE FOR SAMPLING ACTIVITIES

MGA will commence with the activities proposed herein upon receiving NDEP approval of this SAP. It is anticipated that field activities will be completed within three weeks of receiving SAP

approval. However, the field activities will be reliant upon amenable weather conditions. It is anticipated that a draft report of findings will be submitted prior to April 30, 2013.

14. REFERENCES

Coats, R.R., 1987. *Geology of Elko County, Nevada.* Bulletin 101. Nevada Bureau of Mines and Geology, Mackay School of Mines, University of Nevada, Reno.

Natural Resources Conservation Service. *Soil Survey Area: Elko County, Nevada, Southeast Part. Survey Area Data: Version 4, May 1, 2007.* United States Department of Agriculture.

Nevada Division of Environmental Protection, 2007. *Final Nevada Brownfields Program Quality Assurance Program Plan.*

US EPA. 2006. *Guidance on Systematic Planning using the Data Quality Objectives Process.* February. EPA QA/G-4, EPA/240/B-06/001

Table 1. DQO Summary Table for Environmental Sampling, APN: 002-770-005, Wells, Nevada
STEP 1
State the Problem
Possible historic use of the site as a gas station and evidence of a former fueling island may indicate that orphaned USTs still exist on the subject property. In addition, LUSTs on other properties located adjacent or in the immediate vicinity may have impacted the groundwater beneath the subject property. However, the nature and extent of contamination in the soils and groundwater, if any, is not known. Additional data are needed to define the nature and extent, if any, of contamination within the soil and groundwater.
STEP 2
Identify the Decisions
1) Do contaminants of concern (COC) concentrations in the soil or groundwater exceed Nevada reportable concentrations (RCs)? 2) Does the extent of the concentration of the COCs appear to be greater than three cubic yards? 3) Is further assessment required to determine the nature and extent of contamination within the study area? 4) Is regulatory notification required?
STEP 3
Identify the Inputs to the Decisions
• Analytical data for collected samples (quantitative data) • Soil RCs as published in the State of Nevada Division of Environmental Protection (NDEP) Draft Guidelines for Discover Events (Soil RCs) document (NAC 445A.345 to 445A.348 as modified by adopted regulation R-189-08)
STEP 4
Define Study Boundaries
The proposed investigation shall extend from the surface to groundwater. The duration of the assessment activities described in this SAP is approximately one week.
STEP 5
Develop Decision Rules
1) If specific COCs are reported by the analytical laboratory to be greater than reportable detection limits (RDLs) for that analyte, the corresponding RC will be used to screen the data; 2) If the concentration exceeds the RC, then a calculation to determine an approximate volume of contaminated soil will be performed. 3) If data received from the analytical laboratory suggests that the extent of contamination within the study area is still not determined, another round of soil sampling shall be proposed. 4) If contaminated soil quantities exceed 3 cubic yards, the discovery will be reported to the NDEP. 5) If groundwater concentrations exceed the State of Nevada RC, the discovery will be reported to the NDEP.
STEP 6
Specify Tolerable Limits on Errors
The number of samples to be collected is not statistically based and will be determined in the field based using professional judgment. MQOs and DQIs established for analytical data are described in the NBP QA Program Plan.
STEP 7
Optimize Sampling Design
The quantity of samples is believed to be adequate to complete an initial assessment of site conditions.

