

Appendix A
Response to NDEP Comments Dated January 18, 2007
on the August 2006 BRC Closure Plan

NDEP Attachment A Comments

1. General comment, please note that it will be necessary to develop a red-line mark up of this document to be included with the resubmitted Closure Plan. This was created for this version of the Closure Plan after the Closure Plan was submitted and in some cases the red-line mark up did not match the final draft of the Closure Plan. It is the expectation of the NDEP that a red-line mark up will not be created for Section 4.0 (Conceptual Site Model) of the revised version of the Closure Plan.

Response: A redline/strikeout version of the report text has been included. As noted, since Sections 4 was substantially re-written, the red-line version does not include the red-line markups for this Section, in order to aid readability.

2. General comment, this section should reflect the agreement previously reached on the intent of the Closure Plan. This agreement was along the lines of presenting a Closure Plan that conceptually described the steps that BRC would undertake to assess risks at the site and, hence, to make risk-based decisions (including decisions to close parcels). These steps might include identifying exposure areas (decision units – areas, sub-areas), possible receptors, potentially contaminated media, how risk assessment source terms will be characterized (data collection, fate and transport modeling), and how risk-based decisions (including background and baseline considerations) might be made (e.g., NFA or potential remediation). It would be more in line with the original intent of this document to describe this closure process in the introduction (and would provide additional transparency). A lot of the introductory material is good, but piecing it all together in this way would be helpful.

Response: A discussion on the intent and steps of the Closure Plan has been added to Section 1.

3. General comment, for numbers ten and less the text switches between spelling out the number and using the Arabic number. This is a stylistic issue that the NDEP suggests BRC address.

Response: This change has been made globally throughout the revised report.

4. Section 1.0, general comment, it would be helpful if the text of Section 1 provided a summary of the process depicted in Figure 1-4. The Sections that follow could then provide some more detail.

Response: BRC has attempted to provide this summary.

5. Section 1.0, general comment, the role of risk assessment and data quality assessment do not appear to be explained properly. “Data sufficiency, representativeness, and adequacy”

include some components of EPA's quality system, however, they are not the only components. Data sufficiency is not defined in EPA documents; representativeness is one of six Data Quality Indicators; and, adequacy is used in connection with Data Adequacy and Data Quality Assessment. However, these quality components should be evaluated with respect to the decision endpoint, which in this case is a risk assessment. The iteration as described suggests that they are evaluated in isolation from the decision process. Consequently, risk assessment is not performed after evaluating these (and other) quality components; it must be performed for these components to be properly evaluated. In addition, it would seem that the "inner loop" on Figure 1-4 involves an iterative cycle of collecting data and performing risk assessment, the endpoint of which will be a risk assessment that either passes specific risk objectives, or does not (in the latter case, it ceases because it is technically impractical (too costly) to perform further remediation). In either case, the decision will then be made, which might include no further action because the risk assessment passes (either directly, or indirectly), or a change in land use options and inclusion of other institutional controls, etc. The "outer loop" on Figure 1-4 is not really a loop. These issues could likely be better explained in the text.

Response: *BRC has attempted to address this comment via discussion in the text.*

6. Section 1.0, pages 1-1 through 1-3, page 1-1 describes the 2,690 acres differently than on page 1-2. They are not necessarily inconsistent (this depends how the word "comprised" is interpreted), but the descriptions are different enough that they can cause some confusion. It would also be more helpful if Figures 1-1 through 1-3 were referenced earlier, so that the reader has somewhere to reference as soon as the areas are being described. It would be helpful if the bullets on Page 1-2 were related to the Figures.

Response: *References to Figures 1-1 through 1-3 have been provided within the first paragraph of the report. In addition, the bulleted lists provide reference to the appropriate figure.*

7. Section 1.0, page 1-2, at the bottom of page 1-2 it is stated that two areas will not be subject to soil remediation. These two areas are included in Figure 1-1, are given an asterisk in the Figure legend, but the asterisk is not defined.

Response: *An asterisk explanation was provided, just to the right of the title block of the figure. This asterisk explanation has been moved to the bottom of the figure legend.*

8. Section 1.0, page 1-2, the introductory discussion on page 1-2 focuses on the Eastside area and the CAMU area. It seems that some discussion is needed on the other areas (Parcel 9, and the rest of Parcel 5/6) for completeness.

Response: *Discussion on these other areas has been provided.*

9. Section 1.0, page 1-3, at the top of page 1-3 is a sentence that indicates that groundwater and the vadose zone will be remediated as necessary. It would be helpful if this were written in

the context of the entire approach, covering surface soil and air as well as subsurface media. As is stands, this sentence seems out of place or incomplete. A quick summary of the areas and the closure process for these areas would be more helpful.

Response: *The text has been revised to address this issue.*

10. Section 1.1, page 1-3, the term post-no-further-action-determination is not easy to understand. It is suggested that the derivation and intent of this term be included here to provide some context.

Response: *This terminology is introduced early in Section 1 and explained in relation to the AOC3.*

11. Section 1.1, page 1-4, it appears there is a missing word identified using square brackets in the following sentence. "...however that there may [be] portions of the Eastside..."

Response: *The 'be' has been added to this sentence.*

12. Section 1.1, page 1-4, BRC states "The CAMU area will be the permanent location of the proposed CAMU." This sentence reads very awkwardly. The NDEP suggests: "The CAMU area will be the permanent location for the remediation waste from the Upper and Lower Ponds".

Response: *This sentence has been revised as suggested.*

13. Section 1.1.1, page 1-4, this section discusses human health risk protection only in the context of surface soils. Does this mean that fate and transport modeling from groundwater, or from the vadose zone, is not a component of the risk assessment?

Response: *Reference to soils only has been removed.*

14. Section 1.1.3, page 1-5, please modify this Section based on the NDEP's comments provided below for Section 10.

Response: *Comment noted.*

15. Section 1.3, page 1-6, it would be helpful if some of the definitions (e.g., no-further-action-determination) that are provided here could be provided earlier in the document.

Response: *The no-further-action-determination term is introduced in Section 1.0.*

16. Section 1.4, pages 1-6 and 1-7, it would be expedient to provide a reference to BRC's approved *Soil and Groundwater Clean-Up Team Professional Profiles* and delete much of the extraneous language in this section.

Response: *The text has been modified to reflect this comment.*

17. Section 2, because much of this section is based on historical documents, the completeness and accuracy of which NDEP cannot verify, NDEP cannot review or concur with the majority of this Section. NDEP suggests that Section 2.3 "Disposal Practices on to BMI Common Areas" be addressed via Section 4.0 under a new "Source Characterization" subsection and be revised to provide the information on an individual effluent conveyance or disposal unit basis. This would provide a more complete description of sources for the Site Conceptual Model.

Response: *Reference to Section 4.2, Source Characterization, has been provided in this section.*

18. Section 3.0, reference to Table 3-1, please specify if this is the site-related chemical (SRC) list or if this includes the proposed broad suite analytical. This differentiation is important and is not clear in the text.

Response: *The table presents the broad suite analytical list for the project. The text has been revised to reflect this.*

19. Section 3.0, page 3-1, last paragraph, please note that BRC should clarify that COPC selection is a function of the risk assessment process and that COPC selection should not be conducted prior to initiating a sub-area-specific HRA.

Response: *Text has been added to the report to reflect this comment.*

20. Section 4.0, general comment, statements within the CSM that offer unsubstantiated conclusions will be rejected unless supported by data collected and presented within the CSM.

Response: *Comment noted. Comments 20 through 88 refer to Section 4 as drafted in October 2006. The new Section 4 has been completely re-written after these comments were received and after BRC met with the NDEP to review these comments. The intent was to substantially reduce the amount of text and figures provided in this Section. The organization suggested in Attachment B of these comments for Section 4 was followed. Based on these discussions with the NDEP, it is BRC's understanding that many of the comments below on Section 4 will be addressed when a complete and detailed stand-alone CSM is prepared for the Eastside; therefore, individual responses to Comments 21 through 88 are not being provided at this time. BRC has reviewed the comments, however, and has addressed them, as applicable, in the revised Section 4. Furthermore, BRC provided the NDEP a draft version of the revised Section 4 text for informal review and obtained NDEP red-line comments – these have been incorporated into the revised Section 4.*

21. Section 4.0, general comments,
 - a. Scattered throughout Section 4.0 are references to work that is *ongoing*. The CSM should be a description of what is known about the system; as such, references to *ongoing* work should be included only in Section 4.7 *Further Considerations for Refining the CSM*. For examples please refer to additional comments below.
 - b. This section frequently digresses from a discussion on the Site CSM to bring in extraneous thoughts not related to the CSM. For examples please refer to additional comments below.
 - c. Consistent terminology and definition should be used for the subareas. For example, terminology used in the Closure Plan includes “subareas”, “management units”, “exposure areas”, and “homogenous areas”.
 - d. BRC should discuss the extent that the deposition of wastes is specifically understood. For example, it is the understanding of the NDEP that a document exists which describes the number of pounds of each waste stream that was sent to the Upper and Lower Ponds by each of the major tenants of the BMI Complex. It is the understanding of the NDEP that this document describes this information on a waste stream and temporal basis. If BRC’s understanding is more limited, BRC should clarify if it is reasonable to expect all site-related chemicals to have come to be located anywhere on the Site.
22. Section 4.1, page 4-1, this Section lists many aspects of a CSM. Receptors are included in this Section, but it would also be helpful to include land use scenarios so that the receptors are better defined in the context of potential future land use. Also, please note that it would be helpful if the CSM descriptions in the following sub-sections followed the listed items. At least, some items seem to be missing such as: land use scenarios and receptors; migration pathways, background or baseline, do not appear to have been discussed completely.
23. Section 4.1.1, page 4-2, first paragraph, fourth line. it seems there may be two numbers transposed. Please verify that the acreage is 2,231 acres and not 2,321 acres.
24. Section 4.1.1, pages 4-2 through 4-4, some discussion of the geological source of the soils might be helpful given the complications of characterizing soil background conditions (because the alluvial fan has soil from two different mountain ranges).
25. Section 4.1.1, page 4-3, BRC states that the effluent included “Chlorinated organics formed by the reaction of chlorine with carbon at elevated temperatures”. It appears that BRC may be referring to the class of compounds known as dioxins and furans (and related dioxin-like compounds). If this is the case, please refer to these compounds plainly. If not, please explain what is intended by the above statement.
26. Section 4.1.2, This section needs to be expanded to include historical, current and potential future information and figures with the following information:
 - a. Channel, seepage, disposal pond, wetland locations and capacities
 - b. Site-wide drainage patterns
 - c. Flow rates
 - d. Surface water chemical composition
 - e. Conceptual and analytical modeling of pond water infiltration and mounding, overflow and seepage

