NEVADA DIVISION OF
ENVIRONMENTAL
PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
David Emme, Administrator

March 7, 2016

Jason Reed
Senior Environmental Advisor
NV Energy
6226 W Sahara Ave M/S 30
Las Vegas, NV 89146

Re: **NV Energy**
Reid Gardner Station
Facility ID #H-000530
Nevada Division of Environmental Protection Comments:
2015 Annual Groundwater Monitoring and Remediation Report –January 2016

Dear Mr. Reed:

The Nevada Division of Environmental Protection (NDEP) has received and reviewed NV Energy's (NVE's) report *2015 Annual Groundwater Monitoring and Remediation Report – January 2016*. The report is dated January 26, 2016 and was received by the NDEP on January 28, 2016. The NDEP comments to the report are included in Attachment A. The NDEP would like to discuss these comments with NVE at the March 2016 Agreement on Consent (AOC) meeting.

Please contact me with any questions or comments at (775) 687-9396 or aoakley@ndep.nv.gov

Sincerely,

Alison Oakley, CEM
Environmental Scientist III
Bureau of Corrective Actions
NDEP-Carson City Office

Attachments (1): Attachment A – NDEP Comments

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Anitha Rednam, Department of Water Resources, 1416 9th Street, Room 1140, Sacramento CA 95814

Attachment A

NDEP Comments to the 2015 Annual Groundwater Monitoring and Remediation Report

1. Introduction and Background, Page 1-1: The discussion presented in the second paragraph regarding historical recollections of what NV Energy requested and what NDEP may have agreed to regarding report content is unnecessary. An annual groundwater monitoring report summarizing two complete sampling events should include a complete discussion and analysis of both sampling events. It was never NDEP's intent to focus only on the 3rd Quarter data for the Annual GMR Report.

2. Section 2.1 Monitoring Activities, Page 2-2, first paragraph: This paragraph includes a discussion of groundwater sampling techniques, including pumping and bailing. Per the EPA's new Final Coal Combustion Residuals (CCR) Rule, groundwater samples should be collected using low-flow purging techniques and in a manner to avoid drawing the water level down into the screened interval to avoid groundwater cascading and introduction of oxygen into groundwater samples being analyzed for redox sensitive constituents.

3. Section 2.1 Monitoring Activities, Page 2-2, second paragraph (editorial): Last sentence should read "*Water samples for* metal analysis were filtered …"

4. Section 3 Results, Global Comment: As sufficient groundwater elevation data have been collected as of the third quarter 2015, the discussion of hydraulic gradients in each of the area of concern subsections should be revised to include a brief discussion of vertical hydraulic gradients. (See related comment on Figures below.)

5. Section 3 Results, Page 3-1, third paragraph:
    a. Up to now, groundwater elevation and COC concentration contour maps have been limited to only shallow well data. With the installation of multi-depth well clusters across most of the site, future evaluations should include deeper horizon maps as well. This should be facilitated after completion of the CSM in 2016, where stratigraphic horizons can be identified for monitoring and mapping. The 2016 Annual GMR and future GMRs should reflect the CSM framework in its analysis.
    b. With regard to the shallow groundwater elevation contour maps, there are alternate interpretations of the data that may better reflect site conditions. For example, Hogan's wash would likely represent a source of groundwater flux into the alluvial aquifer and the data can be contoured to account for that. NDEP has provided NV Energy an example with alternative contouring.

6. Section 3.1.1 Completeness, Page 3-3, first full paragraph, last sentence (editorial): Delete the word 'are', so the sentence reads "...and ~~are~~ therefore these additional parameters..."

7. Section 3.1.4 Comparability, Page 3-4: For all potential outliers, please provide the mean value that potential outliers are being compared to. Indicate whether the potential outlier constituent concentrations is greater than or less than the mean value.

8. Section 3.1.4 Comparability, Page 3-5, last sentence: The last sentence of this section states, "NVE/Stanley Consultants will work with field personnel to ascertain what may be causing the discrepancy between field samples and duplicates." This sentence may be more appropriate for a closing sentence to Section 3.1.3 Field Precision.

9. Section 3.2 Mesa Landfill Area, Page 3-6, last paragraph of section:
   a. The report states that "TDS concentrations on the Mesa are lower compared to other areas of the Station", and that "This may be due to Mesa Landfill Area wells monitoring water quality from the Muddy Creek Formation. Most other wells throughout the station monitor the alluvial aquifer". In reality, the mesa wells have TDS concentrations that are higher than background alluvial wells or Muddy Creek wells located north of the Station, and are only lower than alluvial wells that appear impacted by Station operations.
   b. The next to last sentence states, "TDS concentrations appear to have increased over time in wells LMW-10, LMW-2, LMW-3 and KMW-12, but have been relatively stable between first and third quarters in 2015; however the trend may be due to the relatively poor condition of the wells as discussed above." Please provide text that explains how the poor condition of the wells would result in increasing concentrations of total *dissolved* solids (TDS).

