

----- Original Message -----

From: Brian Rakvica

To: Ranajit (Ron) Sahu ; rick kellogg ; Mark Paris

Cc: Jim Najima ; TeriL.Copeland@aol.com ; Brenda Pohlmann ; Paul Black ; Paul Duffy ; Paul S. Hackenberry, Jr. ; David Gratson

Sent: Monday, July 16, 2007 8:45 AM

Subject: BRC Closure Plan

All,

Attached is the approval letter, hard copy will follow by mail.

As we note in the letter, we have provided comments, however, these are for use in future documents and/or are provided for the record.

No response or resubmittal is required or desired.

Please contact me with any questions.

Thanks,

Brian

Brian A. Rakvica, P.E.

Supervisor, Special Projects Branch

Bureau of Corrective Actions

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7/16/2007

July 16, 2007

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

Re.: Nevada Division of Environmental Protection Response to:
Closure Plan
dated May 10, 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. Please note that these comments are provided for clarification of the administrative record. A response is neither required nor desired. Additional guidance regarding the use of these comments is provided below.

Should you have any questions or concerns, please do not hesitate to contact me at (702) 486-2850x247 or 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
Barry Conaty, Akin, Gump, Strauss, Hauer & Feld, L.L.P., 1333 New Hampshire Avenue, N.W.,
Washington, D.C. 20036
Brenda Pohlmann, City of Henderson, PO Box 95050, Henderson, NV 89009
Mitch Kaplan, U.S. Environmental Protection Agency, Region 9, mail code: WST-5,
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Rob Mrowka, Clark County Comprehensive Planning, PO Box 551741, Las Vegas, NV, 89155-
1741
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Ranajit Sahu, BRC, 311 North Story Place, Alhambra, CA 91801
Rick Kellogg, BRC, 875 West Warm Springs, Henderson, NV 89011
Sherry Bursey, Davis, Graham & Stubbs, LLP, 1550 17th Street, Suite 500, Denver, CO 80202
Tara Bahn, U.S. Department of Justice, PO Box 23896, Washington, DC 20026-3986
Craig Wilkinson, TIMET, PO Box 2128, Henderson, Nevada, 89009-7003
Kirk Stowers, Broadbent & Associates, 8 West Pacific Avenue, Henderson, Nevada 89015
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Chris Sylvia, Pioneer Americas LLC, PO Box 86, Henderson, Nevada 89009
Paul Sundberg, Montrose Chemical Corporation, 3846 Estate Drive, Stockton, California
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Michael Ford, Bryan Cave, One Renaissance Square, Two North Central Avenue, Suite 2200, Phoenix, AZ 85004
David Gratson, Neptune and Company, 1505 15th Street, Suite B, Los Alamos, NM 87544
Paul Black, Neptune and Company, Inc., 8550 West 14th Street, Suite 100, Lakewood, CO 80215
Paul Duffy, Neptune and Company, Inc., 8550 West 14th Street, Suite 100, Lakewood, CO 80215
Teri Copeland, 5737 Kanan Rd., #182, Agoura Hills, CA 91301
Paul Hackenberry, Hackenberry Associates, LLC, 550 W. Plumb Lane B425, Reno, Nevada 89509