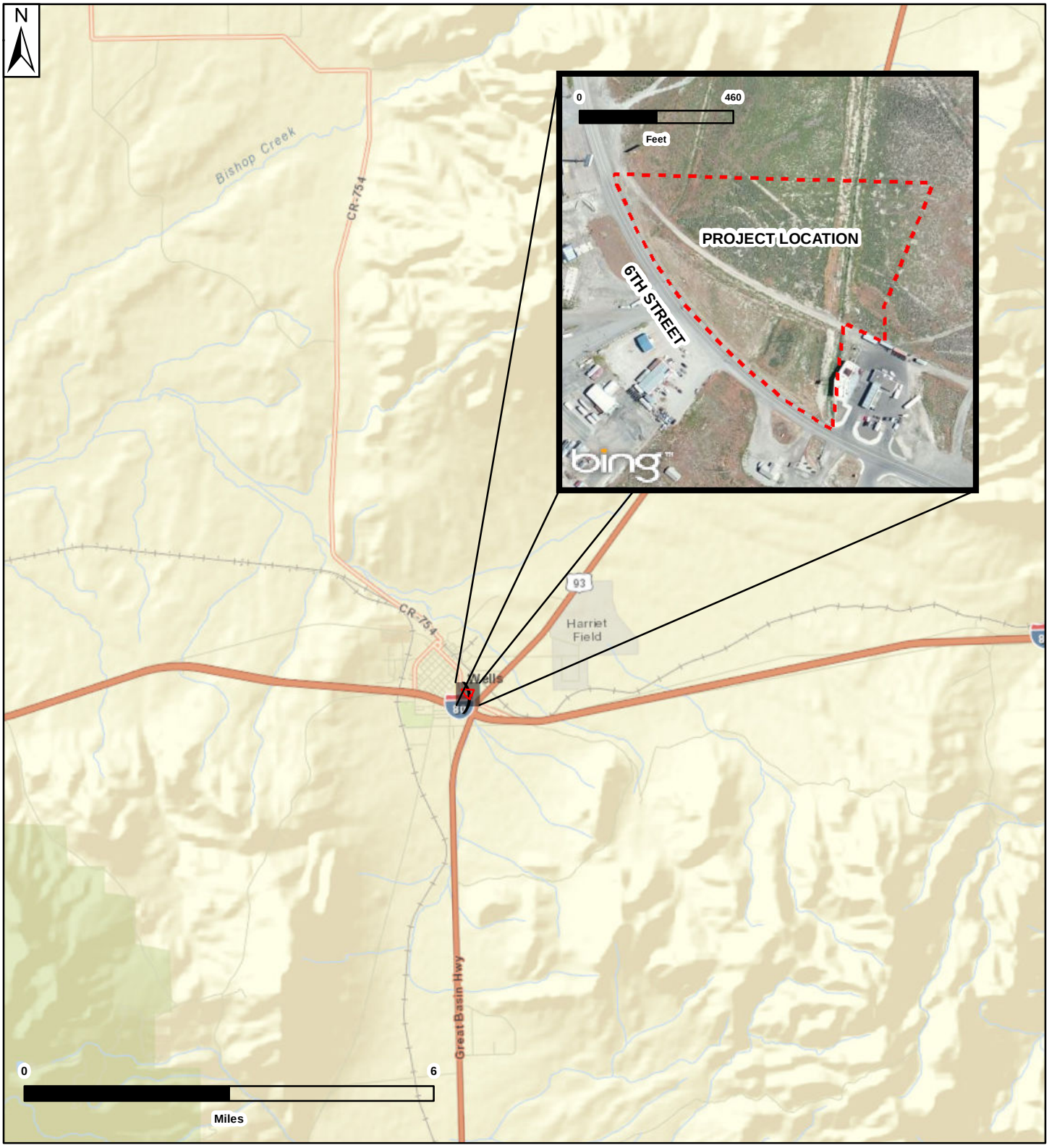
Table 2: Method Precision and Accuracy Goals for Select COCs				
Matrix Spike Compound	Soil		Groundwater	
	Recovery (%)	RPD (%)	Recovery (%)	RPD (%)
TPH Gas Range (GRO)	67-135	20	70-124	20
TPH Diesel Range (DRO)	50-150	<20	50-150	<20
Benzene	65-128	20	79-131	20
Toluene	70-120	20	68-114	20
Ethylbenzene	74-128	20	68-125	20
Total Xylenes	74-127	20	67-113	20
Acenaphthene	22-139	36	32-120	29
Acenaphthylene	33-118	35	41-112	30
Anthracene	65-119	20	48-122	26
Benzo(a)anthracene	77-123	20	52-122	22
Benzo(a)pyrene	68-118	20	45-120	24
Benzo(b)fluoranthene	68-110	20	46-118	24
Benzo(g,h,i)perylene	57-118	28	31-110	31
Benzo(k)fluoranthene	70-124	20	45-112	24
Chrysene	79-125	20	53-126	23
Dibenzo(a,h)anthracene	64-121	25	26-113	35
Fluoranthene	76-121	20	52-125	23
Fluorene	47-126	28	45-117	27
Indeno(1,2,3-c,d)pyrene	62-121	26	40-113	29
Naphthalene	11-104	49	22-105	37
Phenanthrene	63-118	20	48-122	26
Pyrene	77-125	20	53-128	24