- f. In addition, the NDEP also recommends a separate section on groundwater/surface water interaction be added that provides more detail and supporting data on the historical and current relationships Site-wide between groundwater and surface water.
27. Section 4.1.3, Pg. 4-5, 1st paragraph, BRC has indicated here that 500 borings were reviewed. The rationale used to pick contacts between layers should be described. The source of all 500 boring logs should be referenced and organized on a sub-area basis in a database or hard copy file for NDEP review.
28. Section 4.1.3, pages 4-5 and 4-6, BRC states that three paleochannels exist. As the NDEP has noted on numerous occasions, the NDEP does not concur with BRC's interpretations.
29. Section 4.1.3, pages 4-5 and 4-6, BRC omits discussion of the Middle Zone located in the Muddy Creek Formation (MCF). Please clarify this issue in the revised report.
30. Section 4.1.3, page 4-6, 1st paragraph, the last portion of this paragraph that discusses the productiveness of monitoring wells should be a separate paragraph and provide:
- An explanation of how monitoring well production rates are correlated, or not, to saturated screen thickness, lithology, and head measurements
 - Reference to a map depicting monitoring well locations discussed
 - A discussion of the tested locations relative to other locations of interest, including, distribution of chemicals in soil and groundwater and paleochannel locations
31. Section 4.1.3, page 4-6, 2nd paragraph and Section 4.1.3.3, last paragraph on page 4-9 and first paragraph on page 4-10, these sections indicate that "the shallower groundwater presents evidence of contact with the Las Vegas Wash gravels, although not directly with surface waters flowing in the Wash" and "well and boring log data infer, that, for the most part, groundwater in the Aa does not surface at the Las Vegas Wash but does mix with Las Vegas Wash water in the subsurface along the boundary of the Las Vegas Wash fluvial gravels..." A more detailed discussion or reference to a more specific review of appropriately referenced head and lithologic data that supports specific locations, instances and evidence of this contact and mixing is needed. NDEP recommends adding a section on surface water-groundwater interaction.
32. Section 4.1.3.1, page 4-6, last paragraph and Section 4.1.3.2, page 4-8, 2nd paragraph, a more detailed description of alluvium removal and backfill composition in areas such as the Weston Hills and effects on groundwater flow in these areas is needed to understand potential future impacts from the site on to areas to the north of the site and the Las Vegas Wash. This should include estimates of hydraulic parameter data and cross sections depicting hydrologic features including the sub-drain systems.
33. Section 4.1.3.1, page 4-7, 1st full paragraph, a review of BRC's referenced *Aquifer Testing Workplan* indicates that the proposed testing locations were selected primarily based on recovery rates during well development and purging and not based on their location in relation to paleochannels or subsurface soil and groundwater chemical distribution. Therefore, the proposed aquifer testing will not likely provide information needed to

determine to what extent known paleochannels provide a preferential path for groundwater flow and contaminant migration.

34. Section 4.1.3.1, page 4-7, Figure 4-3 Topographic Surface of the Muddy Creek Formation compared to Figure 8-1 Paleochannels from BRC's *2004 Hydrogeologic Characterization Summary BMI Upper and Lower Ponds and Ditches, Henderson, Nevada* shows significantly less detail. Please provide an explanation of this decreasing level of detail.
35. Section 4.1.3.2, page 4-8, this is the first mention of the Middle Zone, BRC notes that the lenses were sporadic and unpredictable. Please discuss the location of the "lenses" site wide and which depth intervals these lenses occurred over. This discussion should be correlated on a depth to water basis. Please note that in some portions of the Site it appears that these lenses are sub-parallel to the Aa. Also, please discuss what analyses have been conducted by BRC to determine that these "lenses" are "sporadic".
36. Section 4.1.3.2, page 4-8, BRC discusses a data gap on the southwestern portion of the site regarding a paleochannel that may originate on TIMET and travel on to the Site. BRC then discusses several alternatives for resolution of this data gap. This data gap is important because it represents a possible off-site loading of contaminants on to the Site. An alternative that is noticeably absent is: further investigation of the Site to resolve this data gap. This alternative should be considered and implemented, as necessary. In addition, no supporting evidence has been provided by BRC, please explain the basis for this statement. This discussion should be moved to Section 4.7.
37. Section 4.1.3.2, pages 4-7 and 4-8, in the first paragraph it is described that the depth to the Muddy Creek formation is somewhere between 25 feet and 65 feet. In the last paragraph it seems that the depth is described as relatively constant at 50 feet. Please clarify this.
38. Section 4.1.3.3, general comment, it is recommend that a table that includes the following information be provided to summarize known quantitative hydrogeologic information within and between the Aa and TMCf Deep Zone. Please note that if this information is not known these items should be discussed as a data gap.
 - a. Horizontal K range
 - b. Vertical K range
 - c. Horizontal gradient magnitude range and direction (trends over time if available)
 - d. Vertical gradient magnitude range and direction
 - e. Groundwater Seepage Velocity range estimates (calculate if not available in reference material)
 - f. Well recovery rates
 - g. References for information provided
39. Section 4.1.3.3, page 4-9, BRC states "Water quality is poor." Please use a commonly accepted groundwater quality classification methodology such as referenced by Fetter (2001) on page 386; in which case groundwater at the site would be classified as brackish. An explanation of the term brackish as it relates to site contamination would be helpful as well.

40. Section 4.1.3.3, page 4-8, the *Occurrence of Groundwater* section contains information on groundwater quality. Please revise the title or the text accordingly.
41. Section 4.1.3.3, page 4-11, the NDEP has the following comments:
- Review of laboratory analytical data in *Table 3-24 General Chemistry Analytical Results for Groundwater* from the 2004 Hydrogeologic Characterization Summary, October 2004 indicates significant concern for the accuracy of the laboratory inorganic analysis results. Many of the cation-anion balances do not meet Standard Methods procedures for checking correctness of analysis; many of the measured TDS values versus calculated TDS ratios do not fall within the Standard Methods acceptable range of 1.0 to 1.2; the NDEP is uncertain why the majority of TDS analyses are “J” flagged. The NDEP recommends that BRC require analytical laboratory to perform Standard Methods check on correctness of analysis before reporting same. In addition, it is not clear to the NDEP how any of the conclusions in this section can be derived with data that does not meet standard quality checks. Additional comments are provided below for BRC’s consideration in the future.
 - BRC states “By plotting the Stiff diagrams for the Aa and Deep Zone on a single figure, *one can conclude, for the most part, that these waters have the same ions and cations at similar concentrations and ratios, indicating a similar original source water. The Stiff diagrams for wells MCF-16a, -06a, -07, and -08 are of different composition, however, with much greater ionic concentrations and suggest that an impact has occurred.*” (Italic emphasis added).
 - The NDEP does not agree with the very general conclusion in the first sentence, in part because it is immediately contradicted in the sentence that follows. At least four of the Stiff diagram patterns are so small that they can not readily be discerned, *e.g.*, MCF-02A, MCF-03A, MCF-27, and AA-18. The Stiff diagrams for groundwater in the Aa wells appear similar. However, the Stiff diagrams for monitor wells in the Deep Zone MCF-06A, -07, -08A, and -16A (blue plots on Figure 4-10) are decidedly different from the Stiff diagrams for the Aa monitor wells because of the concentration of the cations and anions and likely not because of the composition.
 - A Piper diagram of the water quality in the Aa Zone would show that the cation composition is predominantly calcium/magnesium (>50%) type. Groundwater in the Deep Zone appears to be predominantly calcium/magnesium (>50%) type. The anion composition for groundwater in both the Aa and MCF Zone wells is similar, both are predominated by chloride and sulfate (>90%).
 - Inorganic chemical composition of groundwater is a function of lithology, mineral solution kinetics, and flow patterns in the aquifer (Fetter, 2001). What characteristic of the Stiff diagrams suggest “similar source water”? How can a conclusion about source water be drawn from these data points without direct comparison to source water? Also, what characteristic of the Stiff diagrams for monitor wells MCF-06A, -07, -08A, and -16A suggest impact other than concentration?
42. Section 4.1.3.3, page 4-11, BRC states “Despite the lack of data indicating connectivity between water in the sporadic sand lenses of the TMCf and the Aa above, the Upper TMCf will be conservatively modeled in the numerical modeling in progress, as an upward flux boundary that allows limited water flow upward to the Aa. This conservative approach is also

denoted in Figure 4-8 by the arrowed term ‘Upward Gradient.’” Until proven otherwise the occurrence of Site related chemicals in the Deep Zone (e.g. perchlorate) appears indicative that connectivity existed at sometime in the past. This is not a conservative assumption, it is known that: 1) there is an upward hydraulic gradient at the site, 2) the hydraulic conductivity of this layer is very low (*i.e.*, it is not impermeable), and 3) groundwater moves in response to hydraulic head. Thus it seems reasonable to model this boundary as discussed in Section 6.6 *Bottom Boundary Condition* of the *Groundwater Modeling Work Plan*. This issue should be covered in greater detail in the CSM.

