



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

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

April 28, 2014

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

Re: **NV Energy (NVE)**
Reid Gardner Station (RGS)
NDEP Facility ID #H-000530
Nevada Division of Environmental Protection (NDEP) Comments on:
Draft Background Conditions Report, Dated: October 2013

Dear Mr. Rojo:

The NDEP has received and reviewed NVE's *Draft Background Conditions Report*, received by NDEP on October 4, 2013. The subject report summarizes the background soil and groundwater investigations, aquifer testing, and proposes background soil and groundwater concentrations. Please review and address the comments from NDEP included in Attachment A.

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

Sincerely,

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



Mike Rojo
NV Energy, Reid Gardner Station
April 28, 2014
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cc: Greg Lovato, Bureau of Corrective Actions, NDEP
Scott Smale, Bureau of Corrective Actions, NDEP
Todd Croft, Bureau of Corrective Actions, NDEP Las Vegas
Bill Campbell, Tribal Liaison, NDEP
Alan Tiney, Bureau of Water Pollution Control, NDEP
Ebrahim Juma, Clean Water Team
Joe Leedy, Clean Water Team
Dennis Campbell, Southern Nevada Health District (campbell@snhdmail.org)
Lynn M. Cintron, Sr. Administrative Assistant, Solid Waste & Compliance, SNHD,
(cintron@snhdmail.org)
Brian Northam, Envi. Health, Solid Waste & Compliance, SNHD (northam@snhdmail.org)
Starla Lacy, NV Energy (SLacy@nvenergy.com)
Darren Patten, NV Energy (DPatten@nvenergy.com)
Tony Garcia, NV Energy (TGarcia@nvenergy.com)
Michael Rojo, NV Energy (MRojo@nvenergy.com)
Jason Reed, NV Energy (JReed@nvenergy.com)
Becky Svatos, Stanley Consultants, Inc., (SvatosBecky@stanleygroup.com)
William Carrig, Stanley Consultants, Inc., (CarrigBill@stanleygroup.com)
John Kivett, Arcadis, (John.Kivett@arcadis-us.com)
Brad Cross, Arcadis, (Brad.Cross@arcadis-us.com)

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

Appendix A

1. The NDEP has some reservations about the interpretations and conclusions presented in the Draft Background Conditions Report, particularly as it pertains to alluvial groundwater; however, we accept the data as presented. As we have discussed, differences in interpretation of the data may not necessarily lead to different site outcomes, so the NDEP is comfortable moving forward with Site work recognizing that these differences might need to be resolved at a later date if they become critical for Site decision making.
2. General: The 2007 US Geological Survey report for Clark County cited in Section 1 (Ludington et al., 2007) was a study biased towards mineralized areas to assess potential economic deposits. Samples were fully digested before analyses were performed. This study is not a good comparison for general background levels of inorganic constituents and should not be used in establishment of Site background.
3. General: Section 3.0 of the Report notes geologic data gaps that need further investigation as part of the conceptual site model (CSM). The NDEP would like for the CSM to address the potential for preferential pathways in the alluvial aquifer, such as paleochannels or other features that may affect mass flux. The CSM is a critical piece of the Site investigation for making defensible and effective decisions about potential risk at and/or from the Site and the future of groundwater at the Reid Gardner Station. The Muddy River study is also a critical data gap in the CSM.
4. General: Section 7.0 of the Report states adequate soil and groundwater data were collected to establish background soil and groundwater concentrations for use during implementation of the AOC. NDEP has reviewed the statistical approach employed to develop the soil background levels and has no further comments on the approach at this time. NDEP concurs with the recommended BTVs for the Muddy Creek – North and the recommended BTVs for the Muddy Creek – Mesa. NDEP does not concur that adequate groundwater data have been collected to fully establish background groundwater concentrations for the alluvium. Due to the complexity of the Site, an improved CSM is needed to support development of background groundwater concentrations for the alluvium.
5. Section 3.4.1, Page 3-14: The first paragraph states that the alluvial aquifer is primarily recharged by the losing section of the Muddy River. At this point we assume that the upper reach of the Muddy River through the Plant is losing; however we do not know the rate or the significance. The proposed Muddy River study is intended to confirm where the river is losing or gaining and to help quantify the amount of flow into or out of the river.
6. Table 3-6, Page 3-23, TDS Concentrations: Determining a background condition for TDS in the alluvial groundwater is problematic because there are few wells installed into

the alluvial aquifer in background locations. To assess background conditions in the Alluvial Aquifer, an analysis was conducted on one of the proposed alluvial background groundwater monitoring wells, IMW-2.5S, which shows significant concentration swings over time. Over a cycle where TDS concentrations varied from low to high and then back to low, groundwater gradients were assessed using a three-point problem analysis of monitor well data from MW-6, MW-5, and IMW-2.5S. The analysis showed a very strong correlation between gradient direction and TDS concentrations in IMW-2.5S. When gradients were more northerly, TDS concentrations at IMW-2.5S peaked. When gradients were easterly, TDS concentrations dropped off. Since Pond 4C-2 is located south of IMW-2.5S, it is likely that TDS compounds have migrated north and that IMW-2.5S is located along the periphery of a TDS plume emanating from that pond. The TDS plume shifts in accordance with the groundwater gradient such that a northerly gradient results in high TDS concentrations and more easterly gradients result in low TDS concentrations at IMW-2.5S. This would suggest that when gradients are more easterly and TDS concentrations are at their lowest, those concentrations are more representative of background conditions. Analysis of this well is an example of one of the problems with the alluvial background well data set. In general, alluvial wells located in close proximity to current or historical RGS operations are potentially susceptible to impacts of those operations.

7. Table 4-2, Page 4-5, Observed Water Level Drawdown: In many instances, excessive drawdown in pumping wells (shown as drawdown % of static water column) likely resulted in a significant portion of the drawdown being attributed to non-laminar flow and friction losses. This would lead to erroneous estimates of hydraulic parameters.
8. Section 4.3.2, Page 4-6, Alluvial Aquifer Muddy River Connection: In an unconfined aquifer, it is highly unlikely that pumping at the KMW-2 well cluster at rates of 2.5 to 7 gpm for less than 10 hours would have a radius of influence that would reach monitor well (MW-6) located 380 feet away. The minimal drawdown observed at MW-6 (0.06 to 0.14 feet) could have been the result of other factors. It is stated that the radius of influence would also reach the Muddy River. If that were to have occurred, a boundary condition would have been observed. As stated, additional testing would be necessary to establish a connection between the alluvial aquifer and the Muddy River.
9. Table 5-2, Page 5-3, Soil Permeability Table: The Table 5-2 is not a good representation of soil permeability. First, all results should specify ranges, not specific numbers. Second, the value for GW (well graded gravel) does not make sense in the context of material type. The permeability value for GW should be higher than silt and clay. Please reevaluate the values on this table.
10. Section 5.2.1, Page 5-7, Quality Control Data: The NDEP suggests that for future sampling events, a source blank be collected as part of the quality control samples to assess the quality of the deionized water.

11. Table 6-7, Page 6-10: (Editorial) The footnote for table 6-7 does not match the abbreviation used within the table.
12. Table 6-9, Page 6-11: (Editorial) Please include the units for the “BTVs for All Depths” column.
13. Table 6-14, Page 6-18: (Editorial) Please include a definition for the * used in the table and include the definition for NA in the footnotes.
14. Table 6-16, Page 6-20: (Editorial) Please include a definition for the * used in the table in the footnotes.
15. Appendix F: Several of the groundwater histograms do not provide concentrations (labels along the x-axis).