



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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June 26, 2017

Mark Miller
PacifiCorp Rocky Mountain Power
Chehalis Power Plant
1813 Bishop Road
Chehalis, WA 98532

Re: Review of Cleanup Action Completion Report and Response to No Further Action Request (VCP SW1246; FSID 3336951; CSID 11776)

Dear Mr. Miller:

The Washington State Department of Ecology (Ecology) has reviewed the July 6, 2016 *Cleanup Action Report for Chehalis Power Plant Transformers GSU #1 and GSU #3 Oil Spills* for the Chehalis Power Plant, located at 1813 Bishop Road in Chehalis, Washington (Site). This document was prepared for PacifiCorp Rocky Mountain Power (PacifiCorp) by KTA Associates, Inc. (KTA) and summarizes spill response and subsequent cleanup and monitoring activities performed at the Site in association with two distinct releases of non-PCB transformer fluids (mineral oil) in 2011, and again in 2013. PacifiCorp requested Ecology's opinion of the cleanup activities performed at the Site and recommended that a No Further Action determination be granted based on those activities. This letter provides Ecology's response to those requests under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Basis for the Evaluation

The evaluations and opinions presented herein were based on the information contained in the following documents:

1. KTA Associates, Inc., *Cleanup Action Report for Chehalis Power Plant Transformers GSU #1 and GSU 3# Oil Spills*, dated June 2016 (2016 CAR);
2. Clear Water Services, *Groundwater Monitoring Report*, 4th Quarterly Event - March 2016, dated April 2016;
3. Clear Water Services, *Groundwater Monitoring Report*, 3rd Quarterly Event - December 2015, dated January 2016;
4. Cardno, *Groundwater Monitoring Report*, 2nd Quarterly Event – July 2015, dated July 2015;
5. Cardno, *Groundwater Monitoring Report*, 1st Quarterly Event - April 2015, dated June 2015 (1st Quarter 2015 Monitoring Report);

6. Cardno, *Monitoring Well Installation & Support Tasks Final Report*, dated May 2015 (2015 Well Installation Report); and
7. KTA Associates, Inc., *Cleanup Action Report for Chehalis Power Plant Generator Step-up Transformer No.1 (GSU #1) Oil Spill*, August 2012 (2012 CAR).

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

The evaluations and opinions presented herein are considered void if any of the information contained in the above documents is materially false or misleading.

Site Description and Release Summary

As noted above, the Site is located at 1813 Bishop Road in Chehalis, Washington (Lewis County) and within the Chehalis River Valley. The Site is a 20-acre, level-grade property occupied by a power generation facility. The facility also includes two 1.7 million gallon fuel oil aboveground storage tanks (ASTs) in a lined earthen containment. A stormwater collection ditch surrounds the facility to collect stormwater from the facility's graveled lot, and conveys the water to a stormwater pond located at the west side of the facility. Key events in the development of this project are summarized below.

2011 GSU #1 Mineral Oil Release

On January 20, 2011, a Generation Step Up transformer (GSU #1), containing non-polychlorinated biphenyl (PCB) mineral oil, experienced an explosive failure and subsequent fire. An estimated 2,000 gallons of the 11,000 gallons of mineral oil in the transformer sprayed onto the transformer containment structure and surrounding soil outside the containment structure. During the subsequent firefighting operations, the containment around GSU #1 was filled beyond capacity, causing mineral oil and other fluids to flow onto the surrounding gravel and soil and into the adjacent stormwater pond. On-duty personnel closed the discharge outfall from the stormwater pond and none of the released material was allowed to discharge from the pond.

Due to the emergency nature of the spill and contamination, cleanup activities were immediately initiated and soil samples were collected to guide remedial excavation activities and for confirmation purposes. Residual mineral oil was documented in soil at three sampling locations and additional excavation of the affected material occurred at two of the locations (a drainage ditch and stormwater pond-bank). The third location (designated as **D8**), **where mineral oil was detected at 28,100 milligrams per kilogram (mg/kg) in a soil sample collected from 20-inches below grade**, was subsequently covered as a result of expanding the adjacent GSU #1 containment structure before this soil could be further excavated.

During expansion of the GSU #1 containment structure, excavation proceeded to the water table where light, non-aqueous-phase liquid (LNAPL) was observed, confirming that the release of mineral oil had likely migrated to groundwater (no groundwater samples or depth-to water measurements were collected at that time). Sorbent materials were deployed to address the LNAPL and an unknown amount of contaminated groundwater was pumped into an empty, on-property above-ground storage tank (AST) prior to disposal. Laboratory analysis of the water contained within the AST revealed the presence of mineral-oil in the associated samples.

