SWANSON RIVER FACILITY

SOIL MANAGEMENT PLAN FOR PCBs

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Hilcorp Alaska, LLC

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
A2LA	American Association for Laboratory Accreditation
ARCO	ARCO Alaska, Inc.
bgs	below ground surface
BLM	Bureau of Land Management
Brice	Brice Engineering, LLC
CBC	circulating bed combustor
CFR	Code of Federal Regulations
COC	chain of custody
E&E	Ecology and Environment, Inc
EDD	electronic data deliverable
Facility	Swanson River Facility
ft	foot/feet
GNSS	global navigation satellite system
GPS	global positioning system
Hilcorp	Hilcorp Alaska, LLC
ID	identification
IPAC	Information for Planning and Consulting
KGF G&I	Kenai Gas Field Grind and Inject Facility
KNWR	Kenai National Wildlife Refuge
LOD	Limit of Detection
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
NGS	National Geodetic Survey
OBC, or Consent Order	order by consent
OilRisk	OilRisk Consultants
PCBs	polychlorinated biphenyls
Plan	Soil Management Plan for PCBs, Swanson River Facility
Plant 10	Compressor Plant
PPE	personal protective equipment
ppm	parts per million
P&S	Purchasing and Storage
QAR	quality assurance review

RCRA	Resource Conservation and Recovery Act
Site	Portion of the Swanson River Facility subject to this Plan (Figure 3).
SLR	SLR International Corporation
TAT	turnaround time
TSCA	Toxic Substances Control Act
TSDF	Treatment Storage and Disposal Facility
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
≤	less than or equal to
<	less than
>	greater than
≥	greater than or equal to
±	plus or minus
µg/L	micrograms per liter.
§	section

1. INTRODUCTION

This Soil Management Plan (Plan) provides the approach and methods to characterize and manage soils potentially contaminated with polychlorinated biphenyls (PCBs) excavated during construction and maintenance activities at the Swanson River Facility (Facility) operated by Hilcorp Alaska, LLC (Hilcorp). The Facility is an oil and gas processing and storage facility located within the Swanson River Field, a producing oil and gas field on the Kenai Peninsula of Alaska (Figures 1 and 2).

The soil within portions of the Facility were impacted by PCBs in 1972 following an explosion at the original Compressor Plant (Plant 10), which resulted in the release of a heat transfer fluid containing PCBs. Removal of PCB contaminated soil to approved levels, followed by thermal treatment, was conducted from 1987 to 1992. However, PCBs at concentrations over 1 milligram per kilogram (mg/kg), equivalent to 1 part per million (ppm), remain in the soil and the extent is not well defined. A PCB concentration of greater than (>) 1 mg/kg is above the criteria for unrestricted use under the United States Environmental Protection Agency (USEPA)-administered Toxic Substances Control Act (TSCA) regulations in Title 40 Code of Federal Regulations (CFR) Section (§) 761.61 (40 CFR 761.61). These regulations govern the management of PCBs remediation waste as a result of PCBs spills and releases. A PCB concentration > 1 mg/kg is also above the Alaska Department of Environmental Conservation (ADEC) soil cleanup levels in Title 18 of the Alaska Administrative Code (AAC), Chapter 75, Oil and Other Hazardous Substances Pollution Control for unrestricted site use (18 AAC 75; ADEC, 2023).

Further, PCB cleanup is planned when the Facility is decommissioned. While active, the Facility requires periodic construction and maintenance projects for safe operations, some of which require soil excavation. A primary example is Hilcorp's Integrity Management Program, which involves subsurface pipeline integrity excavations for inspections and maintenance in accordance with United States Department of Transportation (USDOT) and ADEC regulations.

1.1 PURPOSE

The purpose of this Plan is to:

- Enable soil to be excavated at the Facility and reused onsite to the extent practicable in support of construction and maintenance projects while the Facility is active, in compliance with applicable regulations and with appropriate Agency approvals;
- Mitigate the risk to human health and the environment, including wildlife, during construction and maintenance projects that involve soil excavation; and
- Prevent the spread of PCB contamination during construction and maintenance projects.

For the purposes applying this Plan, a soil management plan (i.e., Site) boundary has been established encompassing the portion of the Facility where PCBs from the 1972 release are considered potentially present in the soil (Section 4.1 and Figure 3). The scope of this Plan does not include end-of-field life cleanup and remediation. Those issues will be addressed separately when the time is appropriate.