Attachment A

1. **Section 4.0, General Comment**, the comments provided below should be used in the refinement of the site-wide Conceptual Site Model (CSM) and the sub-area specific CSMs, as applicable. As noted above, revision of this Section is not required at this time.
2. Section 4.2.2.1, Page 4-15, sixth sentence states, "The risk assessment indicates that the soils in these two lobes present minimal hazard to human health. An NFAD (with conditions) for these soils has been obtained by BRC." It would be more appropriate to change the word "hazard" to "risk".
3. Section 4.2.2.3, pages 4-16 and 4-17, CAMU Area Groundwater. "Because it is well-documented that PCE can degrade to TCE in anaerobic groundwater, it is suspected that TCE may be the biodegradation daughter product of PCE originating from upgradient sources or originating from the BMI Landfill or the CAMU Slit Trench Area." Please note that TCE can also be the parent product, and it is not clear that BRC has any data to support this suspicion.
4. Section 4.5.1, pages 4-21 and 4-22, 1st paragraph of the section, Eastside Area. There is no mention that the ponds were unlined. The reviewer recommends that the last sentence of the paragraph be deleted.
5. Section 4.5.1, pages 4-21 and 4-22, 2nd paragraph of the section, Eastside Area, BRC states "Chemicals not evaporated likely leached from pond and ditch sediments and bottoms through the Eastside Area soils to the underlying groundwater." Both this paragraph and the preceding paragraph taken together create a false impression the "wastewater may have infiltrated." The reviewer recommends that the first two sentences of the paragraph be deleted. The subject of infiltration of the effluent is covered better in the third paragraph of this section. The "dried evaporative sediments" phenomena would have occurred after usage of the ponds ceased. The reviewer believes that the rain water leaching mechanism was likely a secondary (less important) mechanism when compared to the volume of effluent that directly infiltrated to groundwater.
6. Section 4.5.1, page 4-23, 2nd full paragraph on the page, BRC states "As posited by BRC, the limited impact to the Deep soils, the currently observed upward groundwater gradient from the Deep Zone groundwater..." As previously pointed out the "currently observed upward groundwater gradient" bears no relationship to the head gradient that existed at the time the ponds were in continuous use. The relevant question is what was the head in the ponds versus the head in the Deep Zone? Lastly, this statement is contradicted by the penultimate paragraph in this section.
7. Section 4.5.1, page 4-23, 2nd full paragraph on the page, BRC states "...the off-Site, upgradient chemical impacts (e.g., perchlorate) in the Deep Zone groundwater..." BRC has not proven that the "off-Site, upgradient chemical impacts" were not the result of effluent infiltration from the ponds. This statement is contradicted by the penultimate paragraph in this section.
8. Section 4.5.1, page 4-23, 2nd full paragraph on the page, BRC states "It is possible that some percolation from the Site ponds, along with pathways from upgradient sources, as well as natural sources can, singly or in combination, explain the observed concentrations of contaminants (including very high levels of TDS) in the deep groundwater." To date BRC has not demonstrated an off-Site, upgradient source. NDEP has, in previous reviews, indicated that it will not accept conjecture. This statement is contradicted by the penultimate paragraph in this section.
9. Section 4.5.1, page 4-23, last paragraph of the section. what does this paragraph have to do with the section topic?
10. Section 5.1, page 5-1, it is noted that field data verification should reference the approved project SOPs.

11. Section 8, page 8-1, 1st paragraph, BRC states "Once site characterization investigations are complete (generally pursuant to NDEP-approved work plans), it is customary, based on the findings of such investigative efforts, to develop a RAS..." Please note that it is the expectation of the NDEP that work plans will be implemented as approved. Deviations must be discussed with the NDEP.
12. **Section 9.0, General Comment**, the NDEP notes that the risk assessment process is being continually optimized. As noted above, revision of this Section is not required at this time.
13. Section 9.3.1.2, page 9-5, last paragraph of the section, BRC states "Because the background general water quality (*i.e.*, high salt concentrations) of the groundwater..." It would technically be more accurate to say high TDS concentrations. In addition, it should be noted that background concentrations of TDS are generally quite low (less than 1,000 mg/l)
14. Section 9.3.2.1, page 9-6, bottom of page, BRC states "A summary of these six criteria for determining data usability in the present risk assessment is described in this section." The sentence should be deleted as the described summary was not found in this section.
15. Section 9.4.1, page 9-8, first full paragraph, middle of the page: If the referenced "existing provisional soils background data set" has not yet received NDEP approval as being complete, then a final, completed background data set should be used for the post-remediation HRA(s). For the purposes of the administrative record it is noted that the data set is approved, however, the report is in discussion. No additional changes are necessary to the text to address this issue.
16. Section 9.6.1, page 9-18, BRC states "For inorganics, Kd values will be selected to represent a range of soil pH (pH = 8 and 6.5), where available. While current soil pH conditions are in the range of 5.9 to 9.3, the lower pH will be evaluated anticipating some decrease in pH after redevelopment." There needs to be some discussion about the pH value used in terms of metals as many are controlled by pH. Also, desert soils tend to be alkaline, what is the basis for the assumption that they might tend toward more acidic conditions?
17. Section 9.6.1.1, page 9-19, 1st paragraph on page, BRC states "The aquifer thickness (d_a) 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)." What map in Section 4 does this specifically refer to? It is expected that this will be discussed with the NDEP as a function of the development of the groundwater model.
18. Section 9.6.1.1, page 9-19, 1st paragraph on page, BRC states "The site-specific term representing source length parallel to groundwater flow (L) will be selected based on the known aerial extent of a given COPC within a particular exposure area." It is expected that this will be discussed with the NDEP as a function of the development of the groundwater model.
19. Section 9.6.1.2, page 9-19, last paragraph. "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)." It is noted that this assumption does not account for the potential impact of vadose zone soil if contaminated and not remediated.
20. Section 9.6.2, page 20, last paragraph. "For the purposes of this assessment, the revised Universal Soil Loss Equation (USLE) will be used to estimate the mass of surface soils eroded and transported to the Las Vegas Wash (USEPA 1988; USDA 2004 as referenced by USEPA 2004b)." The reviewer believes that BRC is aware that the USLE is not directly used to calculate the mass of COPCs but is used in conjunction with another equation to calculate mass of COPCs in eroded soil. This is not a large point but as written the statement is incorrect.
21. Section 9.6.3, page 9-22, 1st and 2nd 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." The NDEP is confused why BRC would develop a groundwater flow and solute transport model and then not use the results to support the risk assessment?

