

# STATE OF NEVADA

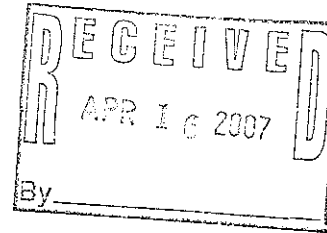
Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor

Allen Biaggi, Director

Leo M. Drozdoff, P.E., Administrator



April 12, 2007

Mr. Mark Paris  
Basic Remediation Company (BRC)  
875 West Warm Springs  
Henderson, NV 89011

Re.: Nevada Division of Environmental Protection Response to:  
*Conceptual Site Model – Proposed CAMU Site*  
dated February 16, 2007  
NDEP Facility ID# H-000688

Dear Mr. Paris:

The NDEP has received and reviewed BRC's correspondence identified above and provides comments in Attachment A. The NDEP does not want a resubmittal at this time. NDEP believes that it is appropriate to address some of the remaining data gaps and resubmit the CAMU CSM at that time. These comments should be addressed as part of the resubmittal. A fully annotated response to comments letter as well as specific deliverables identified below are due **by May 30, 2007**.

Should you have any questions or concerns, please do not hesitate to contact me at (702) 486-2850x247 or [brakvica@ndep.nv.gov](mailto:brakvica@ndep.nv.gov).

Sincerely,

Brian A. Rakvica, P.E.  
Supervisor, Special Projects Branch  
Bureau of Corrective Actions

BAR:s



cc: Jim Najima, NDEP, BCA, Carson City  
Greg Lovato, NDEP, BCA, Carson City  
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### Attachment A

1. General editorial comments as follows:
  - a. Groundwater is alternatively spelled as one and two words, please be consistent.
  - b. The alluvial aquifer is variously referred to as Qal aquifer and Aa, please be consistent.
  - c. Numbers below ten are alternately spelled and written as the numeral. Please spell out numbers below ten.
  - d. References cited within the text need to be checked against the Reference list as several were found to not match.
2. Executive Summary, page ES-1, BRC states "This report presents a conceptual site model (CSM) that details the subsurface conditions and contaminant distribution within the footprint of the property ..." Based on this statement surface conditions are not evaluated. Please clarify.
3. Executive Summary, page ES-1, BRC states "Chemical manufacturing, storage, handling, distribution and waste disposal facilities have historically operated south (upgradient) of the CAMU Site." Please explain this statement and how it relates to the operation of the Western Ditch which travels through the middle of the proposed CAMU. In addition, the waste disposal area known as the Slit Trenches underlays the proposed CAMU. Also, the CAMU is bounded by historic waste management units known as the BMI Landfill.
4. Executive Summary, page ES-2, BRC states "Although significant impacts have been detected in the Aa and the TMCf, upward hydraulic gradients generally inhibit current significant downward migration of contaminants." Please note that this statement is only correct if the head in the TMCf is higher than the head in the Aa. Please note that this comment applies to a number of instances in the report, several of which are identified below.
5. Executive Summary, page ES-3, first full paragraph regarding Slit Trenches, BRC has not discussed the PCB contamination in this area. Please clarify why this particular chemical class (with notable impacts) has been excluded.
6. Section 2.3.1.2, page 7, the discussion in this section regarding the Western Ditch appears to belong in Section 2.3.2.
7. Section 2.4, references are lacking in this section.
8. Section 2.4.3.2, BRC states "The relative 'flatness' of the presented groundwater flow contour lines suggests that the paleochannels may currently only weakly influence the groundwater flow regime in the Qal." Alternatively and just as likely, the flatness of the contour lines may be indicative of an insufficient number of wells to define the surface.
9. Section 2.5.1, BRC states "Water level measurements in monitoring wells in the vicinity of the CAMU Site have indicated that groundwater in the deep TMCf is under pressure; this general trend of a rising potentiometric surface serves to maintain the upward groundwater gradient (thus likely inhibiting the downward flow from the Qal of water with dissolved chemicals) in the vicinity of the CAMU Site." This statement must be removed unless it can be shown that the head within the Aa is lower than the head within the TMCf.
10. Section 2.5.1, page 14, BRC references two downgradient wells, at least one of which appears to have been "canceled" by the Nevada Division of Water Resources (well 27676). Please confirm the status of this well and the remainder of the wells listed in this Section with the Nevada Division of Water Resources and provide written documentation to the NDEP **by May 30, 2007**. Well 27676 is of particular concern due to the fact that it is screened across the shallow water bearing zone which contains a number of contaminants.