Furthermore, the Plan applies to the portion of the Facility defined in this Plan and not the entire Swanson River Field.

2. SITE BACKGROUND SUMMARY

2.1 SITE HISTORY AND MANAGEMENT

The Swanson River Field was discovered in 1957 by Richfield Oil Company. It was Alaska's first significant commercial oil field and provided a catalyst for Alaska Statehood in 1959. Since the initial discovery, it has been the location of continued oil and gas exploration and production. The field is comprised of an oil and gas unit (Swanson River Unit) managed by the Bureau of Land Management (BLM) with multiple subsurface leases. The field has had multiple operators, including Chevron, ARCO Alaska, Inc. (ARCO), and Union Oil Company, and has been operated by Hilcorp from January 2012 to present.

The Swanson River Field is located within the Kenai National Wildlife Refuge (KNWR), managed by the United States Fish and Wildlife Service (USFWS). The KNWR was originally the Kenai National Moose Range, which was established in 1941. Passing of the Alaska National Lands Conservation Act in 1980 redesignated the range to the KNWR and expanded its acreage to the current 1.92 million acres (USFWS, 2001).

2.1.1 PREVIOUS INVESTIGATIONS AND CLEANUP ACTIVITIES

The Facility's original Compressor Plant (Plant 10) catastrophically exploded on January 26, 1972, resulting in the release of an undocumented quantity of heat transfer fluid (therminol oil) containing PCBs (Aroclor 1248) around the plant area. Damaged electrical equipment may have also released PCBs. Aroclor 1242 and 1254 have also been detected in the Compressor Plant area (E&E, 1989a). At the time of the explosion, the surrounding ground was frozen and snow-covered (see Appendix A-1). Chevron (then unit operator) began spill cleanup shortly after the explosion, and oiled snow and soil were removed and stockpiled at the SCU 14-3 gravel pit located approximately 1.5 miles away. The pit had been used since 1971 for storing crude-oil-impacted gravel from spill cleanup activities (E&E, 1989a). At the time, it was not known by the operator that PCBs were present in the oily gravel or that it posed a risk to human health or the environment. No Federal or State regulations governed the handling and disposal of PCB contaminated soil or debris in 1972. PCBs were not legally recognized as a hazardous substance until the passage of TSCA in 1976.

The Compressor Plant was rebuilt on the original foundation of the prior plant. Based on historical aerial photography, this occurred by July 1972 (Appendix A-2). Adjacent buildings damaged by the explosion were also repaired.

In 1984, a nationwide environmental damage survey of refuges where oil and gas operations existed was conducted by the USFWS, and PCBs up to 30 mg/kg were detected in soil samples collected in road right of ways in the Swanson River Field. In 1985, Chevron conducted further investigation to identify areas contaminated with PCBs within the Swanson River Field. During the investigation, the source of the PCBs was traced to the SCU 14-3 pit, and subsequently the contaminated gravel and snow were removed from around the Compressor Plant after the 1972 explosion. In 1983 and 1984, oiled sand and gravel from the SCU 14-3 pit was used for dust suppression and road maintenance on approximately 2 miles of roads within the Swanson River Field. Approval for the use of the material was obtained from the USFWS, with

necessary permits approved by ADEC. At the time Chevron, USFWS, and ADEC were not aware that the material was contaminated with PCBs (E&E, 1991).

In 1985, Chevron became a signatory under an Order by Consent (OBC, or Consent Order) administered by the USFWS in coordination with the ADEC, BLM, and the USEPA (USFWS, 1985, addended 1991). The OBC required the assessment and remediation of PCB-impacted areas through an approved mitigation and restoration plan (E&E, 1986a), which was updated periodically while the cleanup was active. The OBC triggered, what was at that time, the largest PCB remediation effort ever undertaken on Federal lands (USFWS, 2001).

Ecology and Environment, Inc. (E&E), was then retained by Chevron to provide environmental management services including site assessment, operation of an onsite laboratory, and supervision of removal actions and remediation. In 1986, ARCO took over as unit operator of the Swanson River Field and assumed all cleanup obligations previously imposed on Chevron under the Consent Order.