43. Section 4.1.3.3, page 4-11, BRC states “An analysis of water quality data from the eight monitoring wells completed in the TMCf revealed that TDS concentrations ranged from 1,150 to 159,000 mg/L, and chloride concentrations ranged from 113 to 49,700 mg/L.” These topics are mixed; water quality information is mixed with the occurrence of groundwater. Refer to comment above.
44. Section 4.1.3.3, page 4-11, 1st full paragraph, last sentence, please strike out this sentence. The CSM should be a description of what is known about the system; as such, references to ongoing work should be included only in existing Section 4.7 titled *Further Considerations for Refining the CSM*.
45. Section 4.2.3, page 4-15, BRC states “While details of the Willowstick geophysical survey methodology and results will be presented in the *Draft Eastside Conceptual Site Model*, the Willowstick survey was used in this report as a contributing basis for developing and enhancing the definition of isoconcentration contours for TDS, perchlorate, nitrate, and to a lesser extent other Site chemical constituents.” The NDEP requires additional explanation as to how a surface geophysical technique can differentiate between specific ions as appears to be suggested in this sentence.
46. Section 4.2.4, page 4-16, please specify what the “screening limits” are that were used for organic acids.
47. Section 4.3, general comment, this section and the accompanying figures need further assessment and presentation of sampling and analysis (which locations were analyzed for which analyte) distribution (samples per acre within each sub-area and distribution within each sub-area [clustering]), representativeness of chemical distribution in soils within each sub-area, statistical analyses in comparison to background concentrations and in relation to effluent or waste conveyance or disposal units.
48. Section 4.3, page 4-17, second paragraph, BRC discusses chemical distributions at the Site. BRC groups these distributions into broad categories. BRC should revise this section to include discussion of metals that have been detected at concentrations (e.g., arsenic) significantly above background concentrations and applicable screening levels. The only discussion of metals contained in this paragraph is to generally state that metals have been detected but are “consistent with natural background conditions”. Also, BRC must discuss radionuclides.

49. Section 4.3, page 4-17, fourth paragraph, BRC continues to diminish the occurrence of metals at the Site in this paragraph. BRC states “metal and radionuclide exceedances were more likely concentrations that cannot be readily differentiated from background.” BRC has not provided or referenced specific statistical analysis to substantiate this claim. Figures 4-16 and 4-17 (amongst others) appear to illustrate that arsenic exceedances may be readily differentiated from background.
50. Section 4.3, page 4-17, 4th paragraph, this discussion of background concentrations should provide references to background data used and recommended procedures followed in determining background concentrations (e.g., EPA Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites).
51. Section 4.3, pages 4-17 last paragraph and 4-18 1st paragraph, several additions and clarifications are recommended as follows:
 - a. Add a table with the SRC list providing values of screening levels used and references.
 - b. Explain clearly that PRGs in soils do not address the leaching to groundwater pathway, should also include soil screening levels (SSLs) as screening levels (also, please note that Section 4.6, page 4-52, 3rd paragraph, it is not appropriate to discuss PRGs in the context of a discussion of leaching).
 - c. Please include provisional background concentrations in a table and reference the source and methodology used for derivation of these levels.
52. Section 4.3, page 4-17, the last paragraph starts with reference to surface soils and non-volatiles. Over the page, it then continues with subsurface soils and volatiles. Perhaps some discussion of non-volatiles in the subsurface should also be included in this paragraph, especially since metals seem to be present as well (e.g., arsenic). The various sections describing the sub-areas are replete with these types of inconsistencies.
53. Section 4.3, page 4-18, the level of data validation, data quality assessment, and data usability evaluation conducted on the data used for purposes of the screening exercises and procedures used to perform these tasks should be described in the document.
 - a. For example, explain whether or not the most recent data (from the 2004 hydro-geological investigation) have been validated, and provide an analysis, by chemical class and area, of whether they are generally consistent with previous data. If the most recent data have been validated and are consistent with previous data then there is some confidence that screens performed using previous data are meaningful.
 - b. For example, there is much less confidence that there are no exceedances of screening levels when there are data gaps for a particular area or analyte. Figures, if used, should be revised to indicate which sample locations have no data for specific analytes or contaminant classes.
54. Section 4.3, pages 4-18 and 4-19, please note that it is inappropriate to make conclusions regarding potential risk without adequate characterization data and/or data evaluation, however, it is appropriate to use the screens to justify the first phase of remedial action.
55. Section 4.3, pages 4-18 and 4-19, the document should be revised to include discussion of the expected geochemical differences between shallower and deeper soils at the site and how

these expected differences affect interpretation of the figures that are presented. The NDEP could not locate this discussion except for a cursory discussion in footnote 323 on page 4-19. Please clarify this issue.

56. Section 4.3, page 4-19, please provide a table or a reference to the documentation of the comparison of reporting limits with the screening levels and do not include unusable data when making statements regarding chemical distribution.
57. Section 4.3, sub-area-specific discussions, BRC should revise the discussion of the chemical data to be consistent. Examples of inconsistencies are:
 - a. Radium-226.
 - i. Section 4.3.1.6, BRC discusses Ra-226 relative to the “screening levels”. Based on later discussions it is not clear what the “screening levels” are referring to.
 - ii. Section 4.3.2.6, BRC discusses Ra-226 versus “10 times the PRG” and versus “provisional background values”.
 - iii. Section 4.3.3.6, BRC discusses all Ra-226 data versus provisional background only. No discussion of PRGs or screening levels was contained in this section.
 - iv. Section 4.3.7.6, BRC discusses Ra-226 “detections” versus provisional background and developed percentages of detections that exceed provisional background.
 - v. Section 4.3.8.7, BRC discusses Ra-226 in terms of frequency of detection (FOD) and versus provisional background. FOD is not consistently discussed.
58. Sections 4.3.1 through 4.3.10, due to data gaps and/or incomplete data assessment information such as the number or percent of samples exceeding a screening level are not meaningful. Accordingly, it is suggested that this information be removed and more general observations regarding the data be made for purposes of the CSM and remedial action planning. NDEP suggests that the document merely identify chemicals that have exceeded the screening criteria.
59. Section 4.3.1.1, page 4-19, in this section BRC explains that 31% of the surface soil samples and 60% of the subsurface soil samples in the Western Hook sub-area appear to exceed the provisional background range for arsenic. This statement supports the NDEP’s comments above and appears contrary to BRC’s conclusions contained in the previous section regarding the prevalence of metals. The remainder of the sections addressing the other sub-areas appear to have similar statements. This comment should be applied globally and will not necessarily be repeated for every case within the document. BRC must insure that the various sections of the Closure Plan are accurate and not contradictory.
60. Section 4.3.1.3, pages 4-19 and 4-20, BRC states that 15 surface soil samples were analyzed for dioxins and furans with 247 individual analyses reported. As the NDEP has repeatedly stated, including in the July 11, 2005 letters to BRC on the previous version of the Closure Plan, this is not a useful discussion for dioxin/furans. NDEP has repeatedly requested that dioxin/furan results be discussed in terms of Dioxin/Furan TEQs. This comment is global and must be applied to the remainder of the report.
61. Section 4.3.1.8, page 4-21, BRC states “In general, chemical impacts in soils that pose a risk within the Western Hook sub-area appear limited to arsenic in soils.” As stated above, it is

not appropriate to make statements regarding potential risk. NDEP suggests removing this statement. Additionally, BRC stated in Section 4.3.1.6, page 4-20 “Radium-226 was detected in 18 of 20 surface soil samples, with activities exceeding screening levels in all of the samples (100 percent).” Similar results are reported for deeper soil data. This is contrary to BRC’s statement in section 4.3.1.8.

62. Section 4.3.5.8, please delete sections where “summary of exceedances” is presented for each subarea. Given the incomplete status of soil data assessment, information regarding chemical distribution should be used in a more general sense to support the CSM and remedial action decisions (e.g., depth of excavation).
63. Section 4.3.8.2, page 4-31, this is the first instance where “other metals” are discussed. It is suggested that all classes of compounds be discussed for all sub-areas. This discussion will allow the reader to make meaningful comparisons between sub-areas and understand the data gaps that exist at the Site.
64. Section 4.3.8.9, page 4-33, this is the first instance where SVOCs are discussed. See similar comment above.
65. Section 4.3.8.10, page 4-33, in reference to organochlorine pesticides, BRC states “Analytical results for the TMCf suggest that these chemicals have not migrated substantially below the Qa”. Because of the variability in both the expected historical deposition of varying concentration and volumes in the original effluent and the concentrations observed in Qa soil samples, NDEP does not believe 4 samples collected over a 208.2 acre area in the TMCf is a sufficiently representative sample size. Therefore, no conclusions can be drawn regarding the migration of these chemicals below the Qa. This discussion should be revised to indicate how many sample *locations* are represented by these 59 samples and 4 samples, respectively.
66. Section 4.4, general comment, this section should be expanded to provide an assessment of the representativeness of groundwater sample distribution based on chemical distribution of chemical impacts in soils and aquifer permeability distribution. Also note in Section 4.4.1 page 4-40, 1st full paragraph, the document states “these channels do not appear to control the distribution of contaminants in the Aa.” NDEP notes that the depicted distribution of contaminants in the Aa is also related to source chemical mass distribution, sample distribution, and permeability distribution. Therefore, it is incorrect to conclude based on available information whether these channels do or do not appear to control distribution of contaminants in the Aa. NDEP recommends this sentence be removed.
67. Section 4.4, pages 4-37 and 4-38, BRC states “As noted previously, further investigation to quantify aquifer production, chemical quality, and temporal variability is ongoing, and the results outlined below should be taken as a snapshot in time. Use of groundwater at the Site is not anticipated and will be prohibited by deed restriction.” NDEP requests that this discussion be integrated into Section 4.7.
68. Section 4.4.1, page 4-38, Title. Although this section is titled "*Distribution of Chemical Impacts to the Alluvial Aquifer (Aa)*" it includes discussion of chemical impacts in the TMCf.

Please clarify this issue in the text and discuss the limits of the Aa (which may include the saturated portion of the Muddy Creek Formation or provide appropriate cross-referencing to the section of the report that explains this issue.

