



August 2, 2018

Gordon Criswell  
Talen Montana  
PO Box 38  
Colstrip, Montana

RE: DEQ Response to the Revised Plant Site Remedy Evaluation Report

Gordon:

Montana Department of Environmental Quality (DEQ) and its contractor, Weston Solutions, have reviewed the revised Plant Site Remedy Evaluation Report. In the interest of moving forward with the remedy, DEQ is providing preliminary conditional approval of the Report with the understanding that the following discrepancies will be addressed either through replacement pages or responses to the comments. These changes should be provided to DEQ within 30 days of Talen's receipt of this letter. Comments that do not require changes to the Report should be considered in future work and provided in future updates to the Report. DEQ retains the authority to require additional measures and/or installation of the contingency plans based on the results of the remedy performance evaluations.

Please note that a 30-day public comment period will begin on the day this preliminary conditional approval is granted, and that additional changes may be required based on public comments received by DEQ.

Additionally, it is necessary to finalize the financial assurance calculations for Phase II, therefore DEQ requests that a meeting should be scheduled as soon as possible to determine the financial assurance amount required for the Plant Site remedy in accordance with the AOC.

If you have any questions or would like to discuss the comments, please feel free to contact me at 406-444-6797 or [sedinberg@mt.gov](mailto:sedinberg@mt.gov).

Sincerely,

A handwritten signature in black ink that reads "Sara Edinberg". The signature is written in a cursive, flowing style.

Sara Edinberg  
Hydrogeologist  
Waste Management & Remediation Division, DEQ

cc: Aimee Reynolds, DEQ  
Al Hilty, Hydrometrics  
Cam Stringer, NewFields  
Bob Glazier, Geosyntec  
Ed Hayes, DEQ

## Follow-Up on Comment Responses

1. GC 3: Talen should do performance checks every year for at least the first three years to determine how the system is working with respect to the model. Depending on the results from the first three years, the schedule may be adjusted.
2. GC 4: According to Table 8-1, the Feasibility Study for the PRB is scheduled for 2024. However, depending on how the injection/capture system functions, DEQ may require this study sooner.
3. GC 6: Please add a statement regarding dewatering of ponds prior to closure to Table 7-3. It is not clear from this Table that any dewatering will take place.
4. SC 20, 23, 26: Please note that DEQ has not approved a discount rate of 5%. Also, the 2017 costs have been decreased for many items without explanation as to why, resulting in the final costs being about half of what was originally proposed, even with the decreased discount rate. For example:
  - In the capital costs section, the 25% construction contingency has been removed.
  - Costs for construction management, project management, and remedial design are supposedly now included in the costs, but the costs are the same or less than what was proposed in version 2. In version 2, the costs were 8%, 5%, and 6% for construction management, project management, and remedial design, respectively.
  - O&M for the VSEP system has been removed.
  - Post closure care for A Pond and the 3&4 Bottom Ash Ponds has been cut by 50%.
  - The 25% contingency for O&M has been removed.

Please provide an explanation as to why the present-day costs have decreased by almost 50%.

5. Appendix D, SC 7: The concentration of selenium in October 2017 was 0.052mg/L, which is slightly above the DEQ-7 standard (and site cleanup level) of 0.05. Please revise the text to reflect this observation.
6. Appendix D, SC 22: DEQ could not find a reference to the figure showing the four zones where K was changed. Please add this to the text.
7. Appendix D, SC 30 (Table 6-2): For North Cooling Tower Pond C, there are two significantly different values provided for the estimated and modeled seepage rates. Please clarify which value is more representative, and justify the use of the lower seepage rate in the fate and transport model.
8. Appendix E, SC 31: This change was not made. Please change the boron concentration from 6,800 mg/L to either 6.8 mg/L or 6,800 µg/L. Also, this comment is not included in the response to comments.
9. Appendix E, SC 32: This comment was not included in the response to comments. Please add a response to this comment.