The OBC was amended five times from 1988 to 1991 while the cleanup was ongoing. Amendment 5 established PCB cleanup levels based in part on a risk assessment evaluating the potential risk to terrestrial and aquatic biological resources (E&E, 1986b, 1986c). The OBC established a PCB cleanup level of 12 mg/kg for the Swanson River Field area, except for the SRU 14-3 pit (pad) and a rectangular area adjacent to the Compressor Plant, referred to as the "Pipeway Area" (Figure 3) Under terms of the Consent Order, remediation of the Pipeway Area was deferred until the current Compressor Plant is decommissioned, due to the soil being co-located with a series of above and below ground pipelines running in perpendicular directions, making the removal impractical while the lines are in place.

E&E conducted site assessment and characterization studies in all areas within the field where known contamination existed or was suspected. Sites were screened for contamination using the onsite laboratory, and contaminated soil was excavated until OBC cleanup levels were met based on the results of "release" (confirmation) samples analyzed at an offsite laboratory. The USFWS oversaw the cleanup, reviewing the confirmation sampling results and releasing individual areas from further cleanup on an ongoing basis. Contaminated material was hauled to a designated processing site at the SCU 14-3 gravel pit. Contaminated soil was removed from the Compressor Plant area, and adjacent or nearby areas (e.g., Buildings A, E, and B; Meter Building; Therminol Heating Building; 150# Flare Pit; and Wastewater Treatment Facility) (E&E, 1989a, 1990, 1991). Appendix B-1 shows the general locations of where soil removal (excavation) for PCB remediation occurred within the Facility based on the E&E reports. Remediation activities included removal of contaminated soil from around buried pipes (e.g., therminol and oil lines). Based on the distribution pattern of PCBs around some pipelines, E&E speculated that soil and gravel contaminated with PCBs had unintentionally been used to backfill pipeline right of ways in the vicinity of the Compressor Plant (E&E, 1989b).

Contaminated soil was also removed from the roadways and the Purchasing and Storage (P&S) Yard, a gravel pad used to stage equipment, production tubing, and other field supplies. It is believed that metal debris from the 1972 explosion was temporarily stored at P&S Yard (E&E, 1991). Cleanup also occurred at the SCU 14-3 pit where the oiled soil and snow from the 1972 explosion was initially transported for storage.

Contaminated soil removal depths necessary to attain cleanup levels in the vicinity of the Compressor Plant and adjacent areas were typically 1 to 3 feet (ft) below ground surface (bgs). However, removal occasionally extended deeper along foundations and subsurface pipes or culverts. Around the Compressor Plant, the excavation extended to 7 ft bgs in some locations around the foundation (E&E, 1990). Excavation depth extended to 8 ft bgs in some locations near the Therminol Heating Building. Prior to removal, PCB concentrations had exceeded 2,000 mg/kg near the ground surface around the Therminol Heating Building, and 11,000 mg/kg near the stack (E&E, 1989a).

To facilitate the cleanup, the Wastewater Facility was demolished and removed (E&E, 1990). The Wastewater Facility was used to physically separate oil from the Compressor Plant wastewater. Accumulated wastewater was sent to one of several existing wastewater injection wells. In addition, the Therminol Heating Building stack was relocated 30 ft north to its current location (E&E, 1990).

To remediate the excavated soil, ARCO contracted with Ogden Environmental Services for the installation and operation of a natural gas-fired circulating bed combustor (CBC) to incinerate the PCB contaminated soil. Following USEPA licensing and permit authorization, the CBC began operations in 1987, located at the SCU 14-3 pad. The CBC operated until the summer of 1992 and incinerated over 107,000 tons of contaminated soil. The incinerated soil from the CBC was spread in an area to the west of the SCU 14-3 site. In 1992, the area was covered with a layer of topsoil and seeded with a mixture of northern variety grasses (USFWS, 2001).

In summary, based on the reports documenting the 1987-1990 contaminated soil removal and associated confirmation sampling (E&E, 1989a, 1990, 1991, USFW 2001), PCB concentrations in the soils at the Facility are less than (<) 12 mg/kg, with the exception of the 120 ft by 30 ft Pipeway Area adjacent to the Compressor Plant, where the PCB concentrations are < 24 mg/kg (Figure 3). A cleanup level of < 12 mg/kg was also achieved at other locations within the Swanson River Field, with the exception of the SCU 14-3 pad where the cleanup level was 24 mg/kg.