69. Section 4.4.1, page 4-39, BRC states “The most common non-detects were for analytes in the following chemical classes: PAHs, PCBs, radionuclides, VOCs, and SVOCs. Further review of these non-detects revealed that 53 of the analytes had reporting limits that were greater than the tap water PRG at least 90 percent of the time. This is primarily due to the very low reporting limits required for comparison to the tap water PRGs. A total of five of these 53 compounds also had reporting limits above their respective MCLs: Aroclor 1016, benzo(a)pyrene, 1,2-dibromo-3-chloropropane (DBCP), hexachlorobenzene, and pentachlorophenol. Additional groundwater monitoring is being conducted to improve the reporting limits on these chemicals.” NDEP notes that these elevated detection limits prevent comparison of certain site related chemicals to available screening levels.
70. Section 4.4.1, page 4-39, BRC provides a discussion for the basis of the presentation of the groundwater data. The first bullet states “Many of the analytes detected are in the same class of chemicals, with their occurrence related”. While the NDEP does not necessarily disagree with presentation of a limited number of analytes, the discussion contained in this bullet is lacking. This discussion should be expanded to include the chemical properties and fate and transport characteristics of the BHC compounds. BRC goes on to state that “if an area has been impacted by one of these isomers, then the other isomers are expected to be present.” NDEP recommends that the statement be amended to state “if an area has been impacted by one of these isomers, then the other isomers may be present.”
71. Section 4.4.1, pages 4-39 and 4-40, BRC states that “Any remedy to be implemented at the Site will be focused on an entire class of chemicals.” This statement should be amended to state “Remedies selected at the site will be focused on chemicals with similar treatability characteristics.” For example, a simple coagulation and flocculation treatment for metals as a class of chemicals would not provide sufficient treatment for arsenic.
72. Section 4.4.1.4, page 4-41, BRC states “Though a variety of Site and offsite data sources were consulted in interpreting Site groundwater data, data presented in this and other groundwater figures were collected at the same time using one, uniform methodology.” This is a very vague explanation without references; please add additional references to the appropriate, approved methodologies.
73. Section 4.4.1.1, BRC discusses individual dioxin and furan congeners without placing the data in the appropriate context. The NDEP has repeatedly requested that BRC discuss this class of compounds in terms of dioxin/furan TEQs. In addition, an MCL exists for 2,3,7,8-TCDD. Please review 40 CFR 141 for additional information on the MCL for dioxins and furans and revise this section accordingly.
74. Section 4.4.2, page 4-43, BRC states “Given the large number of analyses reported in all chemical classes collected from groundwater samples collected in 2004 BRC believes the data set is useful for discussions regarding the presence and extent of chemicals in TMCf

groundwater at the Site.” This explanation is repeated several times; it is suggested that this text be removed from this and other sections and included in the introduction to this section.

75. Section 4.4.2, page 4-44, BRC states “The precise source of these elevated concentrations is unknown, although an off-Site source is suggested by the lack of extensive and corresponding chemical impact to soils by these elements in the TMCf soils (the deep soil zone) beneath the Aa on Site.” Please discuss if a sufficient number of soil samples were collected from the TMCf and at appropriate depths and locations to draw this conclusion. Based on the size of the Site and the limited number of samples collected from the sub-surface, it is the belief of the NDEP that BRC cannot support these statements.
76. Section 4.4.2 and last paragraph on pg. 4-52, although BRC has not provided information to substantiate the historical or current presence of off-site sources of contamination, NDEP does not believe that the potential for off-site impacts to the Deep Zone and deeper migration from the Site are mutually exclusive.
77. Section 4.4.2, page 4-44, BRC states “This interpretation is further supported by elevated concentrations of perchlorate, as discussed below, and total chromium in the southern property boundary (upgradient) wells in the Deep Zone, indicating a potential off-Site contribution to these constituent concentrations in the Deep Zone.” Please explain where the hypothesized off-site source for these elevated perchlorate concentrations is located.
78. Section 4.4.2, page 4-44, BRC states “This hypothesis as well as others will be evaluated as part of the ongoing fieldwork. For example, one hypothesis also under study through the use of groundwater modeling is the possibility that historic disposal of effluent to the First Eight Rows sub-area resulted in mounding of Aa groundwater. If plausible, this mounding could have provided the gradient to drive significant groundwater movement to the south where the coarse-grained facies of the TMCf was encountered and provided the pathway for migration to the Deep Zone.” This section should be revised to indicate that groundwater mounding beneath the Upper Ponds is likely or probable, as opposed to “plausible.” The City of Henderson’s operation and monitoring of the Southern RIBs demonstrated mounding beneath those ponds; furthermore, BRC has previously presented this data to the NDEP in the form of analytical mounding calculations and hydrographs (e.g.: Figure 3-19 of the October 2004 version of the Closure Plan).
79. Section 4.4.2.4, page 4-45, BRC states “There were nine organophosphorous pesticides detected in the groundwater samples collected from the Deep Zone; none were detected at concentrations above PRGs or MCLs.” This observation indicates that the Deep Zone was impacted at sometime in the past and hydraulic connection existed at that time.
80. Section 4.4.2.5, page 4-45, BRC states “None of the Deep Zone samples from wells downgradient or beneath the Lower and Upper Ponds contained perchlorate. This suggests that perchlorate impacts to the Deep Zone are not related to Site soils or alluvial groundwater.” The NDEP does not concur with this statement, please refer to other comments provided by the NDEP regarding impacts to the Deep Zone.

81. Section 4.5, general comments, the NDEP has the following comments:
- The objective of presenting pre-excavation data for areas already excavated should be made clear. For example, the pre-excavation data may support the identification of chemicals that may require remediation in other areas. This comment is also applicable to the last paragraph of Section 4.6 (p. 4-53).
 - This section should clarify whether and how soil sample confirmation data was included in the information presented in this section and in the associated tables and figures.
82. Section 4.5, BRC states “by far the greatest frequency of asbestos detection occurs in the First Eight Rows sub-area.” It is not clear to the NDEP that the asbestos characterization data are adequate to make this statement as BRC has not presented any analysis to support this statement.
83. Section 4.6, general comment, given the incomplete site characterization and/or incomplete data quality assessment, conclusions based on the number of screening level exceedances should be avoided. Accordingly, the discussions in this section should be replaced with more general observations regarding data distributions for purposes of supporting the CSM and remedial action planning.
84. Section 4.6, pages 4-50 to-53, please remove sections from the summary that do not directly pertain to what is known about the Site.
85. Section 4.6, pages 4-50 through 4-51 and Figures 4-42 through 4-46
BRC should review available information and summarize the following in a table. If specific information on rates is not available provide capacities, fluid heights, dimensions, etc.:
- Ditch dates of operation
 - Pond dates receiving effluent
 - Pond capacities and standing fluid heights
 - Ditch flow rates and changes over time
 - Ditch effluent composition and changes over time (if presumed to possibly contain all SRCs, please state so)
 - Pond liquid composition and changes over time
86. Section 4.6, page 4-52, BRC states “The limited impact to the TMCf soils by Site chemicals is indicative of limited leaching into the fine-grained TMCf soils from the overlying perched Aa. This limited impact to the TMCf soils, the currently observed upward groundwater gradient from the Deep Zone, and the Site upgradient chemical impacts (*e.g.*, perchlorate) in the Deep Zone groundwater suggests that the Deep Zone confined aquifer found at a depth of more than 380 feet bgs has not been impacted by direct downward leaching of chemicals beneath the Site effluent disposal ponds.” Please discuss the use of the term “perched” to describe this aquifer. It is not clear to the NDEP that this aquifer is perched. Please clarify if a sufficient number of TMCf soil samples been collected to make this determination and if a sufficient number of TMCf soil samples been collect to demonstrate that there were no preferential flow pathways. As the NDEP as stated above it is the belief of the NDEP that BRC has not collected sufficient data to support these conclusions. As NDEP has requested previously, this discussion on vertical gradient direction should be revised to provide a

comparison of the elevation of the pond overflow point to the elevation of the groundwater level in the Deep Zone.

87. Section 4.6, pages 4-52 and 4-53, the NDEP has the following comments:

- a. BRC states “Further detailed consideration of this interpretation, and others, will be pursued based on data derived from upcoming additional groundwater monitoring, aquifer testing, and groundwater modeling. These activities, particularly the groundwater modeling, will consider the potential that, at some point in the past when the BMI ponds were filled and in use, a downward gradient existed between the pond liquid surfaces and the Deep Zone.” NDEP requests that this discussion be integrated into Section 4.7.
- b. BRC states “Additional impacts to the Site may have occurred as a result of migration from off-site sources. This will be clarified through the review of upgradient water quality data as planned off-site groundwater monitoring is performed.” NDEP recommends that this section and any reference to off-site sources be removed until evidence is provided of the location and source of off-site contamination.
- c. BRC states “BRC performed IRMs, consisting of excavation and removal, transport, and subsequent stockpiling of shallow impacted soils in a secured holding area, within the First Eight Rows sub-area. The IRM excavations were performed as shown in Figure 4-41. The stockpiled soils were placed in secure holding areas and treated with an application of a binding agent to resist the erosive potential of heat, wind, and water. BRC plans to transport and dispose stockpiled soil at the CAMU planned at the former BMI Landfill Site west of Highway 95. Permit applications are now in process for the planned CAMU.” Please be advised that, as written, this statement has nothing to do with the explanation of the CSM. BRC must provide a discussion of the chemical make up of these IRM materials and how this relates to source materials.

88. Section 4.7, pages 4-53 through 4-55, the NDEP has the following comments:

- a. This section should be renamed “Data Needs”.
- b. On page 4-54, BRC states the following: “Identified data gaps prompt the following work by BRC, presently being undertaken or to be undertaken in the near future:” It is not clear to the NDEP where the “data gaps” have been listed. These data gaps should be described and their significance should be explained in a transparent fashion in the CSM.
- c. Examples of “work by BRC, presently being undertaken or to be undertaken in the near future” that appears to not be listed herein are as follows:
 - i. “Characterization of Site soils and groundwater”. This is a very obvious portion of the work that was omitted and it is not clear to the NDEP why or how this could be excluded.
 - ii. “Background/upgradient investigations to assess groundwater quality in various water bearing zones.”
 - iii. It appears that BRC has not listed any work to address the connectivity of the water bearing zones or the connectivity of the water bearing zones with the Las Vegas Wash. Furthermore, all of the data gaps to be addressed via groundwater modeling appear to be omitted from this section.
- d. Please explain the difference between “characterization” and “quantification” of “aquifer production, chemical quality and temporal variability”.