## General Comments

1. The report indicates there were no COIs identified for soil, sediment, or surface water at the Plant site. Please clarify in the text that MDEQ has accepted that no further action needs to be taken for soil, sediment, and/or surface water.
2. The Assessment of Matrix Diffusion of Sulfate and Boron in groundwater for Plant Site concluded that matrix diffusion is an insignificant fate and transport process for both lower

bounding (Boron) and upper bounding (Sulfate) mobility constituents, and the potential contribution of matrix back-diffusion to capture system operational timeframes in the higher permeability zone is negligible for all three scenarios and does not need to be considered further. These conclusions need to be supported by field data. The collection of soil and/or core samples and laboratory analysis is recommended to confirm the hypotheses. Results should be presented when the report is updated next.

3. Based on the modeling results, it appears that there is no rebound of COIs at the Plant Site after the capture systems are shut down. As indicated in the Units 1&2 report, rebound is likely due, in part, to re-saturation of unsaturated zones that contain mass of COIs, after capture system shut down. Additionally, rebound is attributed to the mass of COIs that remain within low-permeability zones and the long time required for impacted groundwater to migrate through such zones. As the conditions are similar at both sites, please provide clarification and/or discussion as to why rebound does not occur at the Plant Site, when it does occur at the Units 1&2 Area.
4. Talen proposes groundwater monitoring activities continue for 3 years after capture system shutdown. The AOC requires that the site be evaluated every five years or whenever a major change is made to the facility. This evaluation includes continued groundwater monitoring, especially given the residual impacts that were observed in the Units 1&2 modeling. If any rebounding is observed, then groundwater monitoring should continue until the analytical results conclusively express stability of COIs below regulatory limits.
5. Please provide the plan to further investigate and sample for cobalt, lithium, manganese, and molybdenum. The current data indicates lithium exceeds in most of the samples analyzed, with the exception of several non-detect results. (See Figures 2-5 and 2-13 of Appendix D). Please continue to update the report as additional sampling is conducted under the CCR Rule. Also, please provide a reference to the section of the CCR Rule that outlines the groundwater monitoring requirements.
6. The Sensitivity Analysis of hydraulic conductivity, described in Section 8.3 of Appendix D, altered the  $K_x/K_z$  in Zone 7 for Layer 5. Based on the text, the most appropriate zone to alter in the sensitivity analysis is Zone 58, located directly beneath A Pond and B Pond, in model Layer 5. Please re-run the sensitivity analysis using Zone 58 during the next model update.
7. Talen proposes to evaluate the potential reuse of the captured groundwater directly without any treatment. Please provide the criteria to be met for direct reuse of this groundwater and clarify if the groundwater will be sampled prior to reuse. If results indicate that treatment is necessary, please clarify what treatment approach will be used prior to reuse.
8. A PRB is added as a contingency to Alternatives 2 and 3. Please edit the report text accordingly.

## Specific Comments

1. Page 28, Section 3.2, first paragraph, 1<sup>st</sup> and 2<sup>nd</sup> sentences: Please remove these sentences, as the Point of Compliance (POC) was determined to be the downgradient edge of the ponds in a meeting between DEQ and Talen (April 21, 2017).
2. Page 46, Section 6.5, first paragraph, last sentence: The text indicates the dewatering of the ash in former Units 1 & 2 A Pond would be evaluated to determine if there is free water that can be removed from the ash. There is an apparent discrepancy between this statement and how the model has treated A Pond. The model presumes that A Pond is dewatered as part of the remedy; however, based on Section 6.5 it is unclear if dewatering could even be completed.

Please clarify whether Talen has any field data to support the potential for dewatering, and how modeling results will change if dewatering A Pond cannot be achieved.

3. Appendix D, Page 20, Section 6.2.2, 2<sup>nd</sup> set of bullets (Units 1&2 B Pond): Seepage from B Pond is reduced to zero right after capping in 2023, indicating there is no residual water seeping through the ash. However, A Pond was estimated to contain significant residual water in the ash after capping, and is anticipated to keep seeping to the underlying aquifers (Table 6-2 Appendix D) for some time after capping. Please clarify what causes the differences in seepage between A Pond and B Pond.