2.1.2 LONG-TERM GROUNDWATER MONITORING PROGRAM

A long-term groundwater monitoring program has been in place at around the Compressor Plant area since 1990; however, groundwater monitoring data are only readily available beginning in 1997 (OilRisk, 2006). The groundwater sampling program has historically and is currently managed by Chevron. Four groundwater monitoring wells clustered around the Plant area (CP-A, CP-BR, CP-C, and CP-F) have historically been sampled. Sampling has occurred biannually from 1997 to 2018. Additionally, sampling on a five-year basis has occurred at the SCU 14-3 pad, where PCB contaminated soils were stockpiled and remediated during the initial site cleanup.

Since 1997, only one sample in the wells around the Compressor Plant area has contained PCBs above the ADEC Groundwater Cleanup level (OilRisk, 2006). In 2006, one of the wells (CP-A) showed a PCB concentration of 1.55 micrograms per liter (µg/L), above the ADEC cleanup level of 0.5 µg/L at that time. The sample was collected during an extremely shallow groundwater event where depths to groundwater were on average 5 ft shallower than the previous year. All other samples since 1997 have been non-detect for PCBs (Stantec, 2022). However, one-third of samples have had detection limits above the applicable

ADEC cleanup level, primarily occurring in samples prior to 2006 (AECOM, 2019). Biannual sampling at the Compressor Plant area is currently ongoing (Stantec, 2022).

2.2 SITE DESCRIPTION

2.2.1 FACILITY OPERATIONS

The Swanson River Facility is an oil and gas processing facility. The gas is supplied to utilities in Alaska for power generation and heating, with the majority of the gas supplying Southcentral Alaska. During the summer, a portion of the gas is placed in underground storage for use in the winter when demand is higher. The Facility has 24-hour staffed operations. It has semi-restricted public access, with lockable security gates across access roadways. The public is allowed to use an adjacent access road for portions of the year for hunting.

Site workers generally work within buildings used for operating and maintaining the Facility and auxiliary operations. Typically, there is one Plant Operator that performs rounds, and up to two mechanics that are based in the Mechanics Shop (Figure 3). On an as needed basis, another individual performs specific tasks in the Compressor Plant or nearby areas. Additional workers are brought onsite for specific projects on a temporary basis.

The outdoor site use by workers at the Facility meets the definition of a "*low occupancy area,*" as defined in TSCA § 761.3. Per this definition, a *low occupancy area* means any area where PCB remediation waste has been disposed of onsite and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is less than 840 hours (an average of 16.8 hours per week) for non-porous surfaces (e.g., metal) and 335 hours (an average of 6.7 hours per week) for bulk PCB remediation waste (e.g., soil).

The primary office building within the Swanson River Field is the Production office, which is located about 0.5 mile from the Facility (Figure 2).

2.2.2 SURROUNDING LAND USE

The lands surrounding the Facility are part of the Swanson River Field. The field is operated by Hilcorp and located within the KNWR. Structures within the field surrounding the Facility include roads, well pads, sand and gravel pits, waste disposal sites, gas injection facilities, pipelines, and other oil and gas field infrastructure.

2.2.3 PHYSICAL SETTING

The Facility is located approximately 13 miles north of Sterling, Alaska, within a 12-square mile oil and gas unit inside the KNWR. The topography at the Facility is relatively flat, with elevations ranging from 159 to 166 ft above sea level, sloping gently in all directions from the center of the Facility. Slightly north of the Facility, the elevations drop to 136 ft above sea level, in an area referred to as the Moose Bog Area (E&E, 1991).

2.2.4 GEOLOGY AND HYDROGEOLOGY

The surficial geology at the Facility consists of glacial and alluvial deposits, which is typical for the Kenai Peninsula area. Sandy silts with interbedded coarser material are common, along with occasional glacial erratics. Surface fill material at the Site typically extends a few feet below ground surface and is underlain by sandy silty glacial till with occasional interbedded gravel (Rieger et al., 1962).

Groundwater at the Facility is typically close to the surface, averaging 10.51 ft bgs sitewide in 2022 (CP-A, CP-BR, CP-C, CP-F) (Stantec, 2022). Water generally flows to the north-northwest near the Compressor Plant and the Office building (AECOM, 2019). However, groundwater flows east and west near the Electric Shop and former tanks TK300 and TK301, respectively. This variety of groundwater flow indicates the presence of multiple aquifers and a complex hydrogeologic system (Brice, 2021).