In May of 2011, six temporary wells (GW-1 through GW-6) were installed to evaluate groundwater conditions in the vicinity of GSU #1. Each of the temporary wells were screened from 5 to 15 feet below ground surface (bgs) and sampled using low-flow purging methods.

Only one location (GW-4) detected mineral oil (as diesel-range total petroleum hydrocarbons [TPH-Dx] at 1,100 microgram per liter [$\mu\text{g/l}$]) above the MTCA Method A cleanup level of 500 $\mu\text{g/l}$. Groundwater samples collected from the remaining locations did not contain TPH-Dx above laboratory reporting limits.

2013 Site Investigation Summary

As a result of an Ecology letter, dated November 20, 2012, suggesting that further action was needed to evaluate deeper soil and groundwater in the vicinity of GSU #1, KTA retained Cardno, of Seattle, Washington, to install three monitoring wells (MW-1 through MW-3) at the Site. Locations of these monitoring wells were selected based on the documented presence of elevated concentrations of mineral oil in soil and groundwater in the vicinity of GSU #1 as follows:

- MW-1 - screened from 4.5 to 17 feet bgs and installed near the former location of soil sample D8, where mineral oil was detected at a concentration of 28,100 mg/kg;
- MW-2 – proposed for installation near the former site of groundwater sample GW-4, where mineral oil was detected in groundwater at 1,100 $\mu\text{g/l}$. **This location was abandoned** following discovery of a “fire water supply line” while advancing the associated boring (SB-2). To Ecology’s knowledge, **no relocation of this proposed monitoring location was attempted;** and
- MW-3 - screened from 4 to 19 feet bgs and installed downgradient from GSU #1 to evaluate groundwater gradients, flow directions, and potential impacts associated with the 2011 mineral oil release.

Soil samples collected during the 2013 well installation activities (SB-1 through SB-3) did not contain concentrations of TPH-Dx above laboratory reporting limits. The grab groundwater sample, however, collected from soil boring SB-2 (at the proposed location of MW-2), contained **380 $\mu\text{g/l}$ of mineral oil** (as diesel-range organics [DRO]). The 2016 CAR concluded that reductions in the concentration of dissolved-phase mineral oil observed through time at this location (from 1,100 $\mu\text{g/l}$ in 2011 to 380 $\mu\text{g/l}$ in 2013) were likely the result of “natural processes” occurring in groundwater beneath the Site.

Groundwater samples collected from monitoring locations MW-1 and MW-3 did not reveal the presence of dissolved-phase TPH-Dx above laboratory reporting limits at these locations.

2013 GSU #3 Mineral Oil Release

On November 22, 2013, a second transformer, GSU #3, experienced an explosive failure and subsequent fire, resulting in a release of non-PCB transformer fluids (mineral oil) in the vicinity of GSU #3 and stormwater conveyance system and pond. On-duty personnel closed the discharge outfall from the stormwater pond and none of the released material was allowed to discharge from the pond. Subsequent reports of this incident estimated the released volume of mineral oil at 4,337 gallons and suggested that the majority of these fluids were recovered during the initial spill response and associated remedial excavation activities. Following these initial activities, a series of 45 confirmation soil samples were collected prior to placement of clean fill and gravel. As presented in the 2016 CAR, only two of the 45 samples collected yielded detections of mineral oil above analytical reporting limits, however, those concentrations remained below the associated MTCA Method A cleanup level (CUL) of 4,000 mg/kg.

During the soil excavation activities conducted in response to the GSU #3 mineral oil release, an “oil sheen” was observed on groundwater encountered at approximately 5 feet bgs. According to the 2016 CAR, a “vertical slotted culvert was installed to visually monitor groundwater” during January of 2014, to a depth “just below” the water table, on the south side of the GSU #3 containment structure. Immiscible droplets of oil continued to be observed in the vertical culvert throughout 2014. Though groundwater in the culvert has reportedly been free of visible oil since 2014, it does not appear that samples have been obtained from this culvert.

2015 Monitoring Well Installations

During April of 2015, KTA and Cardno installed three additional monitoring wells (MW-4 through MW-6) downgradient of GSU #3 to evaluate potential mineral oil impacts to groundwater beneath this area of the Site. These monitoring locations were constructed with screened intervals from approximately 5 to 25 feet bgs. Soil samples collected during advancement of the monitoring wells (SB4 through SB6) did not exhibit detections of NWTPH-Dx or mineral oil above MTCA Method A CULs.

