

ATTACHMENT 1C.4.1

Polychlorinated Biphenyl-Impacted Soil Removal
Plant Site Assessment Areas



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Introduction

Figure 1 of the *PCB Investigation Work Plan* (Malcolm Pirnie 2012) included in Appendix 3.3 of the Response Action Plan (RAP, Arcadis 2016e) shows historical locations of equipment containing polychlorinated biphenyls (PCBs) and locations where equipment had a documented PCB spill. These locations are situated within the Pond 5/6 Arroyo Assessment Area (Pond 5/6 AA) and Acid Plant Arroyo Assessment Area (Acid Plant AA). Locations where equipment reportedly contained PCBs in concentrations less than 50 milligrams per liter (mg/l) were not investigated further. At 20 locations where equipment contained more than 50 mg/L of PCBs or in areas at which a PCB spill had been documented, Texas Custodial Trust (TCT) proposed to evaluate the location (e.g., determine if there was stained concrete, stained soil, etc.), and if warranted, collect and analyze either a concrete or soil sample.

As noted in the *PCB Step-out Sampling as Addendum to PCB Investigation Work Plan (April 2012)* (Malcolm Pirnie 2012), in June 2012 TCT collected a total of 12 samples from areas that reportedly had PCB containing equipment onsite. At five of the locations sampled (AE11-2, AE5-0-0.5, ERM14-0-0.5, PCB02-2, and PCB03-0-0.5), reported results for total PCB concentrations were greater than the Toxic Substances Control Act (TSCA) action level of 1.0 mg/kg, which was the criteria used to determine if further investigation were warranted. At the time of the June 2012 sampling event, two locations (ERM-11 and AE2) were covered by the northwest Category II stockpile (Malcolm Pirnie 2013). As these stockpiles remained for some period after the June 2012 event, they were not subsequently sampled. These locations will be sampled during 2017. The remaining six locations from the PCB Investigation Work Plan, which were located in the powerhouse and converter buildings were sampled, the material removed and either disposed on site in the Cell 4 Waste Control Unit (WCU) or off site in a TSCA-regulated landfill (Malcolm Pirnie 2013, and Arcadis, 2017 [personal communication between Robert A. Mongrain and Amy McDonald[ERM]]).

In September 2012 TCT proposed another round of sampling at the five locations where results exceeded the TSCA soil action level. To delineate the horizontal extents of PCB contamination in soil, TCT would “step out” two times at 3 meter increments from each of the five sample locations to delineate the horizontal extent of PCB contamination. Step-out sampling at the 3 meter intervals would be continued as needed in additional phases until sample results were below the 1.0 mg/kg TSCA action level. For vertical delineation, samples would be collected from the 0 - 0.5-foot interval and the 0.5 - 1.0-foot interval.

As noted in its letter to TCEQ regarding *Additional PCB Sampling and Remediation Plan as an Addendum to the PCB Investigation Work Plan (April 2012)* (Malcolm Pirnie 2013), in October 2012 TCT collected 62 step-out samples. Samples were proposed at ERM-14 but were not collected due to stockpiling activities in this area; these samples will be collected during 2017. These sample locations are shown on Figure 1 of this Attachment, along with initial analytical results.

Based on the sampling results, TCT proposed the following:

- **AE5/PCB-02**: Remove soils and concrete and conduct confirmation sampling, or if necessary, additional delineation sampling and then removal and confirmation sampling.
- **PCB-03-W2**: Collect step-out samples around PCB-03-W2 to delineate the nature and extent of PCBs in this area; if necessary, soil would be excavated and confirmation sampling would be done to verify the area has been remediated.

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- AE11: Collect additional step-out samples; samples would be primarily to the east and south and would stop at the outer walls of buildings; these delineation samples would direct removal activities; if necessary, additional sampling would be conducted after the removals to delineate the area.
- AE8: No further action is required.
- Groundwater wells EP-49 and EP-51: Collect one round of groundwater samples during the next semi-annual groundwater sampling event (Spring 2013) at monitoring wells EP-49 and EP-51 and analyze the samples for PCBs using the EPA analytical method 505.

The response action objectives for soil remediation at the Site included removing soils impacted by PCBs to the TRRP PCL for C/I land use of 7.1 mg/kg for surface samples. However, as noted in the Conceptual Site Model and Protective Concentration Level Report (Arcadis 2016a), the $^{Air}Soil_{Inh-VP}$ pathway is generally addressed by the application of the $^{Tot}Soil_{Comb}$ PCL; however, site characterization data indicate locations within these two AAs with concentrations of PCBs above its $^{Air}Soil_{Inh-VP}$ PCL. PCBs have the ability to volatilize and migrate through soil caps. As a result, areas with PCB concentrations above 47 mg/kg (the $^{Air}Soil_{Inh-VP}$ PCL for PCBs) would need to be excavated and capped (Arcadis 2016a and Texas Administrative Code Section 530.33[e][2]). The Pond 5/6 Arroyo and Acid Plant Arroyo AAs are the only areas within the Site that have been impacted by PCBs. As documented by the sampling summarized above, the PCB-impacted soils were localized to areas near the former Powerhouse building and the former converter building.