2.2.5 SURFACE WATER

The Swanson River is located approximately 800 ft to the northeast at its closest point to the Facility and flows roughly parallel to Swanson River Facility Road (Figure 2).

2.2.6 THREATENED OR ENDANGERED SPECIES

According to the Information for Planning and Consulting (IPAC) USFWS tool, found at https://ecos.fws.gov/ipac/, there are no endangered species present at or near the Facility.

3. REGULATORY FRAMEWORK

TSCA, promulgated in 1976, regulates the use, cleanup, and disposal of PCBs. Under these regulations, PCB contaminated soil is classified as PCB bulk remediation waste depending on the date of release, concentrations, and/or the source. As defined in § 761.3, PCB bulk remediation waste is waste containing PCBs from a spill, release, or other unauthorized disposal at the following concentrations:

1. Materials disposed of prior to April 18, 1978, that are currently at concentrations greater than or equal to (≥) 50 mg/kg PCBs, regardless of the concentration of the original spill;
2. Materials that are currently at any volume or concentration where the original source was ≥ 500 mg/kg PCBs beginning on April 18, 1978; or
3. ≥ 50 mg/kg PCBs beginning on July 2, 1979; and
4. Materials that are currently at any concentration if the PCBs are spilled or released from a source not authorized.

The explosion at the Facility that released heat transfer fluids containing PCBs occurred prior to 1978. The concentration of the PCBs in the fluids is not documented but based on some of the pre-removal characterization soil sample results from the 1987-1990 cleanup, concentrations were likely > 500 mg/kg, which would classify the residual PCBs as PCB remediation waste (item 2 above). Based on the reports documenting the subsequent cleanup from 1987-1990 (E&E, 1989a, 1990, 1991), soil with PCBs > 50 mg/kg is no longer present.

PCB bulk remediation waste needs to be cleaned up and disposed of in accordance with § 761.61(a), (b), or (c), referred to as (a) self-implementing cleanup and disposal; (b) performance-based disposal; and (c) risk-based cleanup and disposal, respectively. Under § 761.61(a), applicable cleanup levels vary with the site conditions (e.g., level of occupancy and presence of institutional controls, such as cap and fencing), with the most stringent cleanup level for unrestricted use being 1 mg/kg. The cleanup levels for low occupancy areas, which are typical of the Facility, are less than or equal to (≤) 25 mg/kg, or ≤ 50 mg/kg with a secured fence and proper signage, per § 761.61(a) requirements.

ADEC also regulates PCBs in soil under 18 AAC 75. The ADEC cleanup level for unrestricted site use is 1 mg/kg, or 10 mg/kg if capped per associated regulatory requirements at 18 AAC 75.341, Table B1 (ADEC, 2023).

4. SOIL MANAGEMENT DURING CONSTRUCTION AND MAINTENANCE ACTIVITIES

The Site Operator (Hilcorp) is responsible for implementation and compliance with this Plan. The lead regulatory agency for Plan approval and oversight is the USEPA, in coordination with the USFWS, BLM and ADEC.

4.1 SOIL MANAGEMENT PLAN BOUNDARY AND APPLICABILITY

For the purposes of this Plan, a soil management plan boundary (Site) has been established encompassing approximately 35 acres (Figure 3). Construction and maintenance activities that excavate soils within this Site boundary will be subject to the requirements of this Plan with respect to sampling, handling, reusing, or disposing of the subject soil. The Site boundary was drawn conservatively to encompass areas where PCB contaminated soils may potentially be present at the Facility from the 1972 release. It encompasses areas where PCB contaminated soil removal occurred during the 1987-1990 cleanup activities at the Facility (Appendix B-1) and other adjacent areas as a contingency because the prior cleanup level was 12 mg/kg. PCBs may be present in the soil adjacent to these areas in concentrations > 1 mg/kg.