22. Section 9.6.3, page 9-22, last paragraph of the section. "Potential impacts on the Las Vegas Wash are being further evaluated by the pending groundwater characterization..." This statement appears to refer to the groundwater characterization that was completed in 2004? Clarification is warranted.
23. Section 9.7.2.2, page 9-26, top of page: It is assumed that if soil ingestion rate and dermal contact rate are expressed in mg/day, then a conversion factor of 10⁻⁶ kg/mg will be used. This clarification should be made via an errata page.
24. Figure 4-14, please note that the TRX chromium remediation system came on line in 1987. The note regarding this issue is incorrect. In addition, the reference for the remainder of the dates with regards to the TRX remedial system is not clear. This comment also applies to Figure 4-15.
25. Figure 4-15, it appears that the BMI Plant Sites have disappeared. It is not clear what the basis for this is. Please explain.
26. Figure 4-19, the NDEP has the following comments:
 - a. The connectivity between the water bearing zones has disappeared. There is no basis for this, please explain.
 - b. Please note that the current covers on the historic BMI landfills are not "engineered".
27. Figure 4-28, the NDEP has the following comments:
 - a. BRC has presented perchlorate data from Ampac from 2001 and Tronox data from 2006. It is not clear why such outdated information was presented for Ampac.
 - b. None of the contours on this figure are labeled.
 - c. It appears that the BRC perchlorate data is not presented on this Figure, it should be.
28. Table 4-2, this table has low legibility. In addition, the shading is virtually imperceptible. These issues make this table unusable.
29. Table 4-3, the NDEP has the following comments:
 - a. It is not clear why asbestos data is not presented in this table.
 - b. Please explain if this table includes data from Parcels 4A and 4B. Some of the Figures do include data from Parcels 4A and 4B. It appears that there may be an inconsistency in the presentation that needs to be resolved.
30. Table 4-13 Summary of Data Gaps BRC Closure Plan.
 - a. No. 6 – BRC states "The potential for downward leaching of chemicals into Deep Soils and Upper Unconfined Water Bearing Zone at the Eastside Area is currently unknown." As the NDEP currently understands the configuration of the groundwater flow model being developed this data gap may not be addressed by the model. This question has been asked before; but for clarification has or does BRC propose to collect soil core samples from above the water table and conduct TCLP tests?
 - b. No. 7 – BRC states "The potential for downward leaching of chemicals in the Qa to leach into and through the TMCf to the Middle and Deep Water Bearing Zones at the Eastside Area is currently unknown." As the NDEP currently understands the configuration of the groundwater flow model being developed this data gap will not be addressed by the model.
 - c. No. 11 – BRC states "Evaluate Piper diagrams as provided by NDEP and as generated from data." BRC should note that the Piper diagrams provided by NDEP were based on a

data set provided by BRC that did not meet Standard Methods correctness evaluation. Thus, BRC is advised to make their own evaluation based on data that has been validated.

- d. No. 17 – BRC states “Dissolved oxygen and redox data collected at the CAMU Area to assess the presence and potential for anaerobic biodegradation in groundwater need to be assessed.” Please note that assessment of the potential for anaerobic biodegradation requires more than DO and redox measurements.

31. Attachment A, the NDEP has the following comments:

- a. RTC 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. NDEP notes that Section 4 of the Closure Plan still contains conjecture as noted above.
- b. RTC 105, Please note that Sections referenced as 9.3.2.7 and 9.3.2.8 were not found in the document. Please clarify.
- c. RTC 119, please note that COPCs for the vapor intrusion (VI) pathway should be identified based on surface flux data and/or soil gas data and not on the basis of soil matrix data alone. The use of groundwater data as the basis for VI COPCs should be approved by NDEP and will require documentation that groundwater data are adequate for that application.
- d. RTC 123, NDEP notes that the maps referenced in this response remain to be developed.
- e. RTC 126, NDEP needs to understand what soil (source) data will be used for input to the vadose zone modeling.