- e. Please explain the significance of the bullet “Additional control on Aa perchlorate concentrations beneath the Spray Wheel sub-area.”
- f. Additional discussion on data gaps is included as part of Attachment B.

Response: *BRC has attempted to re-organize Section 4 per suggestions included in Attachment B. Please see responses to Attachment B comments below.*

89. Section 6.0, general comment, the content of this section somewhat overlaps that contained in Section 9, although some of the content in this section is not contained in Section 9, and some of the content of Section 9 is not contained in this section. It would be best to combine the information regarding data usability methodology into one section (Section 6) so the reader is provided all relevant information regarding the evaluation of data usability in one place.

Response: *Redundant discussions on data usability have been removed from Section 9.*

90. Section 6.0, general comment, please cite the USEPA Guidance for Data Usability in Risk Assessment (USEPA, 1992a, 1992b) in the introduction of this section.

Response: *References to these guidance documents have been added to the text.*

91. Section 6.6, page 6-5, Precision, please include a discussion of laboratory precision as well.

Response: *A sentence discussing laboratory precision has been added to the text.*

92. Section 7.0, page 7-1, the focus seems to be Eastside soils only. Yet, much of the rest of this Closure Plan addresses groundwater issues as well. Closure can be attained only when all media are dealt with. Some elaboration is needed

Response: *The last sentence of this section does discuss the fact that DQOs for other media such as groundwater will be developed in Sampling and Analysis Plans for those media, as applicable.*

93. Section 7.1, pages 7-1 through 7-9, the DQO steps are described very well in general. One aspect that seems to be missing (probably from Step 1) is gathering all available relevant information so that a CSM can be developed and the needs of the site actions can be better defined. Early development of a CSM helps streamline environmental characterization and cleanup projects.

Response: *The following sentence has been added to Step 1: “This includes gathering all available relevant information so that a CSM can be developed and the needs of the site actions can be better defined.”*

94. Section 7.1, page 7-3, fifth bullet, last sentence states “The PSQs identified...” This should be changed to “The PSQs are identified...”

Response: *The sentence as written is grammatically correct. No change has been made.*

95. Section 7.1, page 7-4, Step 3, the intent of the DQO process is really new data collection. The historical data should be folded into the CSM, and the need for any new data should be determined (iteratively potentially).

Response: *Appropriate text has been added.*

96. Section 7.1, page 7-4, Step 3, please note that inputs go beyond concentration data if fate and transport modeling are to be performed. Parameters that support the entire risk assessment are inputs. They all need to be “collected”.

Response: *Comment noted.*

97. Section 7.1, page 7-4, Step 3, 3rd bullet – action level should probably be plural, since there are usually several (or many) action levels that are considered.

Response: *The text has been changed to reflect this comment.*

98. Section 7.1, page 7-6, Step 6, please note that Step 6 is often very difficult to successfully accomplish for complex sites. The new DQO guidance from EPA provides some flexibility in the rigor that needs to be applied. One of the problems is that the classical statistical approach often is not very supportive of decision analysis, Type I and Type II errors do not adequately match the needs of the problem, and the simple statistical models implied by DQO guidance do not often fit the problem. In addition, it is not unusual for sample size to be driven more by budget than the latter steps of the DQO process. To some extent the issue of data adequacy for decision making can be handled instead in the DQA process, where a probability distribution can be developed for the output(s) of interest, and comparison can be made of that distribution to the corresponding action level(s). As it stands, the NDEP doubts that Step 6 will ever be able to be practically implemented at this site, and the NDEP would prefer a discussion of methods that will be implemented.

Response: *BRC has added some text to reflect the comment above.*

99. Section 7.1, page 7-7, number 1) under the first bullet. It seems the text [“true state of nature”?] is a leftover fragment from a previous comment and should be removed.

Response: *This fragment has been removed from the sentence.*

100. Section 7.1, page 7-8, Step 7, Items 1 and 2, the method for testing the statistical method and the statistical model must be established in Step 5 (if the rigor of this approach is going

to be used). The statistical model must come first. Optimization in Step 7 is not really true optimization, but simply evaluates the cost of collecting the requisite data in different ways. Perhaps only one way will be considered (e.g., surface soil sampling by a standard SOP followed by fixed laboratory analysis), in which case, no comparisons will be performed. This is the most likely case. Often, other alternatives consist of schemes such as field screening, composite sampling, etc., but it does not seem that other options will be evaluated for this project. Please clarify.

Response: *Comment noted. BRC has added some text in response to this comment*

101. Section 8.1, pages 8-1 and 8-2, please provide specific references to the existing soils RAS and ROD documents that are discussed in this Section.

Response: *References to the soils RAS and ROD that have been completed for Eastside Soils, have been added.*

102. Sections 8.2 through 8.6, pages 8-2 through 8-3, please note that all future RAS documents should be evaluated versus all of the criteria consistent with the USEPA guidance for conducting a Feasibility Study. These criteria are as follows:

- a. Overall protection of human health and the environment;
- b. Compliance with ARARs;
- c. Long-term effectiveness and permanence;
- d. Reduction of toxicity, mobility or volume;
- e. Short-term effectiveness;
- f. Implementability;
- g. Cost;
- h. State acceptance; and
- i. Community acceptance.

Response: *Comment noted. BRC has added this text to this Section in the beginning in order to minimize repeating the criteria under each RAS discussion.*

103. Section 9.0, a red-line mark up of this section is included as an attachment to this letter. In addition, select comments are provided below. The redline mark-ups represent NDEP's primary comments regarding Section 9.

Response: *Comment noted. BRC accepts the redline mark-ups as is.*

104. Section 9.0, general comment, The USEPA Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors". OSWER Directive 9285.6-03 (USEPA, 1991) is cited more than once in this section. NDEP has no objection to this citation, however we recognize that the majority of the content of this 1991 guidance has been updated (USEPA, 1995, 1997, 2001, 2002, 2004) and request that the most recent USEPA land use and exposure parameter guidance be used.

Response: BRC is well aware that there are several more recent exposure parameter guidance documents, as referenced in both the text and tables for Section 9.

105. Section 9.0, general comment, data quality assessment is not discussed in this Section or any other Section of the Closure Plan. Please advise how this will be addressed.

Response: Data quality assessment is addressed as part of both the data usability and data adequacy evaluations, as noted in Sections 5.7, 9.3.2.1, 9.3.2.7, and 9.3.2.8.

106. Section 9.0, general comment, please note that the use of default values for risk assessment is not paramount. If site-specific information is available that justifies different values or distributions, then the site-specific information should be used.

Response: As noted several times in Section 9, site-specific values will be used where available.

107. Section 9.0 and elsewhere, general comment, reference is sometimes made to being conservative in the risk assessment or the fate and transport modeling. The NDEP notes that if probabilistic risk assessment (PRA) is performed then conservatism should be removed from the model. Although the PRA methodology is not developed in this document, it might be worth noting that conservatism will not be a factor in a PRA if performed. A probabilistic model should be based on expectation and not conservatism. We also note that reference has been made to background risk in Section 9.11. If background risk is to be calculated deterministically then some care needs to be given to conservatism. It probably would not be ideal to overstate background risks. See comment 136 below, and consider adding some language related to the role of background risk earlier in the document, possibly including some brief note about the role of conservatism when calculating background risk deterministically. The NDEP requests that BRC clarify these issues in the revised Closure Plan. Note conservatism is referred to in many Sections including (but not limited to): Sections 4.1.3.3, 9.5.3, 9.6.1, 9.6.3, 9.7.2.1, and 9.8.

Response: Issues regarding probabilistic risk assessment will be addressed in a separate probabilistic risk assessment methodology submittal to the NDEP, as appropriate.

108. Section 9.1.1, it would be helpful if the aggregation of exposure areas was discussed this early in this section. That is, that 1/8 acre might be the target for exposure, but sampling will not occur on many of these exposure units, instead assumptions of similar populations across the site (or areas larger than 1/8 acre, as supported by the data) will allow estimates to be applied to 1/8 acre units. This is an important concept to get across early. The decision can hence be made simultaneously for many 1/8 acre exposure units based on the data and the documentation that the exposure areas can be aggregated.

Response: A paragraph addressing this has been added to Section 9.1.1.

109. Section 9.1.1, pages 9-2 and 9-3, it is already known that risk goals 1 and 2 are likely not achievable because of background levels (arsenic, radium, etc.), in which case item 3 is the only one that applies, and cleanup to background is being sought. In addition, item 3 needs a better explanation or a different path needs to be offered. For example, BRC is not intending to cleanup to background for certain contaminants (e.g.: lead and dioxins/furans).

Response: *Language for item 3 has been revised to clarify this issue.*

110. Section 9.3.1.1, pages 9-4 and 9-5, this section states that “current exposures exist at the Site” but that “only potential future land-use conditions will be quantitatively evaluated” (bottom of p. 9-5). The NDEP suggests that some discussion be added in this section regarding how risks to current receptors are being managed and/or that the scope of the human health risk assessments be limited to future scenarios only.

Response: *This section has been modified to state that: “Risks to current receptors are being managed through site access control. In addition, although current exposures exist at the Site, the risk assessments will be performed after soils remediation is performed, therefore only potential future land-use conditions will be quantitatively evaluated.”*

111. Section 9.3.1.1, pages 9-4 and 9-5, please provide clarification for the use of the term “future”. Please discuss if “future” refers to post-remediation or post-development or both.

Response: *As identified in the Section 9.3.1.2 header, future refers to both redevelopment and post-development exposure pathways.*

112. Section 9.3.1.2, 2nd sentence of the 2nd paragraph, this sentence is awkward. Both references in this section pertain to redevelopment. Perhaps the second sub-area is being remediated at the same time that the first referenced sub-area is being developed? Also, please note that the remainder of the paragraph should probably be separated from the 1st two sentences as they do not seem to connect.