This Plan is applicable to soil excavation activities occurring within the Site boundary for construction and maintenance purposes. It is not applicable to all soil disturbance activities. Activities that disturb Site soil that are excluded or partially excluded from the requirements of this Plan are:

1. Soil cleanup activities performed to remediate contaminants from a historical or recent spill that is not associated with a construction or maintenance project covered by this Plan (e.g., a crude oil spill cleanup or discovery of historical contamination other than PCBs);
2. Soil drilling (boring) activities conducted for environmental or geotechnical investigations;
3. Borings less than 1 ft in diameter for items such as fence or gate posts, or protective bollards; and
4. Surficial soil disturbance (soil removal less than 6 inches bgs) during grading, or the making of drainage improvements on existing roads, parking areas, or other developed portions of the pad so long as the material stays within the Site boundary (onsite).

Items 1 through 4 above are all excluded from this Plan's notification, sampling, and reporting requirements (Sections 4.3, 4.4, and 8), with the following caveats:

- Projects involving cleanup (Item 1) will have project-specific plans for managing the soil removed from the ground and any associated sampling. These cleanup activities may be performed for cleanup of substances other than PCBs, such as petroleum hydrocarbons. During such cleanups, the soil will be sampled for PCBs and managed in accordance with this Plan, unless modifications are needed and approved in the project specific cleanup plan due to the site conditions or emergency response operations.

- For soil borings (Items 2 and 3), the generated soil will either be returned to the same boring at the same approximate depth it was removed or characterized and sent offsite for disposal based on the results. If the waste is generated from an investigation that conducts PCB sampling and analysis, those analytical results may be used to characterize the waste. If not, discrete or composite samples of the waste (soil) will be collected and analyzed for PCBS, with at least one sample collected per 3 cubic yards of soil.
- As part of this Plan, a best management practice will be implemented that surficial soil (0-6 inches bgs) should remain onsite in the immediate area (within an ~10-foot radius) of the disturbance to the extent practicable unless the soil is sampled per this Plan and managed accordingly. During gravel road or parking area grading it is recognized that soil may be transported along the driving surface out of the "immediate" area. This is acceptable, but the soil should not be transported offsite unless PCBs are < 1 mg/kg. Surficial material removed offsite must be sampled to determine its PCB concertation and managed accordingly.

In addition, this Plan also does not apply to excavation activities below the water table, which is not anticipated to occur on a typical basis. In the event excavation more than approximately 6-inches below the water table is anticipated on a project, a project-specific addendum to this Plan will be developed for USEPA review and approval in coordination with the USFWS, BLM and ADEC.

4.2 SOIL MANAGEMENT PLAN PCB ACTION LEVELS

The purpose of soil excavation and management under this Plan is not specifically to conduct cleanup, but it will result in soil being transported offsite for treatment or disposal above Plan-specific PCB action (cleanup) levels. Soil will be classified and managed based on the "as-found" concentration prior to excavation based on the sampling conducted under this Plan (Section 4.4).

Under this Plan, soil excavated for construction and maintenance purposes with a PCB concentration > 10 mg/kg will be disposed of offsite at a Treatment, Storage and Disposal Facility (TSDF) permitted to accept the waste (Section 7). Soil with PCB concentrations ≤ 10 mg/kg are permitted to remain onsite so long it is reused as backfill material during the project that generated the material. Reused material will be placed back in the same general location and depth it originated from and its location will be documented for future reference (Section 8). Onsite stockpiling of excavated soil with PCBs > 1 mg/kg more than 180 days (long-term stockpiling) is not permitted. If the material cannot be reused onsite within this 180-day period, it must be disposed of offsite.

There is no requirement in this Plan to remove soil beyond what is being removed for construction or maintenance activities, unless PCBs are detected > 100 mg/kg, which is the maximum allowable concentration under this Plan. If soil with PCBs > 100 mg/kg are identified through sampling under this Plan, the soil exceeding 100 mg/kg must be removed and disposed of offsite following applicable requirements of this Plan, including the sampling and waste management procedures.

4.3 PREPARATORY ACTIVITIES

4.3.1 AGENCY NOTIFICATION

The USEPA and other stakeholder agencies (USFWS, BLM and ADEC) will be notified 30 days prior to the start of a project involving Plan-applicable soil excavation. Notification will include a site map with planned excavation areas and depths, planned soil reuse PCB concentrations, and schedule. Deviations from this Plan will be permitted on a project-specific basis, if documented in writing and approved by the USEPA, in coordination with the other agencies. In the event of an emergency requiring soil excavation (e.g., spill response) the requirement for a 30-day advanced agency notification will be waived but notification prior to soil removal will occur with as much detail as practicable regarding the location and planned depths.