RPD: Relative Percent Difference

Table 3. Reporting Limits and Nevada RCs for Contaminants of Concern				
Contaminant of Concern	**Laboratory Reporting Limit (RDL)**		**Nevada RCs**	
	Soil (mg/Kg)	**Groundwater (µg/L)**	**Soil[1] (mg/Kg)**	**Groundwater[1] (µg/L)**
TPH Gas Range (GRO)	1	100	100	NA
TPH Diesel Range (DRO)	40	100	100	NA
Benzene	0.001	1	0.03	5
Toluene	0.005	5	12	1000
Ethylbenzene	0.001	1	5.7	700
Total Xylenes	0.003	3	210	10,000
Acenaphthene	0.006	0.05	570	NA
Acenaphthylene	0.006	0.05	NA	NA
Anthracene	0.006	0.05	1,200,000	NA
Benzo(a)anthracene	0.006	0.05	0.15	NA
Benzo(a)pyrene	0.006	0.05	0.015	0.2
Benzo(b)fluoranthene	0.006	0.05	0.15	NA
Benzo(g,h,i)perylene	0.006	0.05	NA	NA
Benzo(k)fluoranthene	0.006	0.05	1.5	NA
Chrysene	0.006	0.05	15	NA
Dibenzo(a,h)anthracene	0.006	0.05	0.015	NA
Fluoranthene	0.006	0.05	2,300	NA
Fluorene	0.006	0.05	560	NA
Indeno(1,2,3-c,d)pyrene	0.006	0.05	0.15	NA
Naphthalene	0.006	0.25	3.9	NA
Phenanthrene	0.006	0.05	NA	NA
Pyrene	0.006	0.05	1,700	NA

[1] NDEP, 2010

NA: Not Applicable (no RC provided)



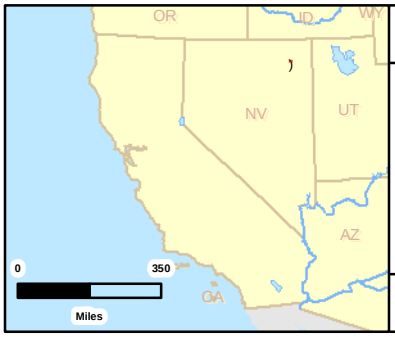


FIGURE 1

TITLE:

PROJECT LOCATION MAP

-SHOWING-

APN: 002-770-005

WELLS, NEVADA

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FILE:
130124_LVBRN017_figure1_msp_85x11_portrait

COORDINATE SYSTEM:
NAD 1983 UTM Zone 11N US Feet

JOB NO.:	DATE:
LVBRN017	1/24/2013

REF.					REVISION:
	DESIGNED	MSP	CHECKED	MSP	-
	DRAWN	MSP	APPROVED	BB	

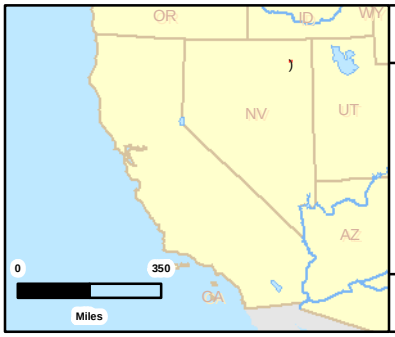

FIGURE 2

TITLE:

SITE MAP

-SHOWING-

APN: 002-770-005

WELLS, NEVADA

JOB NO.: **LVBRN017**

DATE: **1/24/2013**

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FILE: **130124_LVBRN017_figure2_msp_85x11_portrait**

COORDINATE SYSTEM: **NAD 1983 UTM Zone 11N US Feet**

REF.					REVISION:
	DESIGNED	MSP	CHECKED	MSP	-
	DRAWN	MSP	APPROVED	BB	