11. Section 2.5.2, BRC states "In the local vicinity of the CAMU Site, groundwater in the shallow alluvium is generally of poor quality and is not potable." Remove the text "not potable" and insert the term "brackish." BRC should also note that the water is brackish due to anthropogenic influences, likely including the CAMU Area. The NDEP has a non-degradation policy, and BRC is not authorized to classify groundwater as potable or not potable.
12. Section 2.5.2, "Four potential jurisdictional wetlands that in the past have contained water during portions of the year are present to the northeast of the CAMU, in the vicinity of the BMI Lower Ponds." BRC must provide documentation regarding the "jurisdictional" status of the wetlands. This issue is critical and a response is due to the NDEP **by May 30, 2007**.
13. Section 2.5.3.1, page 17, BRC does not discuss any of the groundwater monitoring that is conducted at the Pioneer Site by a variety of Companies. Groundwater monitoring data is available since approximately 1983 at this Site. BRC should discuss the expected range of groundwater fluctuations versus the proposed depth of the CAMU; the depth of the wastes in the Slit Trench Area and the estimated depths of the wastes in the Historic Landfills. These issues should be covered in the appropriate Sections of the report.
14. Section 2.5.3.1, page 17, BRC indicates that no long term records exist regarding seasonal fluctuations of groundwater at the CAMU Site. NDEP also notes that there is no long term record regarding chemical impacts at the CAMU Site.
  - a. NDEP requests that BRC review the monitoring plan developed by the companies upgradient of the Site and develop a long term monitoring plan for the CAMU Site.
  - b. As previously discussed with BRC, this monitoring plan will be necessary for the operation of the CAMU and as a condition of the Record of Decision for the Slit Trench Area Remedial Alternatives Study (RAS).
  - c. As the NDEP has noted previously, it would be helpful to have a baseline set of data to compare to prior to CAMU installation and operation.
  - d. In addition, 2<sup>nd</sup> and 3<sup>rd</sup> water bearing zone monitoring wells should be contemplated. There is no data in the CAMU area for these deeper water bearing zones. It is reasonable to expect that the NAPL materials that appear to be present in the CAMU area may have affected deeper water bearing zones.
15. Section 2.5.3.1, BRC states "Water encountered within the upper portion of the TMCf, in the five wells completed in the TMCf during the 2004/2005 investigation, rose under the confining pressure, to elevations within the overlying Qal, indicating an upward flux gradient from the TMCf into the overlying alluvium." As stated previously, this is only true if the head within the Aa is lower than the head within the TMCf.
16. Section 2.5.3.2, BRC states "As mentioned above, there also appears to be an upward gradient between groundwater observed in the TMCf and groundwater observed in the Qal." Refer to previous notes regarding upward gradients.
17. Section 2.5.3.3, page 20, BRC states "The hydraulic conductivity of the Qal typically ranges from less than inches to up to 33 ft/d..." Please revise this statement to replace the words "less than inches to" with "a fraction of a ft/d".
18. Section 2.5.3.3, page 20, it is not clear to the NDEP why BRC is discussing aquifer tests conducted by TIMET in 1999 which were subsequently rejected by the NDEP. This is inappropriate.
19. Section 3.1.1, page 28. "Using two separate methodologies, BRC has estimated that the North and South Landfill Lobes received between 500,000 and 1,000,000 cubic yards of materials." Please specify the methodologies used to determine these volumes.