TCT also proposed to collect samples from up to two monitoring well locations downgradient of areas identified as having PCB-containing equipment during the semi-annual groundwater monitoring event (Malcolm Pirnie 2012). The groundwater sampling from EP-49 and EP-51 was performed in Spring 2013. Results of the analysis for PCBs at both of these wells had concentrations that were not detected at or above the sample detection limit (SDL).

In a letter to TCEQ dated September 29, 2014, TCT presented a summary of PCB sampling to date, the soil removal at AE11 (Powerhouse), and a proposed plan for off-site disposal of excavated materials stored in roll-off bins (Malcolm Pirnie (2014), included in Appendix 3.3 of the RAP (Arcadis 2016e)).

Regulatory Approval

In a letter dated October 21, 2014, TCEQ issued a response acknowledging receipt of TCT's letter to TCEQ regarding Excavations and Disposal of Soil at the Powerhouse (AE11) Impacted by Polychlorinated Biphenyls (PCBs), dated September 29, 2014 and providing authorization to proceed with disposal activities. The letter is included in this Attachment.

Response Action

At sample location AE11, TCT removed soils with concentrations of PCBs greater than the C/I soil PCL of 7.1 mg/kg and conducted confirmation sampling to document that the PCLs for direct contact with C/I soils were achieved, as described in its letter to TCEQ dated September 29, 2014 regarding Excavations and Disposal of Soil at the Powerhouse (AE11) Impacted by Polychlorinated Biphenyls (PCBs) (Malcolm Pirnie 2014). Excavated soils were segregated and stored in covered roll-off bins prior to disposal. Excavated soils containing total PCB concentrations between 7.1 mg/kg and 50 mg/kg were disposed of on site in the Cell 4 WCU. Excavated soils with total PCB concentrations greater than 50 mg/kg were disposed of off-site at U.S. Ecology Texas in Robstown, Texas, a disposal facility regulated under the TSCA. Waste manifests documenting the disposal are included in this Attachment.

At sample location PCB03, the surface sample contained 3 mg/kg total PCBs. TCT collected samples to delineate the area where concentrations exceeded 1 mg/kg total PCBs. At one step-out sample location to the west (PCB-03-W2), the surface sample contained a reported concentration of 49.6 mg/kg total PCBs. The sample collected

from 0.5 to 1 foot below ground surface (bgs) contained 0.1 mg/kg total PCBs. Reported results for all other step-out samples at PCB03 were less than 7.1 mg/kg total PCBs, which is the protective concentration level (PCL) for direct contact with C/I soil ($T^{ot}Soil_{Comb}$). TCT used an excavator at location PCB-03-W2 to scrape this area to a depth of approximately 1 foot to remove PCBs. TCT placed this excavated soil in Cell 4.

Following discussions with TCEQ on February 17, 2017, remaining response action activities to be completed in 2017 include additional vertical and lateral delineation at AE5. Borings will be advanced at AE5 and soil samples will be collected at depths that account for the depth of fill and evapotranspirative (ET) soil cover placed in the area. An additional boring will be placed approximately 30 ft north of AE5 to provide additional horizontal delineation. Additional borings and soil samples may be required to completely delineate the extent of impacted soils containing greater than 47 mg/kg total PCBs at AE5. Following delineation, the ET cover will be removed and soil containing greater than 47 mg/kg total PCBs will be removed and placed into bins for off-site disposal at a TSCA-regulated facility.

In addition, borings will be advanced at the following locations to collect soil and/or concrete samples: ERM14, the former location of the Cottrells; and AE2 and ERM11 at the former Acid Plant. Delineation sampling and soil removal will occur if analytical results exceed 47 mg/kg total PCBs.

Table 1 presents PCB results, and Figure 1 shows sample locations. Activities performed in 2017 will be documented in the 2017 Soil RACR.

Supporting Documentation Included in This Attachment

Copies of the following documents are included in this attachment:

- Letter from TCEQ regarding Notice to Proceed with disposal activities, dated October 21, 2014
- Table 1 Summary of PCB Analytical Results, Confirmation Soil Samples
- Figure 1 PCB Confirmation Sample Locations
- Waste manifests documenting disposal (as requested in the October 21, 2014 letter from TCEQ)