Response: *Redline changes by NDEP to this section have been accepted by BRC.*

113. Section 9.3.2, general comments, the content of this section somewhat overlaps that contained in Section 6, although some of the content in this section is not contained in Section 6, and some of the content of Section 6 is not contained in this section. It would be best to combine the information regarding data usability methodology into one section (e.g., Section 6) so the reader is provided all relevant information regarding the evaluation of data usability in one place. In addition, please note that Part B of the USEPA Data Usability in Risk Assessment guidance should be used for assessment of usability of radionuclide data.

Response: *Most of the content of this section have been removed, and reference to Section 6 added.*

114. Section 9.4.1, page 9-13, second full paragraph, the second sentence should be changed to “This is equivalent to asking if a set of the largest values of the site distribution are significantly larger (in a statistical sense) than the maximum value of the background distribution.”

Response: *This paragraph was revised in the provided redline version of the text (Attachment C). This sentence has been added to the sixth paragraph of Section 9.4.1.*

115. Section 9.4.2, page 9-14, please note that the ATSDR Interim Policy Guideline for dioxins is as follows: “If one or more soil sampling values exceed the screening value of 50 parts per trillion (ppt) of toxicity equivalents (TEQs), further site-specific evaluations are needed ...” (ATSDR, 1997, p.2). Accordingly, it is appropriate to identify dioxins/furans as COPCs if one or more soil sample concentration exceeds 50 ppt TEQ. While this criterion will generally be applied for the health risk assessments, NDEP will approve elimination of dioxins and furans on a case-by-case basis, particularly given the ongoing reassessment of 2,4,7,8-TCDD. If dioxin/furans are detected at the site at concentrations associated with $> 1 \times 10^{-6}$ risk, but are not included as COPCs (based on the 50 ppt TEQ criterion), a related discussion should be included in the uncertainty analysis. In regard to the 50 ppt screening level, further updates in dioxin guidance should be considered at the time the HRA(s) are conducted.

Response: *Redline edits to this section by NDEP are acceptable to BRC.*

116. Section 9.5.1, page 9-16, last full paragraph, please clarify here that both of the statistical methods listed will result in use of a 95% UCL of the mean concentration, its just a matter of how the 95% UCL is estimated (assuming randomness (no spatial correlation) or assuming a spatial correlation structure). BRC should also note that the correlation referred to here is spatial correlation.

Response: *Text has been added to this paragraph to clarify this issue.*

117. Section 9.5.1, page 9-17, for clarification, GiSdT stands for Guided Interactive Statistical Decision Tools.

Response: *This definition has been added.*

118. Section 9.5.1, page 9-17, sixth sentence states, “Under a deterministic risk assessment framework, UCLs of representative cells, including those with the mean, 95 percentile and/or maximum UCLs, will be considered.” The intended meaning of this statement is not clear. It seems that the representativeness of cells will be determined by ordering the UCLs for all of the cells. If this is the case, it needs to be stated more clearly.

Response: *Consistent with the Statistical Methodology report, the sentence has be revised to read: “Under a deterministic risk assessment framework, the maximum UCL across all cells, or*

block kriging will be applied to the entire sub-area to estimate an overall mean, standard error, and UCL for the sub-area.”

119. Section 9.5.2 and 9.5.3, reference is made to volatile SVOCs in these sections. While specific analytical methods are not identified in these sections, volatile SVOCs, such as certain PAHs other than naphthalene, are not included in the TO-14 or TO-15 analyte list. Following COPC identification for each health risk assessment, please ensure that all COPCs meeting USEPA criteria for VOCs are either included in flux chamber analysis (e.g., TO-13) or rationale is provided for the air pathway being insignificant for those chemicals (e.g., based on soil data). This section also does not identify the analytical method to be used for radon.

Response: *Because the risk assessments will be conducted post-remediation, this exposure pathway for SVOCs is not expected to be significant. VOCs and SVOCs will be first analyzed in soil. Therefore, the appropriate TO method will be selected depending on the VOCs/SVOCs detected in soil and data collected from shallow groundwater beneath the site.*

120. Section 9.5.3, page 9-19, second paragraph, third sentence states “The dispersion factor for the construction worker will not be adjusted to account for soil intrusion activities.” It is not clear that this is appropriate, please explain.

Response: *Redline edits to this section by NDEP are acceptable to BRC.*

121. Section 9.6, general comment, in addition to adding current groundwater concentrations to the groundwater concentrations predicted from modeling leaching from site soil, each health risk assessment should show the latter separately (i.e., the model-predicted groundwater concentration without the addition of current groundwater concentration).

Response: *Text has been added to address this issue.*

122. Section 9.6.1.1, page 9-22. All references to the term “da” must be corrected to be thickness of the aquifer.

Response: *The text has been corrected.*

123. Section 9.6.1.1, page 9-22, BRC states “The aquifer thickness (da) value will be based on stratigraphic data noted in the lithologic map of the Site (prepared as part of the CSM process described in Section 4.0).” Please reference the specific map in Section 4 that this refers to.

Response: *These maps will be developed as part of a more comprehensive CSM to be developed for the site.*

124. Section 9.6.1.1, pages 9-22 and 9-23, last paragraph on page 9-22. “The site-specific term representing source length parallel to groundwater flow (L) will be selected based on the known areal (sp?) extent of a given COPC within a particular exposure area. Each COPC will be modeled separately. The source length parallel to groundwater flow (L) will be dependent on the particular COPC being modeled.” If the aerial extent of a COPC is known, then please explain what is being modeled in this context. In this example the term “L” would be the measured length of the aerial extent parallel to groundwater flow.

Response: *Agreed. The L term in the model will be the length of ‘contamination’ for a particular COPC.*

125. Section 9.6.1.2, page 9-23. “The equation used for estimating groundwater concentrations is (from USEPA 1996b [shown reversed from this document, below])...” Please correct this to read “The equation used for estimating groundwater concentrations is (from USEPA 1996b [shown as solved in terms of C_{gw}, below])...”

Response: *The text has been corrected.*

126. Section 9.6.1.2, page 9-23, last paragraph, BRC states “For the purposes of screening analysis, the resultant predicted groundwater concentrations of COPCs from post-remediation soils will be compared to applicable environmental- and health-based standards (e.g., MCLs and ambient water quality criteria for the protection of freshwater organisms).” This assumption does not account for the potential impact of vadose zone soil if contaminated and not remediated. For example, a contaminated soil column that was re-wetted post-development.

Response: *Comment acknowledged. Vadose zone modeling will account for all soil impacts following remediation.*

127. Section 9.6.3, page 9-25, 1st paragraph in section, BRC states “The analysis will initially apply the conservative assumption that predicted groundwater concentrations at the point of infiltration will proceed undiluted and unattenuated up to the point of entry into the Las Vegas Wash. If more refined analyses are warranted, approval from NDEP will be sought prior to conducting those analyses.” Please explain how this relates to the groundwater model that is being developed.

Response: *BRC considers what is proposed for the MODFLOW modeling to be the refined analysis.*

128. Section 9.7.1, general comment, text in this section indicates that the identification of exposure pathways and receptors is supported by the CSM presented in Section 4, however exposure pathways and receptors are not included in Section 4. The association should be made between Section 4 and critical health risk assessment components of the CSM, such as exposure pathways and receptors.

Response: *After discussions with NDEP, the intent was to keep Section 4 abbreviated and focused. Therefore, the identification of exposure pathways and receptors were discussed in Section 9.*

129. Section 9.7.1, page 9-26, please note that the CSM in Section 4.0 is not meant to be comprehensive, it is meant to be a summary.

Response: *The text has been corrected.*

130. Section 9.7.2.2, page 9-29, as previously requested, please do not age-adjust chemical LADDs for the resident. Please show child-specific LADDs and adult-specific LADDs separately, and do not use age-adjusted exposure parameters except for radionuclides.

Response: *Redline edits to this section by NDEP are acceptable to BRC.*

131. Section 9.7.2.3, page 9-30, the NDEP suggests that BRC add a sentence that if PRA is performed then a global numerical sensitivity analysis should be performed, which will be described in more detail in the PRA planning documents.

Response: *Text has been added to address this issue.*

132. Section 9.7.4, page 9-31, reference is made to results of the radon indoor air measurements. It is not clear how indoor air measurements will be made prior to construction of buildings. Please clarify. It is NDEP's understanding that future indoor radon exposure assessment will be based on the results of the surface flux chamber program and typical indoor air dispersion factors.

Response: *Indoor air measurements will not be made. This sentence has been revised to read "...results of the estimated radon indoor air concentrations will be compared to USEPA's recommended action level of 4 pCi/L."*

133. Section 9.7.5, page 9-32, second full paragraph, second to last sentence states, "In addition, it will be assumed that asbestos only occurs at the soil surface (zero to two inches), unless it is plausible that it exists at deeper depths based on available sample data or information for a particular exposure scenario." Justification of this assumption is needed, given the amount of grading that has occurred on the site over time.

Response: *As noted in the next sentence "This will be determined on a case-by-case basis with NDEP."*

134. Section 9.10, page 9-38, some discussion should be provided about uncertainty analysis if a probabilistic risk assessment is performed, since aspects of a probabilistic risk assessment have been described in this section. BRC could add a sentence along the lines of "If a

PRA is performed the uncertainty analysis will be performed quantitatively. Details will be provided in the PRA planning documents”.

Response: *Text has been added to address this issue.*

135. Section 9.11, page 9-39, first paragraph this appears to be the first time that background risk has been mentioned in this document. This is very important for the decision making process at this Site, and should be discussed earlier in the Closure Plan. It should probably be discussed in Section 4. We also note that the role that background risk plays, or might play, in the decision making process should be described earlier in the document (also Section 4?). The role that it plays might depend on the data, but if background risk is under consideration then it needs to be described earlier in the document. Note also that a potential issue here is that Section 9.11 in particular is not well integrated with the rest of the document.