20. Section 3.1.3, pages 28 and 29, BRC references recently acquired aerial photographs with a reference of "Sahu, 2005". Please note that personal communication between the authors of the report is not likely to be a defensible reference. Please provide copies of these referenced aerial photographs to the NDEP.
21. Section 3.2.4, the NDEP has the following comments:
- BRC states "AMPAC released perchlorate, and there is a significant plume that emanates from its former plant site and migrates northward toward the Las Vegas Wash..." Please explain "significant" in terms of what or how defined.
  - BRC states "NDEP has described the AMPAC perchlorate plume as smaller and much less concentrated than the Tronox plume." Please provide a reference for this statement.
  - BRC states "The NDEP required AMPAC to install a remediation system at the leading edge of its plume by February 2006." Please provide a reference for this statement and all similar statements.
22. Section 3.2.5, the NDEP has the following comments:
- BRC states "Montrose disposed of between 730 and 800 tons of SBR in Pond No. 6 until March 1980, when further use was discontinued pursuant to an NDEP order." It is necessary to provide references for these statements.
  - BRC states "In addition to the above disposals, Montrose experienced the following known or suspected releases or spills: (1) a 2,300-gallon monochlorobenzene spill in March 1974, (2) minor air emissions from the facilities..." Please explain how it is known to be minor and what data supports this conclusion.
  - BRC states "This system included a series of evaporation ponds connected by process piping and surface drainage ditches (PES Environmental, Inc., 2006). Reports regarding the system provide no indication that the evaporation ponds were lined." Please strike the word "evaporation" from this sentence.
  - BRC states "To the extent that stormwater runoff entered the storm sewers after 1976 and before 1986, Montrose apparently operated under Stauffer's National Pollution Discharge Elimination System (NPDES) permits." Please strike the word "Pollution" and replace with the word "Pollutant".
  - BRC states "On April 4, 1983, the NDEP, Montrose, and Stauffer agreed to a consent order for a groundwater cleanup program." Provide a reference for this statement.
  - BRC states "A hydrochloric acid release occurred in December 1990 to January 1991 due to structural failure of ponds, resulting in the release of 65,000 gallons of dilute (0.5 percent) hydrochloric acid. This release was determined to be relatively innocuous due to the presence of alkali material in the soils surrounding the spill, effectively neutralizing the acids (Weston, 1993)." Please explain how it was determined "to be relatively innocuous?"
  - BRC states "In September 1978, high-paraffin fuel oil was released, solidified on the ground, and likely taken to the BMI Landfill (Weston, 1993)." Please specify the location.
23. Section 4.3, BRC states "Because many of the SRCs are also naturally occurring, in addition to comparisons with PRGs, the analytical results for naturally occurring constituents..." Please be specific, e.g.: provide a percentage and/or a number.
24. Section 4.4, BRC states "Polychlorinated biphenyls (PCBs) were compared to criteria established under the Toxic Control Substances Act (TOSCA) (Code of Federal Regulations [CFR], Title 40,

Part 761)." Please move the word "Control" to after "Substances" and note that the abbreviation is "TSCA".

25. Section 5, BRC states "For the most part, the reported detection limits were below the lowest screening level." Again, please be specific, provide a percentage number and indicate "how many".
26. Section 5.1, BRC states "Sample intervals from 10 to 30 feet bgs were selected to evaluate releases from the trenches, while the samples from 40 and 50 feet bgs were intended to also evaluate off-gassing from the alluvial aquifer (Aa)." Does not this involve the assumption that off-gassing from the Aa groundwater would not migrate further upward in the soil? Please discuss.
27. Section 5.1, BRC states "Because official screening levels for these compounds do not exist, comparisons were made to OSHA permissible exposure levels (PELs), which are conservative in that they represent acceptable vapor concentrations assuming an 8-hour exposure to workers." EPA Region IX has ambient air PRGs for these compounds. These should also be considered in the future.
28. Section 5.1.1, BRC states "Figure 5-1 presents the distribution of 1,2,4-trichlorobenzene in the vicinity of the STA. In this area 1,2,4-trichlorobenzene was detected at concentrations ranging from 47 to 2,107 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). These concentrations were compared with the PEL of 300,000  $\mu\text{g}/\text{m}^3$  that has been set for 1,2-dichlorobenzene (no PEL is listed for 1,2,4-trichlorobenzene)." Please explain why this is a valid comparison.
29. Section 5.2, page 51, BRC states that asbestos was not detected. This is not correct, please review the available data for the Borrow Pit area.
30. Section 5.2, BRC states "The 5- to 10-foot depth interval was selected as being the maximum depth generally considered for worker exposure in the risk assessment." If any of the slit trench waste is removed then this is not a valid assumption.
31. Section 5.2, BRC states "Several compounds were detected at concentrations above background, including chloride, fluoride, nitrate and sulfate." Please explain how background was determined for these chemicals.
32. Section 5.2, BRC states "High chloride concentrations are also not unusual in a desert setting." Please note that this usually depends upon where you are located within the overall groundwater flow system.
33. Section 5.2.2.6.1, page 62, BRC does not discuss the provisional background range for radium-226 in a consistent fashion. The background comparison is only completed for the Slit Trench Area (STA). NDEP has advised BRC to avoid these inconsistencies previously. These inconsistencies result in a protracted review time and present concerns regarding transparency. Radium-226 was detected at concentrations up to 54.4 pCi/g which is well above the range of background concentrations.
34. Section 5.2.3.3.1, page 67, BRC states "none of the samples containing aldrin at concentrations above their respective reporting limits; however, the reporting limit was below the Industrial PRG". The word "however" in this sentence is somewhat confusing and implies that perhaps the reporting limits were above the PRG. This awkward phrasing repeats itself in a number of places and is confusing. Please advise what the status of the reporting limits is for each of these instances or revise the wording.
35. Section 5.2.4.9, page 85, it is not clear why the supplemental Slit Trench Area soil sampling is being presented separate from the remainder of the data. This provides unnecessary duplication and confusion. It appears that this information is being presented separately because it is being presented to the NDEP for the first time. It is unclear if these data are included in the frequency of detection