10. Section 3.3 Hogan Wash Area, Page 3-6: NDEP does not necessarily agree with the interpretation that groundwater flows to the north, northwest below Hogan's Wash as depicted in Figures 2A and 3A of the report. An alternate interpretation of groundwater elevation data has been provided to NV Energy.

11. Section 3.3 Hogan Wash Area, Page 3-7, last paragraph: In addition to descriptions of other analytes/wells exhibiting increasing concentration trends, please also include text describing the increases in sulfate and TDS concentrations (nearly 5X over 4 years) in groundwater at IMW-2SR.

12. Section 3.4 Unit 4B and 4C Pond Area (PA-2), Page 3-8, first full paragraph: In addition to the discussion of horizontal hydraulic gradients, please provide a discussion of the vertical hydraulic gradients at the MW-17 well cluster and how they appear to be different than the vertical gradients at other well clusters in this area and across the site. These data appear to correlate well with the description of COC distribution presented in the last paragraph of this subsection.

13. Section 3.6 Units 1, 2, 3 Former Pond D (PA-5), Pond E (PA-6), Former Pond F and G (PA-7) Area, Page 3-10, first paragraph (editorial):
   a. The second to last sentence reads, "Wells constructed in the alluvial aquifer do not produce much." Please revise the sentence to, "Wells constructed in the alluvial aquifer do not produce much **water**."
   b. Last sentence states, "The low water and production…" should read "The low water production…"

14. Section 3.6 Units 1, 2, 3 Former Pond D (PA-5), Pond E (PA-6), Former Pond F and G (PA-7) Area, Page 3-11, last paragraph: Please include a sentence pointing to the cyclical nature of TDS concentrations in groundwater at P-20A. Based on trend graphs provided, this is the only location in PA-7 that exhibits this fluctuating profile in TDS concentrations with greater than seasonal periodicity and should be noted.

15. Section 3.10 Background Area Wells, Page 3-15, last paragraph of section: The fact that COC concentrations in BG-2S, located in the Hogan's Wash Area, are consistently higher than all other background wells, including Mesa Area Muddy Creek wells, North Area Muddy Creek wells, and Alluvial wells, suggests that this location may not be representative of background conditions in the areas of interest at the Station. Further analysis regarding observations at the BG-2 location should be conducted as part of the CSM development.

16. Section 3.11 First and Third Quarter Results Comparison, Page 3-15: The second and third paragraphs provide a comparison of COC concentrations between first and third quarter 2015 results. It is unclear whether the results provided in the two bullet points compare COC concentrations for individual locations or compare COC concentrations for maximum values between the first and third quarters. Please provide context for this comparison whether point by point for individual locations or maximum values for aggregated data. Comparison of maximum values for aggregated values shows a maximum of a 5 times (5X) increase for chloride concentrations. All other listed increases in maximum values between first and third quarter are less than 3X. These are much less than the stated order of magnitude increases.

17. Figures 2A, 2B, and 3A: See comments for pages 3-1 and 3-6 above regarding alternate interpretations of groundwater elevation data in the Hogan's Wash area. In addition, indication of vertical groundwater gradient direction for locations with wells completed at multiple depth intervals would provide information regarding potential for downward or upward migration of groundwater in various portions of the site. This could be accomplished by including upward arrows (upward vertical gradient) or downward arrows (downward vertical gradient) next to clustered well groundwater elevations on Figure 3A or on a separate figure. Locations with changes from upward to downward, or downward to upward, vertical gradients at different depth intervals can be indicated using multiple arrows.

18. COC Concentration Maps (Figures 4 through 8):
    a. The minimum concentration contour selected for COCs mapped may not accurately represent the lateral extent of COCs resulting from sources at the Station, and in some cases artificially creates the appearance that contaminants are not migrating. For example, adding a 1,000 ppm contour for Sodium, a 2,500 ppm contour for Sulfate, and a 5,000 ppm contour for TDS would provide additional information regarding potential lateral impacts beyond the immediate pond areas. Please revise the COC concentration contour maps to include contour intervals that are closer to or below general background concentrations to more fully assess COC distribution.
    b. In addition to the existing shallow groundwater COC contour maps, please add COC contour maps, or simple plots of COC concentrations if sufficient data does not

support development of contours, for deeper hydrostratigraphic units (e.g., Middle, Deep, Deep 2, Muddy Creek).

c. Please add COC isoconcentration contour maps or concentration plots for boron, chloride and the various isotope analytical results for each hydrostratigraphic unit.

19. Appendix E Trend Graphs:

a. Plotting all wells for individual source areas on a single chart is often problematic. Many areas have a high number of wells and interpretation is difficult due to multiple overlapping trend lines and scale issued caused by plotting wells with high concentrations on the same scale with wells that have significantly lower concentrations. Trends in wells with lower concentrations may be obscured by the use of a single scale that accommodates data variability over an order of magnitude or more. We suggest breaking the single source area charts into multiple charts within a source area so that the trends can be more easily observed. In addition, it may be helpful to plot the graphs with log scale for the y-axis.

b. A hydrograph for the Hogan Wash area wells is provided in Appendix E. No other hydrographs are included in the report. Please explain why no other hydrographs are included.