Response: *Comment acknowledged.*

136. Section 9.11, page 9-39, last paragraph, first sentence states, “Having the mean and standard deviation of concentrations of the risk-driver chemicals within each cell, chemical concentrations of targeted contaminants will be statistically generated from a normal distribution, where the total cancer risks and non-cancer hazards are calculated for each set of concentrations.” It is not clear exactly how this will work or why boot strapping is needed if normality is assumed. What will be the sample size for the parametric bootstrap? The geospatial algorithm should be able to produce means, standard errors, and hence UCLs directly for each cell in the block. It is requested that BRC clarify what is intended here. Also note that this has not been described sufficiently earlier in the document, so it seems strange to see this description in the final section of the Closure Plan. Perhaps some further integration with earlier sections would help.

Response: *The text has been corrected to clarify this issue.*

137. Section 10, general comment, the NDEP did not develop comments for this section or the ecological scoping checklist provided under separate cover. The development plans for the area known as the “No-Build Area” have evolved over time and it is no longer necessary to complete an ecological risk assessment for this area. Additional discussion on this matter is provided below.

- a. BRC should include a brief discussion in the revised Section 10 to note that an ecological risk assessment work plan will be developed if and when impacts and receptors are identified. For example, if it is discovered that off-Site impacts are adversely affecting ecological receptors it may be necessary to develop and ecological risk assessment work plan.

Response: *The text has been revised to reflect this comment.*

- b. BRC provided the NDEP with substantial documentation during a January 3, 2007 meeting to explain the development plans for the No-Build Area. These plans indicate that the No-Build area will receive a substantial amount of fill material and development after remediation is complete. It is the belief of the NDEP that these developments do not constitute suitable habitat and hence an ecological risk assessment is not necessary.

Response: *Comment noted.*

- c. BRC should modify the remainder of the Closure Plan to note that the end use of the No Build Area is recreational. In addition, it is advised that the No Build Area be renamed the “Recreational Sub-Area” or something similar.

Response: *All reference to the No-Build area now refer to the “Trails & Recreation” sub-area.*

138. Table 4-3a, the NDEP has the following comments:
- a. It appears that a comparison to background was only completed for arsenic, radium-226 and radium-228. It is not clear why this is the case. The discussions in the CSM portion of the text are therefore limited by this lack of analysis. BRC should either provide the rationale for the selection of these compounds or conduct a more thorough analysis.

Response: *The revised soil summary table provides background comparisons for all metals and radionuclides with background data.*

- b. It may be useful to add another column to indicate the number of samples with elevated detection limits. The term “elevated” could be defined via a foot note. Alternately, BRC could format the soils tables to be consistent with the format and content of the groundwatertables (e.g.: Table 4-13).

Response: *The revised summary tables provide information on elevated detection limits.*

- c. These comments apply to all similar tables.

Response: *Comment noted.*

139. Table 9-1, page 1 of 2, bottom of page, “Depth of Aquifer” should be changed to “Aquifer Thickness”. This reference must be checked and revised throughout the remainder of the document.

Response: *This change has been made to the table.*

140. Figure 1-4, the NDEP has the following comments:
- a. In the bottom right hand corner of the figure, the box to the left of “does assessment pass” that is labeled “No” is missing the arrow to the next box.

Response: *The arrow has been added to this figure.*

141. Figure 4-3, the NDEP has the following comments:

Response: *Comments 141 through 157 refer to figures provided in the October 2006 version of Section 4. As noted in the response to Comment 20 earlier, the revised Section 4 is substantially re-organized based on discussions with NDEP and per NDEP comments in Attachment B. Therefore, many of the old figures have been eliminated. Thus, BRC is not providing individual responses to the NDEP comments on specific figures for Section 4 below. However, for those figures that have been retained, BRC has revised the figures per NDEP comments. These include comments 152-157.*

- a. Revise this figure to include the level of detail in Plate 3 generated by Kerr-McGee dated July 15, 1998. For example, this figure should be revised to include the paleochannel present on both the former Kerr-McGee property and the Site.
 - b. Submit a revised version of this figure at a smaller scale that includes boring labels and contact elevation picks for each location posted.
 - c. Provide clarification and reference to the data used to generate this figure. For example, it is not clear that all of the Ampac data has been used.
 - d. It is not possible for the NDEP to verify the interpretations presented on this figure, however, it is expected that a similar figure will be submitted as part of the site-wide CSM.
 - e. NDEP does not concur with the interpretations presented on this figure.
142. Figure 4-4, please explain the difference between the “upper and lower coarse grained facies” and the “coarse interbeds”.
143. Figure 4-5, this figure lacks the detail that is necessary. It is not clear why BRC has not included a vast majority of the available wells that would provide meaningful detail (and control) to this figure.
144. Figure 4-8, the NDEP has the following comments:
- a. The Deep Zone should be shown as a continuous water bearing zone.
 - b. The sporadic water bearing sand lenses should be shown with an upward gradient.
145. Figure 4-9, the NDEP has the following comments:
- a. Please note that the AMPAC report titled “Supplemental Hydrogeologic Investigation” dated January 24, 2000 provides reference to “Deep Zone” wells that could be added to this figure for additional control points for potentiometric surface contours.
 - b. The Tronox TR series of wells as well as a deep well installed by Montrose could be utilized in the development of this Figure.
 - c. In addition, the lack of detail and control demonstrated on this figure suggests a data gap that requires consideration.
 - d. A similar figure should be developed for the alluvial aquifer.
146. Figure 4-10, the NDEP has the following comments:

- a. The legend states that blue symbols represent the Deep Zone and red symbols represent the Aa. However, the following wells appear misrepresented: MCF-06C – red, MCF-12B – red, and MCF-16C – red. Please clarify.
 - b. At least four of the Stiff diagram patterns are so small that they can not readily be discerned: MCF-02A, MCF-03A, MCF-27, and AA-18.
 - c. Also, Figure 4-10 should contain a key for the description of the various MCF designations such as “A”, “B”, and “C”.
147. Figures 4-16 through 4-40, the NDEP provides general comments as follows:
- a. It should be noted that BRC has elected to compare Site data to the maximum background concentration. It would be helpful to explain to the reader that this is the least conservative comparison that could be made. It is suggested that this issue be addressed in the text.
 - b. Any figure that includes chemical data should include a statement regarding the provisional status of the data plotted.
 - c. Provide the rationale for the selection of which chemicals were presented in figures. NDEP also recommends that the same chemicals be plotted for soil and groundwater. This would be analogous to the process that the NDEP discussed in detail with BRC regarding the CAMU-area CSM.
148. Figure 4-17, this figure has a symbol in the legend which appears to apply only to soil data in Parcels 4A and 4B. This note states “A background dataset has not been established for deeper Qa and TMCf soils.” It is not clear to the NDEP why this note only applies to samples in Parcels 4A and 4B. This note appears to be inconsistently applied on other figures as well (i.e.: Figure 4-18).
149. Figures 4-22 through 4-24: Provide an explanation of what PRG was used for purposes of plotting “OC pesticide concentrations” and the rationale for selection of this PRG. Since different pesticides may have different PRGs, it is inappropriate to present data as “OC pesticide concentrations” for purposes of PRG comparisons and in general this figure requires further refinement and/or explanation.
150. Figure 4-36, label the contours on this figure.
151. Figure 4-37, this is a good example of a figure that was developed without inclusion of all available data. Perchlorate data is collected regularly by Tronox and Ampac and this data has not been included on this figure. NDEP has issued similar comments on this issue in the past. A similar comment is applicable for Figure 4-34 (total chromium). This figure and all others that are similar should be revised to address this comment.
152. Figures 4-42 through 4-46, the NDEP has detailed examples of a number of issues with these figures below. The NDEP’s comments should not be considered comprehensive. BRC should review these figures for completeness, accuracy and transparency prior to resubmittal.
- a. BRC should consider depicting these Figures as a time range instead of a snapshot in time.

- b. Due to the complexity of these figures it is requested that BRC include a series of notes as an attachment to each figure. It may be necessary to present these figures on a larger sheet of paper in the revised Closure Plan.
 - c. The mountain ranges should be shown as the McCullough and River Mountains.
 - d. These figures should indicate lands owned by BMI or the BMI Complex over time.
 - e. The discharge from the plants to the air should be defined in the legend as it is depicted as a gray arrow.
 - f. The gradient should be shown as downward for the alluvial aquifer.
 - g. The gradient for the “sporadic water-bearing sandy lenses” should be shown as upward.
 - h. It is the belief of the NDEP that the Deep Zone Aquifer should be shown as continuous.
153. Figure 4-42, the NDEP has the following comments:
- a. The Western and Northwest Ditches are not shown as connected to the Lower Ponds, please clarify as this contradicts information depicted in aerial photographs.
 - b. It is the understanding of the NDEP that housing developments existed in 1943 (per a review of aerial photographs), please depict these as is appropriate. In addition, the Pitman community does not appear until 1976 (aerial photographs show housing in this area by 1943), please explain.
 - c. It appears that BRC does not depict any evaporation from the Upper Ponds on this figure. Please explain.
 - d. The blue shading shown in the Upper Ponds is not explained in the legend. Similar issues exist on Figures 4-43 through 4-46. Please address this in the legend. In addition, it is not clear to the NDEP why the shading is only shown in a limited portion of the upper eight rows of ponds. In addition, the figure depicts “water movement” to the Upper Ponds but “water and chemical infiltration” from the ponds.
 - e. Between Figure 4-42 and 4-43 the shading of the Las Vegas Wash changes from blue (water movement) to pink (water and chemical movement). This shading then becomes blue again by 1992. Please explain the significance of this inconsistency.
 - f. Please note that Lake *Mead* Drive is mis-spelled on this figure and others.
 - g. These comments apply to the remainder of the figures that are similar.
154. Figure 4-43, the NDEP has the following comments:
- a. BRC shows the arrow labeled “direction of upper zone groundwater flow” as being water and chemical waste movement. This is not the case on Figures 4-42 or 4-44, please explain why this is not consistent. Also, please clarify as to the potential sources for the chemical waste; NDEP will not accept unsupported statements in the CSM.
 - b. Water appears to be flowing backwards in the Western and Northwestern ditches. Please explain.
155. Figure 4-44, the NDEP has the following comments:
- a. Please explain the exact date of the figure and how that correlates to the start up date of the lined TIMET ponds.
 - b. “Groundwater Mounding” is shown adjacent the Las Vegas Wash and an undefined source of chemical and water movement is shown in this vicinity. This phenomena is shown on Figures 4-43 and 4-44 but is not shown on any other figure. It is the understanding of the NDEP that groundwater mounding has occurred and still occurs in a

number of places on and around the BMI Complex. Please explain these issues and depict groundwater mounding as appropriate.