and other comparisons that are presented in the preceding sections on the Slit Trench Area. Please clarify.

36. Section 5.3.2, the NDEP has the following comments:

- a. This Section was reviewed with select data as presented in Appendix F (via ArcReader).
- b. BRC states "Water quality data from wells installed by MWH (2005)." There is no MWH 2005 reference listed, please clarify.
- c. Dioxins and furans are not discussed in this Section, however, the following is notable:
  - i. Dioxins and furans were detected in groundwater at levels which exceed the USEPA MCL.
  - ii. There are a number of detection limits that are sufficiently elevated such that the detection limits exceed the USEPA MCL.
- d. It is notable that it appears that PCB groundwater data is not available to be plotted in ArcReader. This data is available in the database and the following is noted:
  - i. There is an upgradient detection of PCBs which exceeds the USEPA MCL.
  - ii. Most of the non-detects have detection limits that are sufficiently elevated such that the detection limits exceed the USEPA MCLs.

37. Section 5.3.2.1.3, page 118, BRC has selected alpha-BHC and gamma-BHC as indicators for organochlorine pesticides in groundwater. It would be helpful to have a brief description for why BRC chose to present these compounds (especially given gamma-BHC's limited mobility versus other organochlorine pesticides that are known to exist throughout the area). In general, this comment applies to all of the sub-sections of the report that describe groundwater.

38. Section 5.3.2.4, pages 120 through 125, the NDEP has the following comments:

- a. Page 122, BRC states that the highest concentrations of benzene are from well AA-BW-12 (on the south side of the Site). Figure 5-58 shows a concentration of 33,000 (19,000) in well AA-BW-05 on the North Side of the Site. The 33,000 ppb concentration carries a J- flag which indicates that the sample may be biased low. The 19,000 ppb concentration is a duplicate analysis and BRC indicates that the 33,000 ppb concentration was not within calibration standards. Also, on this same Figure well AA-BW-04 is elevated versus upgradient well AA-BW-08A. These comparisons indicate a potential for an on-Site source of benzene.
- b. Page 123, BRC discusses one method of determining the presence of NAPLs and suggests that 1% of the effective solubility of a compound should be compared to groundwater concentrations.
  - i. It is not clear where this comparison has been presented. Table 7-1 presents physical data for a variety of chemicals, however, a table comparing groundwater data to solubilities is not presented.
  - ii. The Naval Facilities Engineering Command (NAVFAC) also suggests that organic vapor analysis exceeding 100-1,000 ppmv are an indication of NAPL presence (DNAPL Management Overview, December 2006). BRC should review Figures 5-1 through 5-5 and 5-45 through 5-48 and discuss the potential presence of NAPLs. It should also be noted that during the step out sampling for the Slit Trench Area PID readings in excess of 10,000 ppm were registered on several occasions.
  - iii. In addition, Montrose and Syngenta-Stauffer have had success through the use of hydrophobic dye impregnated fabrics (such as the FLUTE ribbon) to determine the presence of NAPLs.

iv. Additional methods are also discussed in the USEPA document EPA/540/S-95/500 *Ground Water Issue – Light Nonaqueous Phase Liquids*.