If the area to be excavated might contain contaminants other than PCBs based on a records review, any planned activities (e.g., soil management, sampling, and analysis) specific to those contaminants will be conveyed in the notification. In addition, the Operator will obtain any other project associated permits or approvals.

4.3.2 SITE WORKER NOTIFICATION AND TRAINING

As part of this Plan, signage will be posted at a prominent location at the Facility notifying site workers and visitors of the Plan and providing contact information for further information. The planned wording on the sign is listed below:

> WARNING
> Soil excavation activities at this Facility are subject to the requirements of a Soil Management Plan for PCBS. Excavation, removal, or other disturbance of the soil is prohibited without approval. Contact the Facility Operator (907-###-###) or Kenai Field Environmental Specialist (907-###-###) for further information.

Modification to the specific wording may be made so long as it conveys the intended message notifying site workers and visitors of this Plan. A simple map depicting the boundaries of the Site will be included as part of the sign.

Site workers, including subcontractors hired by the Site Operator to conduct onsite activities, will be notified of the Plan requirements prior to site work, and their responsibilities with respect to the Plan. Instructions and training will be provided on an as-needed basis regarding procedures that site workers must follow to ensure the soil is properly managed, and to prevent adverse exposure to themselves or others. The Facility supervisor(s) with the support of the Safety Department will be responsible for providing the training to applicable employees and site workers. For employees, this training may be integrated into existing employee training. For contractors, this training may be integrated into their job safety analysis (or equivalent) prior to performing work at the Site.

4.3.3 EXCLUSION ZONE

For safety and soil management purposes, prior to commencing excavation activities, and while the excavation is open, an exclusion zone will be identified and marked around the work area. The exclusion zone will limit access to areas where there are open excavation(s) and where soil with PCBs > 1 mg/kg is temporarily stockpiled. Non-project-related workers will be instructed to refrain from entering this exclusion zone unless authorized.

4.4 SOIL SAMPLING FOR CHARACTERIZATION AND MANAGEMENT

Soil sampling for PCBs will follow the methods of 40 CFR, § 761, Subpart N, *Cleanup Site Characterization Sampling for PCB Remediation Waste in Accordance With § 761.61(a)(2)*. Following this methodology, a 10-ft by 10-ft sample grid network (approximately equivalent to 3-meters by 3-meters) will be established over the planned soil excavation area to determine the "as-found" PCB concentration prior to soil removal. The extent of the network will result in a two-dimensional grid overlaying the excavation. An example of such a grid network is shown on Figure 4. The grid network may be developed for a specific excavation or may be area-wide if there are anticipated to be multiple excavations in the same area.

Initial surface samples will be collected on the grid nodes using a clean metal spoon at the same approximate depth for each sample, 0 to 3 inches bgs. After sampling the surface soil (0 to 3 inches) and subsequent soil removal, the process will be repeated maintaining the same grid network as the soil is removed in lifts (cuts) of 1 to 2 ft (Section 4.5). Prior to starting a new cut, the soil will be sampled at each grid node falling within the planned excavation as described above. If the excavation narrows with depth, some grid nodes may fall outside the excavation, and sampling at those locations will be omitted.

Analytical results for an individual sample point will apply to the sample point and an "area of inference" extending 5 ft from the sample point parallel to the grid axis lines (comprising a 10 ft x 10 ft square centered on the sample point). The analytical result will be considered to apply to a depth of 1 to 2 ft below the sample point corresponding to the thickness of the next cut. When excavated, the soil in the cut will be managed according to the sample's concentration for reuse or disposal.

When the project-required excavation depth is reached, the bottom (floor) of the completed excavation will also be sampled if the overlying sample had a PCB concentration > 1 mg/kg. This sample is for characterization purposes in support of future Site management and cleanup decisions.

Approximately 4 ounces of soil will be containerized into a new, unpreserved, 4-ounce amber glass container for each sample submitted for laboratory analysis. Duplicate samples will be collected at a rate of at least 10 percent.

As discussed in Section 8.1, sampling is not required for soils that have been previously characterized under this Plan because the existing PCBs concentrations will be known and documented.