156. Figure 4-45, the NDEP has the following comments:
- BRC shows the Alpha Ditch as “inactive”, however, it is the understanding of the NDEP that the Alpha Ditch was merely replaced by the Alpha pipeline. It is the understanding of the NDEP that this pipeline is and has been active.
 - The feature known as the “Kerr-McGee Seep” appears to be omitted from this figure. All applicable seeps should be shown and identified on this figure and all others.
157. Figure 4-46, the NDEP has the following comments:
- BRC has a label that states “no discharge” in the vicinity of the Las Vegas Wash. Actually, Tronox (Kerr-McGee) has a discharge from their remedial system and the discharge from the Alpha Pipeline exists in these areas. Please clarify.
 - Please be more specific regarding the date of this figure. The TIMET ponds went out of service in May 2005 and should be labeled as “inactive” if this figure depicts the Site after May 12, 2005. If not, perhaps a footnote should explain this issue.
 - The sub-drain systems in the Tuscany and Weston Hills developments should be depicted on these figures. In addition the C-1 Channel should be depicted on these and other figures.
 - The road labeled as “to Golf Course” should be labeled with its proper street name. In addition, this road leads to *residential housing* as well as a golf course. It is not clear why BRC has chosen to make this distinction. In addition, the development is “Tuscany” not “Tuscany Hills”.
158. Figure 9-1, the NDEP has the following comments:
- Upper right-hand corner: change “Potential Human Receptors” to “Potential Future Human Receptors”.
 - Please delete the note at the bottom regarding current receptors.
 - Regarding surface water, please clarify the location(s) of the surface water that the trespasser is exposed to and why workers and residents would not come into contact with those waters.

Response: *The figure has been modified accordingly. For comment 158.c. surface waters are those waters previously associated with the ‘No-Build’ sub-area. Since this area has been replaced with the ‘Trails & Recreation’ sub-area, and no surface waters are anticipated following development, exposures to surface waters for workers and residents will not occur. Construction worker exposures to surface waters may occur during excavation operations.*

NDEP Attachment B Comments

1. The purpose of Section 4.0, Conceptual Site Model (CSM) was to provide a broad overview of the current understanding of Site conditions. The existing CSM provides too much detail and overstates the level of understanding at the Site. Included in this Attachment are examples and explanations for the recommended, revised content of CSM Section of the Closure Plan. BRC should discuss any issues that require clarification prior to resubmittal.

Response: *Comment noted. The section has been extensively revised to reflect this comment. Additionally, several discussions have been held with NDEP. Finally, NDEP was provided a draft text of the revised Section 4 and received helpful red-line comments on an informal basis. These have been included in the revised Section 4.*

2. The NDEP suggests that BRC review ASTM Standard E 1689-95 – Standard Guide for Developing Conceptual Site Models for Contaminated Sites. Based on this the CSM should contain the following elements:
 - Brief Site Summary
 - Site Description, including a discussion of the limits of the study area or system boundaries
 - Source Characterization
 - Discussion of background levels for each media of interest
 - Migration Pathway Descriptions
 - Environmental Receptor Identification and Discussion
 - Discussion of Data Needs (Gaps)
 - Maps, Tables and Figures

Response: *The revised Section 4 follows the suggested organization.*

3. Discussion of data needs (gaps), the NDEP suggests that BRC develop a table that includes information as presented in the example below. This table could be aided through the addition of another column labeled “CSM Pathway”. Please note that this example is not intended to be comprehensive.

CSM Receptor	Data Need	Deliverable(s) to Address Data Need
Human, ecological, groundwater	Distribution of Site Related Chemicals in on-site and off-site soils	CAP, Statistical Methodology document, Closure Plan, etc.
	Distribution of Site Related Chemicals in groundwater (all water bearing zones)	

CSM Receptor	Data Need	Deliverable(s) to Address Data Need
	Distribution of Site Related Chemicals in groundwater relative to subsurface permeability distribution (all water bearing zones) and preferential pathways (alluvial aquifer)	
	Mass flux of contaminants in groundwater off of Site	
	Validated data set	Various data validation reports
	Background range of inorganic constituent concentrations in surface and near-surface soils	
	Background and upgradient (including contribution of contaminant loading from off-Site sources [e.g. potentially TIMET property]) distribution of Site Related Chemicals in groundwater	
	Location, extent, and magnitude of historical and future groundwater recharge and mounding, and impact on contaminant migration in alluvial aquifer	Groundwater Modeling
	Location, extent and influence of paleochannels or other preferential migration pathways (e.g. subsurface drain systems) on groundwater contaminant migration	
Groundwater	Occurrence and continuity of groundwater in Middle Zone	
	Background range of inorganic constituents for: <ul style="list-style-type: none"> • deeper quaternary alluvium soils • Upper Muddy Creek Formation soils 	Existing background studies underway and in development
	Background conditions for Upper Muddy Creek Formation soils	

CSM Receptor	Data Need	Deliverable(s) to Address Data Need
	Background and upgradient conditions for deeper water bearing zones	
Ecological	Identification of ecological receptors	Ecological Scoping Checklist, Screening Level Ecological Risk Assessment
	Hydraulic properties (e.g.: K_H , K_V and S) of water bearing zones.	Aquifer Testing Workplan and Report
	Connectivity (or absence of connectivity) of water bearing zones.	
	Connection of Alluvial Aquifer with LV Wash Gravels	
	Location, occurrence, and flows of groundwater seeps	
	Seasonal fluctuations of groundwater levels and horizontal and vertical hydraulic gradients	Quarterly monitoring of groundwater
	Geologic and physical properties of Site soils that affect leaching of contaminants to groundwater	
	Groundwater seepage velocities	
	Occurrence and areal extent of contaminant migration via fugitive dust suspension and deposition	
	Occurrence and areal extent of contaminant migration via erosion and surface water sheet flow	

Response: The data gap table provided in the revised Section 4 is organized per the comment above.

4. Screening levels, the NDEP has the following comments:
 - a. NDEP suggests that BRC use a screening level of 2,400 mg/L for Total Dissolved Solids. The reference for this value is NAC 445A.200 – NAC 445A.201.

- b. All remaining screening levels should be adequately defined and referenced. It would be expeditious to create a table that listed all screening levels and the respective source for the screening level.

Response: *Screening levels are provided in a new table as suggested.*

5. Tables, please remove all of the remaining Tables except as listed below.

Response: *As part of the reorganization, various tables have been removed as suggested.*

6. Tables, the following existing tables are suitable for retention in the CSM (once the comments in Attachment A are addressed, as applicable):
 - a. Tables 1-1, 3-1, 9-1, 9-2, 9-3, 9-4, 9-5, 10-1 and 10-2.

Response: *These tables have been retained and modified as needed.*

7. Tables, the following tables are suggested to be developed and included in the revised CSM:
 - a. For soil data, one table that presents data in the following columns:
 - i. Analyte name
 - ii. Range of detections
 - iii. Number of detections exceeding the “screening level”
 - iv. Range of non-detections
 - v. Number of non-detections exceeding the “screening level”

Response: *These tables have been developed and incorporated into the revised Section 4.*

- b. For groundwater data, one table that presents data in the following columns:
 - i. Analyte name
 - ii. Range of detections
 - iii. Number of detections exceeding the “screening level”
 - iv. Range of non-detections
 - v. Number of non-detections exceeding the “screening level”

Response: *These tables have been developed and incorporated into the revised Section 4.*

8. Figures, please remove the following Figures:
 - a. Figure 4-1 and 4-2, these Figures are duplicative of Figures provided for Section 1.0.
 - b. Figures 4-11 and 4-12, these Figures do not add value to the report.
 - c. Figures 4-14 through 4-40, these Figures will be replaced with new Figures as described below.

Response: *These figures have been removed from the previous version of Section 4 as suggested.*

9. Figures, the following existing figures are suitable for retention in the CSM (once the comments in Attachment A are addressed, as applicable):
- a. Figures 4-3 through 4-10.
 - b. Figures 4-13 and 4-41.
 - c. Block diagrams, Figures 4-42 through 4-46 are appropriate for this type of CSM. There are a number of comments in Attachment A that must be addressed.
 - d. Figures 9-1 and 10-1.

Response: These figures have been retained and modified as necessary.

10. Figures, the following figures are suggested to be developed and included in the revised CSM:
- a. One figure shall be developed for each of the following horizons:
 - i. Surface soils (0-1' bgs)
 - ii. Near-surface soils (1-15' bgs, this interval can be refined based on BRC's review of the project database)
 - iii. Middle Zone Soils (BRC to define this interval based on a review of the project database)
 - iv. Deep Zone Soils (BRC to define this interval based on a review of the project database)
 - v. Alluvial Aquifer (including the upper, saturated portion of the Muddy Creek Formation, as applicable)
 - vi. Middle Zone (sometimes referred to as the sporadic, water bearing lenses)
 - vii. Deep Zone (this is the water bearing zone below 300' bgs)

Response: These figures have been developed and incorporated into the revised Section 4.

- b. Each figure shall evaluate the project database for each analyte versus the applicable screening level. The symbols to be used on the figures shall fall into the following categories:
 - i. Any analyte exceeds a screening level (non-detects to be evaluated at ½ the detection limit)
 - ii. No analytes exceed a screening level (non-detects to be evaluated at ½ the detection limit)
 - iii. Each of these symbols should differentiate (by shape, color or asterisk) if the location has been analyzed for either: the full analyte list or an abbreviated analyte list.

Response: This information has been included in the revised figures for the revised Section 4.