39. Section 6.1.1, pages 128 through 131, this Section does not discuss the historic French drain system that existed for the Trade Effluent Settling Ponds. Please discuss how this feature relates to the fate and transport of contaminants from the BMI landfill. Please discuss if this feature was removed or if it was left in place.
40. Section 6.1.7, pages 142 through 148, the NDEP has the following comments:
  - a. Page 142, the range of reported dioxin/furan TEQs is incorrect. It appears that this is because the Slit Trench Area has been broken into two (unnecessary discussions) one of the first round of sampling and one of the step out sampling. The temporal fashion in which the sampling occurred is not relevant to the fate and transport discussion.
  - b. Page 142, 3<sup>rd</sup> paragraph, BRC states "Sludge was not observed to be present in the STA subsurface." Location BS-08 on Figure 5-45 indicates that "dark brown to black oily residue/sludge" was detected. This inconsistency should be rectified in the text.
41. Section 7.2, page 150, please discuss the surface water pathway relative to the Western Ditch and the variety of runoff channels that exist on Site, including the channels that have been incised into the covers of the historic BMI landfills. NDEP has pictures that document these channels and can provide them to BRC if that is helpful.
42. Section 7.4, BRC states "Octanol-water coefficients ( $K_{ow}$ ) are indicative measures of chemical ability to sorb to organic matter contained in soil relative to dissolution in soil-water (groundwater). The higher the  $K_{ow}$ , the greater the tendency for adsorption. Chemicals with high  $K_{ow}$  values strongly partition to the soil organic phase in water-soil mixtures." This information does not appear to be used in the discussion that follows in this section.
43. Section 8.1, BRC states "The potentially exposed populations and their potential routes of exposure are identified in Table 8-1 and presented in Figure 8-1." On Figure 8-1 the expression "general water quality" is used to imply contaminated groundwater; however, Section 2.1 uses the same expression to refer to inorganic chemical parameters. BRC should specifically state in Figure 8-1 that the groundwater is contaminated.
44. Section 8.1, pages 152 and 153, please note that a deed restriction regarding groundwater directly beneath the CAMU Site does not eliminate the risk posed to the off-Site receptors.
45. Section 8.2, BRC states "A recent aerial photograph and several photographs of the CAMU Site that illustrate the sparse nature of the vegetation on the site are shown on Figure 8-2." Figure 8-2 would be enhanced by indicating where the photographs were taken.
46. Section 9, BRC states "Groundwater in the TMCf unit is confined, with an upward vertical gradient from the deep to shallow water-bearing zones, indicating that at least under current conditions, downward migration of contamination from the Aa to the TMCf is likely inhibited by the pressure gradient." Refer to comments above.
47. Section 9, page 156, BRC's description of the Qal/TMCf interaction is confusing. The first water bearing zone at the Site crosses the Qal/TMCf interface, there is no separation. This issue should be clarified.
48. Section 9.1.3, BRC states "TCE was detected above the MCL in a downgradient well but not in the upgradient wells. While further investigation of upgradient groundwater conditions is needed (and is being conducted), it is suspected that the presence of this compound is the result of biodegradation of PCE..." Does BRC have the data to show reducing conditions that would support biodegradation of PCE?



