

Work Plan – Abandonment of Monitor Wells

Associated with Release 332, Facility ID 44-08922 (TID 27670),

Work Plan # 34975

Colstrip Steam Electric Station

Colstrip, Montana

Prepared for:

Talen Montana, LLC

P.O. Box 38

Colstrip, Montana 59323

Prepared by:

Hydrometrics, Inc. 
Consulting Scientists and Engineers

Billings, MT 59102

December 2024

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On behalf of Talen Montana, LLC (Talen), Hydrometrics prepared this work plan and budget in accordance with Montana Department of Environmental Quality (DEQ) form AC-08. This work plan and budget was requested in a letter from DEQ to Talen dated November 25, 2024. Specifically, the letter indicated the work plan must include the following:

- Complete DEQ form AC-08 indicating you elect to maintain or abandon wells according to Montana Department of Natural Resources and Conservation (DNRC) regulations (Administrative Rules of Montana (ARM) 36.21.810).
- DEQ requires your (Talen's) consultant to be on-site for well abandonment to ensure the safety of all personnel, to ensure the appropriate wells are abandoned, and to document the abandonment of the wells (Administrative Rules of Montana (ARM) 36.21.810).
- Submit a letter report that includes a description of the well abandonment method and a copy of the well abandonment for each well abandoned.
- The letter report must be submitted to DEQ within 30 days of well abandonment and a copy submitted to the DNRC (Montana Department of Natural Resources and Conservation) according to their regulations.
- Use standardized DEQ WP (work plan) and report formats found under the Forms dropdown at the Petroleum Tank Cleanup Section (PTCS) webpage (<https://deq.mt.gov/cleanupandrec/Programs/petrocleanup>).
- Submit WP and reports electronically following the PTCS submittal requirements found online under the Guidance dropdown at the PTCS webpage (<https://deq.mt.gov/cleanupandrec/Programs/petrocleanup>).

Work will be initiated following written notification that DEQ has approved the scope of the work plan.

GENERAL INFORMATION

Facility Name Colstrip Steam Electric Station (CSEP) Facility ID 4489-22 Release # 332

Facility Address 601 Willow Ave, Colstrip, MT 59323

Owner/Operator Name: Talen Montana, LLC (operator)

Owner/Operator, if different from above: NA

Consultant's Name, Address, and phone number: Hydrometrics, Inc., Physical Address: 1175 S.25th St. W., Suite 1, Billings, MT 59102, Phone: 406-656-1172

List of monitoring wells by name and number to be abandoned: 801(previously abandoned), 802, 803, 804, 805, 806, 807, 813, 814, 815, 821, and 823.

List of monitoring wells by name and number to be maintained: 816, 817, 822, 824, U3-1 and U3-2R. These wells will be maintained and will be monitored for water levels at least once every three years in accordance with applicable regulations and accepted methods.

Specify the method by which the monitoring wells will be abandoned: See following Well Abandonment and Reporting Heading.

Target Date for abandonment of the monitoring well(s): 60 days after receiving written approval from DEQ. Note that the completion of the abandonment of the wells could be affected by weather conditions, ability to locate wells, access to wells and general site conditions (i.e. other facility work that could limit access).

Unit Cost per monitoring well for abandonment (Include Mobilization, Portland Cement, grout, or Bentonite, equipment, and consultant or contractor labor costs): \$ 767/Well \$ 30.80 to \$31.54/ft.* Costs applied to release 562 are \$31.54 per foot, calculated by dividing the total estimated footage into total estimated cost.

* Note that range in per foot abandonment is provided and the estimated range is based on variations in the depth of wells including those for Facility releases 332 (this release) and release 562, which is provided in a separate work plan. Abandonments will be completed during the same site visit to reduce overall costs to the extent possible. Billing will be conducted on a time and materials basis.

Total Cost of abandoning the above-listed monitoring wells: \$ 8,439 (Includes 10% contingency) *

** Billing will be conducted on a time and materials basis to cover unanticipated problems that may arise during well abandonment.

X I (Talen) elect to maintain the monitoring wells located at the above-referenced Facility and will monitor the wells at least once every three years in accordance with applicable requirements of the montana Department of Natural Resources & Conservation Division.

X I elect to abandon the monitoring wells located at the above-referenced Facility and certify that the above-referenced monitoring wells are to be properly abandoned in accordance with the provisions in ARM 36.21.810 and other applicable requirements of the Montana Department of Natural Resources & Conservation.

Brian Suttin
(Signature of Facility owner or operator or authorized representative)

12/30/24
(date)

WELL ABANDONMENT AND REPORTING

Monitoring wells identified previously in this document will be abandoned in accordance with guidelines set forth in ARM 36.21.810. Well abandonment and associated activities will be performed and supervised on-site supervised by a licensed Montana Water Well Contractor from Hydrometrics, Inc. Well abandonments for Facility 4489-22 (CSES) Releases 332 and 562 will be conducted in conjunction to reduce costs. This will eliminate the necessity for separate mobilization and demobilization costs associated with the project. It is anticipated that the abandonment work will require 2-3 days to complete necessitating overnight stays and per diem costs.

Monitoring Well Abandonment Methods

A backhoe or similar equipment will be used to attempt to remove the PVC casing from each well. If the casing can be pulled, it will be lifted one to two feet off bottom. A weight will then be used to knock the bottom cap off the casing. After the bottom cap is knocked off, the casing will be pulled and 3/8" bentonite chips will be placed through the casing in the borehole from the bottom up. If the casing cannot be pulled, the casing will be filled with 3/8" bentonite chips, checking frequently to ensure bridging does not occur. Bentonite chips will be placed within one or two feet of ground surface.

Note that for some wells it may be necessary to purge water from the wells to prevent bridging as the bentonite chips are added. The wells that are to be abandoned are relatively low yield so an initial purging should be sufficient to lower water levels to workable levels throughout the placement of bentonite. As such, a purge pump has been budgeted. Water from the wells (4-8 gallons per well) will be distributed on the surrounding ground or asphalt surface or as a more conservative approach the water may be placed in the facilities oil/water separator.

Surface vaults will be left in place but filled with concrete, level with the existing surface. Wells with casing stickup will be filled to near ground surface. Stickup casing will be left in place until the final facility demolition, at which time the casing will be removed. Wells with stickups are adjacent to non-operational buildings near parking areas but can serve as bollards until their removal.

Abandonment logs will be completed and submitted to Montana DNRC as required.

Report Preparation

A brief report will be prepared following the well abandonments. The report will include a description of abandonment methods, a list of wells abandoned, and abandonment logs. Site details, including maps for well locations, are included in the site Petroleum Mixing Zone report (Hydrometrics, Oct. 2020 – Petroleum Mixing Zone Summary Report for Release 332, Facility ID 44-08922, Work Plan 34058) and will not be included in the abandonment report.