In addition to these installation activities, a series of underground electrical vaults, located in the vicinity of GSU #1 and GSU #3, were inspected and sampled to evaluate suspected impacts from mineral oil to storm- and groundwater that was observed flowing into these utilities. Water samples collected from the utility vaults revealed **concentrations of dissolved-phase DRO up to 1,900 µg/l.**

2015-2016 Groundwater Monitoring and Sampling

Four quarterly sampling events were conducted at the Site during April 2015 through March 2016. Laboratory analysis of groundwater samples collected from the Site monitoring well network (MW-1 and MW-3 through MW-6) did not detect NWTPH-Dx above laboratory reporting limits during this period.

Evaluation of Site Cleanup and Characterization

Based on the data gaps and deficiencies described below, Ecology is unable to grant a determination of No Further Action for the Site at this time. To generate a sufficient data set from which Ecology can fully evaluate the Site for closure, please submit a Work Plan that contains a proposal to sufficiently address the following items:

1. **Depth-discrete soil- and groundwater sampling in the immediate vicinity of former borings GW-4 and SB-2.** According to the 2016 CAR, SB-2 (proposed location of MW-2) was advanced to 30 feet bgs prior to collecting a groundwater sample, in which DRO (mineral oil) was detected at 380 µg/l. The 2016 CAR compared these concentrations to those reported from the groundwater sample collected from the co-located boring GW-4 during May of 2011 (1,100 µg/l). At the time the groundwater sample was obtained from GW-4, however, water levels at this location were approximately 13 feet bgs. To evaluate the current concentrations of mineral oil in the vicinity of the former location of borings GW-4/SB-2, Ecology is requesting that additional, depth-discrete soil- and groundwater sampling be performed in this area of the Site. These samples should be collected, at a minimum 10-foot interval-spacing, from first encountered water to the approximate total depth of SB-2 (30 feet bgs).
2. **Depth-discrete soil sampling in the immediate vicinity of former boring D8.** Though Ecology acknowledges that groundwater data obtained from monitoring location MW-1 does not indicate that groundwater has been impacted by the sorbed-phase mineral oil previously reported from beneath the GSU #1 containment structure (sample D8; 28,100 mg/kg at 20 inches bgs), additional information is needed to evaluate the current nature and extent of this compound immediately beneath this area of the Site. As a result, Ecology is requesting that additional, depth-discrete soil sampling, be performed in the immediate vicinity of former boring D8. These samples should be collected from 20 inches bgs and at the water-table interface.
3. **Grab-groundwater sample collection from the vertical “groundwater monitoring culvert”.** Ecology is requesting that grab-groundwater samples be obtained from the vertical “groundwater monitoring culvert”, installed adjacent to GSU #3, for subsequent analysis of NWTPH-Dx. Additionally, Ecology is requesting further details regarding the construction and placement of this culvert (i.e. total depth, slotted interval, and means of access).

Ecology is concerned that this culvert may present a preferential pathway to shallow groundwater for potential releases of mineral oil from the nearby GSU #3. Please provide information as to how PacifiCorp intends to address this concern.

4. **Updated evaluation of mineral oil impacts to on-Site utility vaults and assessment of risk to employees.** As described above, water samples collected from the utility vaults in the vicinity of GSU #1 and #3 during 2015 revealed concentrations of dissolved-phase DRO up to 1,900 µg/l. Ecology is requesting an updated evaluation of potential mineral oil impacts to these utility vaults and associated assessment of risk to on-Site employees that may access these structures.

Additional Comments

5. During a review of Site documentation, Ecology personnel noted erroneous values in Ecology's Environmental Information Management (EIM) system. Specifically, First Quarter 2015 groundwater monitoring results associated with monitoring location MW-1 indicate non-detectable concentrations of DRO for this location, inconsistent with analytical reports indicating DRO at 120 ug/l (Appendix E of the 2016 CAR; 1st Quarter 2015 Monitoring Report). Ecology is requesting confirmation of the correct laboratory analytical results associated with this monitoring location and event. Please make every effort to assure that data uploaded to EIM is done so in a timely and accurate manner.
6. Groundwater samples initially collected monitoring locations MW-1 and MW-3 during October and November of 2013 were analyzed for NWTPH-Dx using silica gel cleanup (SGC). Please assure that all future groundwater samples collected from the Site for NWTPH-Dx analysis report results for both pre-SGC and post-SGC sample treatment.

Limitations

1. **Opinion does not settle liability with the state.**

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the Voluntary Cleanup Program (VCP).

4. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-0276 or e-mail at Jeremy.Hughes@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Hughes', with a long horizontal flourish extending to the right.

Jeremy Hughes, L.G.
VCP Site Manager
Toxics Cleanup Program, Southwest Regional Office
Washington State Department of Ecology

By certified mail: [91 7199 9991 7037 0291 6142]

cc: Nicholas M. Acklam, Ecology
Matthew Alexander, Ecology