49. Section 9.1.3, BRC states "Impacts to groundwater occurring in the TMCf lenses have also occurred. In samples collected from wells located upgradient of the CAMU Site, 21 chemicals were detected at concentrations above the MCLs in TMCf groundwater lenses. These chemicals included VOCs, SVOCs, a pesticide, metals, and a radionuclide (uranium-238)..." Please insert a reference to DNAPLs found upgradient.
50. Section 9.2, BRC states "The extent of chemical biodegradation in the subsurface has not been fully assessed. The current data set indicates that chemical biodegradation may be occurring in the CAMU Site subsurface." Specifically, what data has BRC collected to evaluate whether biodegradation is occurring?
51. Section 9.2, BRC states "Collection and evaluation of dissolved oxygen and redox data are needed to evaluate this fate and transport mechanism at the CAMU Site." Please note that evaluation of biodegradation of chlorinated hydrocarbons requires more than these two indicators.
52. Section 9.2, BRC states "This type of data can be collected during the periodic groundwater monitoring discussed earlier." If BRC intends to demonstrate biodegradation, the analyte list should be examined with this thought in mind.
53. Section 9.2, pages 160 and 161, regarding data gaps, the NDEP has the following comments:
- a. The examples provided below should not be considered an exhaustive list of data gaps.
  - b. BMI Historic Landfills, the NDEP has identified a number of data gaps that include (but are not limited to):
    - i. Limited information is available regarding the materials deposited in the historic BMI landfills.
    - ii. Limited information is available regarding the concentrations of chemicals in the vadose zone beneath these historic waste management units.
    - iii. Based on the configuration of the existing monitoring wells it is difficult to determine the specific impacts to groundwater from the BMI landfills versus the Slit Trench Area.
    - iv. The depths of waste placement and how these depths relate to groundwater conditions have not been discussed. It is likely that engineering plans exist for the historic Trade Effluent Settling Ponds and that this information could be correlated to current depths to groundwater. Although Section 3.1.1 states "The elevation to which disposal materials were placed in the BMI North Landfill Lobe is unknown."
    - v. The performance of the caps on these units is unknown.
      1. Due to limited information in the soil and groundwater beneath the Site it is unknown if the caps are performing as designed.
      2. Relatively, non-intrusive methodologies are available to quantify the performance of the caps.
      3. In addition, directional or angled borings could be installed beneath these units.
      4. During the NDEP's August 2006 site visit the NDEP noted erosional features in the caps of these units. In addition, large pieces of cap material was located downgradient of these units. Photographs can be provided to BRC, if that is helpful.
    - vi. Groundwater elevation time series graphs are needed. These should include the base elevations for the Slit Trenches and former BMI landfills.

- vii. Groundwater sampling should include wells (if they still exist) H-3, H-18, H-19, H-21, H-23, H-28, H-38, H-39, H-40, H-41, LG-033, B-14, and B-14R. If any or all of these wells are sampled by others, the results must be included in the interpretation herein.
  - c. Reducing conditions in groundwater and soils are not well known. These conditions have the potential to affect fate, transport and degradation. See also, comments above.
  - d. Historic information regarding seasonal fluctuations of the water table are largely unknown. These seasonal fluctuations have the potential to interact with contaminants in the sub-surface. Wastes in the Slit Trench Area are proximate to groundwater and this is a data gap that requires additional resolution.
  - e. Broad suite analytical data is not available for the Western Ditch Area. This is likely not a significant data gap since it is anticipated that the soils in the Western Ditch will be disposed of in the proposed CAMU.
  - f. Limited water level data and hence understanding of water levels is apparent via the presentation of water levels on the cross-sections and Figure 2-10. BRC should address this issue through expanded monitoring of the area with existing or new wells, as necessary. Please note that a significant number of wells owned by other Parties exist in the area. In addition, quarterly data collected by others may be useful for addressing this data gap.
  - g. As discussed below with regards to Appendix G, location SV-10 exhibits high soil vapor concentrations for several compounds. Some of these compounds (e.g.: 1,2-dichloroethane) exhibit high soil vapor concentrations in the near surface region. This soil vapor sample location has no corresponding soil concentration data. This is a data gap. Similar comments apply to locations SV-01, SV-02, SV-03, SV-04, SV-05, SV-06, SV-07, SV-08, SV-09, SV-11, SV-12, SV-13, SV-14, SV-15, SV-16. In addition, it appears that this comment also applies to all of the soil vapor locations on the upgradient side of the CAMU area.
  - h. Soils and groundwater data in deeper zones is not available. Based on the data presented in the CSM it appears that NAPLs may be present in the CAMU area. Vertical and horizontal migration of materials needs refinement. 2<sup>nd</sup> and 3<sup>rd</sup> water bearing zone monitoring wells should be contemplated in the vicinity of the CAMU-area. These monitoring wells can be used for long term monitoring of the historic waste management units.
54. Figure 1-2, this Figure is labeled "Topographic Map", however, no topographic features are shown. Please revise and resubmit this Figure.
55. Figure 2-3, this comment applies to all cross-sections, it is not clear if the "UMCf Water Level" indication applies to water located in the first water bearing zone but occurring in the Muddy Creek Formation or if this refers to a deeper water bearing zone.
56. Figure 2-10, the NDEP has the following comments:
- a. It is not clear why several features on the Tronox Site are labeled and none of the features (and source areas) on the Pioneer-Stauffer-Montrose Site are labeled. It is suggested that a Source Areas Figure be developed.
  - b. Noticeable on the figure is the lack of control for water levels in the central, western, and southwestern portions of the CAMU Site.
  - c. Section 2.5.3.5 Groundwater Discharge, BRC states "Figure 2-10 presents an approximation (based on water well elevation data from two different years) of the effect

of the Tronox groundwater extraction system on groundwater elevations east of and adjacent to the CAMU Site." The NDEP recommends removing this from Figure 2-10 unless it can be stated (demonstrated) that the Tronox groundwater treatment system has a material impact on the CAMU area Aa. Furthermore, there are no wells shown to provide the basis for the interpretation for the Tronox system. Lastly, the NDEP does not think that the contours in this area accurately represent the hydraulic function of the features shown associated with the groundwater treatment system.

57. Figure 5-6, this comment applies to all dioxin/furan TEQ figures, it would be helpful to note which ATSDR screening level is being referenced (e.g.: 50 ppt or 1 ppb).
58. Figures 5-6 through 5-60, it would be helpful to organize the Figures in by contaminant. For example, Figure 5-6 through 5-5-9 should be labeled as follows:
- a. Figure 5-6 – Compound X in Surface Soil (0 to 1 fbgs)
  - b. Figure 5-7-- Compound X in Sub-Surface Soil (5 to 10 fbgs)
  - c. Figure 5-8 - Compound X in Sub-Surface Soil (10 fbgs to groundwater). BRC did not develop any Figures for this depth interval and it is not clear why this is the case. These Figures should be developed and included in the **May 30, 2006** submittal.
  - d. Figure 5-9 – Compound X in Groundwater
59. Figures 5-6 through 5-60, in late 2005 and early 2006 BRC and NDEP discussed the development of the CAMU CSM, including the review of a number of interim drafts of Figures and Tables. In the December 2, 2005 comments provided by the NDEP to BRC the NDEP specifically requested that certain Figures be developed and included. It appears that a majority of these Figures have not been included. The list of Figures is provided below for your reference. The NDEP understands that these Figures are generally available on the provided CD. Please produce hard copies of these Figures and submit **by May 30, 2006**.
- a. For Soils:
    - i. Please include all analytes that are shaded by BRC as well as all groundwater analytes that are shaded by BRC (*on a list provided by BRC between November and December 2005*) as well as the following:
      1. acetaldehyde
      2. total TEQS for dioxin/furans
      3. arsenic
      4. total chromium
      5. chromium (VI)
      6. lead
      7. phosphorous
      8. vanadium
      9. DDE
      10. DDT
      11. aldrin
      12. dibenzo(a,h)anthracene
      13. bismuth 210
      14. lead 210
      15. potassium 40
      16. radium 226
      17. radium 228
      18. thorium 228

19. uranium 234
20. uranium 235
21. uranium 238
22. 1,2,4 trichlorobenzene
23. hexachloro – 1,3- butadiene
24. tetrachloroethylene
25. 2-chlorophenol
26. 1,1-dichloroethane
27. 1,2-dichloroethane
28. carbon tetrachloride
29. chlorobenzene

ii. Additionally, please review the Pioneer-Stauffer-Syngenta-Montrose groundwater treatment system and include all of the major volatile, semi-volatile and organic chemicals that are evaluated in this system.

b. Groundwater

i. Please include all the same analytes as for soil plus the following:

1. TDS
2. TTHM
3. radium 226/228 combined
4. total uranium

60. Figures 5-45 through 5-48, please produce Figures similar to this for the remaining Slit Trenches. It is expected that Figures similar to this will be developed for the Slit Trench Remedial Alternative Study. In addition, a cross-section in a north-south fashion should be developed from Location BS-17 to BS-02 which includes the sample locations BS-06/11 and BS-02/06. If additional areas with north-south trends are observed, additional cross-sections should be developed. This should be provided with the response due **by May 30, 2007**.

61. Figure 5-46, it is not clear why the PCB data for location BS-11 or any other locations is not shown.

62. Figure 5-60, although not specifically discussed in the text it appears that there may be a source of chlorobenzene on Site which is contributing mass to the existing plume. The highest concentrations of chlorobenzene are in well AA-BW-05 on the downgradient side of the Site.

63. Figure 8-2, it is difficult to understand what the Site photographs are referring to because they are not labeled.

64. Figure 9-1, the NDEP has the following comments:

- a. All evaporation arrows should show chemical and water movement.
- b. The pond filling arrow should show chemical and water movement.
- c. The runoff/overflow surface drainage arrow should show chemical and water movement.
- d. Perhaps dashed arrows should show connectivity between the upper and lower water bearing zones.
- e. French drain should have an arrow for infiltration,
- f. On the plant end of the drawing the three arrows labeled "Pond Infiltration" should be labeled "Discharge to Ponds".
- g. The Western Ditch should have an arrow for "Ditch Infiltration."

65. Figure 9-2, the NDEP has the following comments:

- a. The same comments as provided for Figure 9-1 apply.
- b. The Western Ditch runoff arrow should show chemical and water movement.

- c. The Upgradient Ponds should have a downward arrow showing chemical and water movement.
66. Figure 9-3, the NDEP has the following comments:
- a. The same comments as provided for Figures 9-1 and 9-2 apply.
  - b. The leachate potential from the Slit Trenches and former BMI Landfills are omitted;
  - c. The figure does not show upgradient leaching of chemicals, including DNAPLs, through the water table and into the UMCf which is known to have occurred.
67. Figure 9-4, the NDEP has the following comments:
- a. The same comments as provided for Figures 9-1 and 9-2 apply.
  - b. The leachate potential from the Slit Trenches and BMI Landfills are omitted.
  - c. The figure does not show upgradient leaching of chemicals, including DNAPLs, through the water table and into the UMCf which is known to have occurred.
  - d. Please clarify if the "Pond Infiltration" imply "Discharge to Ponds"; if so, then the ponds should have an arrow for "Pond Infiltration."
68. Tables, general comment, The NDEP and BRC discussed the generation of tables that would present summary statistics for the data. These tables were discussed in a number of drafts generated in late-2005 and early-2006. It appears that these tables were not included in the final draft that was submitted to the NDEP. This issue was not discussed with or agreed to by the NDEP.
69. Table 3-1, it would be helpful if the waste streams in this table were defined. For example, what are the components of chlorine liquefaction sludge?
70. Table 3-2, this table is substantially incomplete. For example, the former Montrose manufacturing plant is not listed.
71. Table 4-1, the NDEP has the following comments:
- a. Please note that the NDEP has not verified the accuracy of the cited soil screening criteria.
  - b. BRC should provide appropriate references for each of the cited criteria. For example, "DAF 1" is actually the USEPA Region IX Soil Screening Level with a Dilution Attenuation Factor of 1. This should be described and appropriately cited in a footnote.
  - c. The column labeled "background" should discuss the source and status of the background data that is cited.
72. Appendix A, the NDEP has the following comments:
- a. Figure A-1, this Figure is illegible. The pixel size is sufficiently large and distorted such that the Figure has little meaning.
  - b. Figure A-2, this Figure has worse resolution than Figure A-1.
  - c. Figure A-3, and others, it would be helpful if these Figures had some annotation to explain what the reviewer is seeing. For example, what is the large feature that appears to be a white plume?
  - d. Figure A-7, the Site features are nearly illegible due to the presence of what appears to be a white plume of dust. Please explain.
73. Appendix B, the NDEP has the following comments:
- a. Section B.1.3, pg B-4, 1<sup>st</sup> sentence. In a review of the referenced document NDEP indicated that they were not in agreement with ERM's conclusions.
  - b. Section B.1.3, pg B-4, 2<sup>nd</sup> sentence. This sentence essentially contradicts the first sentence.
74. Appendix G, the NDEP has the following comments:

- a. This Appendix contains 12 Figures on a CD. It is not clear to the NDEP why these Figures would be relegated to a CD rather than included in the report considering the relatively small number of additional pages they represent.
- b. Location SV-10 appears to indicate high soil vapor concentrations for a variety of compounds. This corresponds to the inferred location of an unnamed trench. Since no soil data has been collected in this area this appears to represent a data gap.