4.5 SOIL EXCAVATION AND HANDLING

As previously indicated, soil will be excavated as needed for construction and maintenance projects in cuts with a maximum thickness of 2 ft. A schematic of the sampling and excavation process is shown on Figure 5. Typically, the first cut will be 2 ft and all subsequent cuts will be 1 ft. Sampling of the ground surface will be conducted prior to each cut.

When a soil cut is removed in the grid square, it will be managed based on the "as-found" concentration (Section 4.4). Prior to removal of a cut, the applicable sample result will be reviewed to determine the classification of the soil within each 10 ft by 10 ft grid square (area of inference around each sample point) with respect to reuse or disposal. If the soil PCB concentration is ≤ 10 mg/kg, the excavated soil will be stockpiled next to the excavation as close as practicable for later reuse as backfill on the same project; no liner is required for stockpiling of this soil. If the PCB concentration is > 10 mg/kg, the soil will be temporarily stockpiled onsite on a liner for containerization and offsite shipping at the project's conclusion (Section 7). The liner material will be a minimum 10-mil (0.01 inch) polyethylene material (or similar). Soil with PCBs > 10 but < 50 mg/kg will be segregated from soil with PCBs ≥ 50 mg/kg. As an alternative to stockpiling, soil known to have PCB > 10 mg/kg may be containerized directly into a shipping container(s).

The laboratory analysis may be expedited (rushed) (Section 5.3) to reduce the time between sampling and receipt of analytical results. If the next cut is made prior to receipt of analytical results, the soil from each 10 ft by 10 ft sample grid square (area on inference) will be stockpiled within the exclusion zone as close to the excavation as practical on a liner, until analytical results are received to determine the "as-found" concentration and whether it is acceptable for reuse.

Stockpiles of soil with PCB concentrations > 10 mg/kg or unknown concentrations will be managed to prevent runoff and dispersion of soil. Soil stockpiled for an extended time period (e.g., > 7 days) will typically be covered with a 6-mil polyethylene liner (or similar).

Upon completion of the excavation and associated construction or maintenance tasks, the excavation will be backfilled. The backfill material will consist of either soil with PCBs ≤ 10 mg/kg previously removed during the project or imported clean, certified weed-free fill. To the extent practicable, the soil that was temporarily stockpiled will be placed back in the same approximate location where it was removed. If the soil is stockpiled alongside the excavation, the surface soils (first cut) should be towards the bottom of the pile and the deeper soil toward the top, so when backfilled the soil should be returned to its same approximate depth as well. The type of material (fill) placed back in the excavation will be recorded and documented in the project report (Section 8) based on three classifications: 1) imported clean, certified weed-free fill, 2) reused material with PCBs ≤ 1 mg/kg, or 3) reused material with PCBs > 1 to ≤ 10 mg/kg.

4.6 SURVEYING OF SAMPLING LOCATIONS AND EXCAVATION LIMITS

Mapping and surveying will be completed as necessary to document the location of sample points and excavation limits. This information will be used to produce site maps and report figures and will be of sufficient accuracy to allow sample points or excavation limits to be relocated during later projects if needed. Sub-foot accuracy of plus or minus (±) 0.5 ft (horizontal and vertical) is desired, particularly of the

final excavation limits and sample points that remain in place (are not excavated), to document the final site conditions following backfilling.

This Plan has no prescribed methods for completing the mapping and surveying objectives. However, the guidelines below are provided. Actual methods will vary with the site conditions and specifics of the given project.

- The National Geodetic Survey (NGS) Data Explorer website (https://geodesy.noaa.gov/NGSDataExplorer/) does not indicate the presence of survey control points within the Swanson River Field. Thus, project survey control will be established with temporary benchmarks. To the extent practicable, these benchmarks will remain in place through the duration of this Plan use so they can be used on subsequent projects.
- Site-specific control points (temporary benchmarks) will act as reference locations for a project's sample grid. They should be established outside of the excavation area so they can be used to set up and maintain a 10 ft x 10 ft sample grid throughout the sampling, excavation and backfilling process.
- The control points should be surveyed with mapping or survey grade Global Navigation Satellite System (GNSS, commonly referred to as Global Positioning System, or GPS) instrumentation to obtain horizontal and vertical coordinates. If survey-grade data are being collected, coordinates for at least one of the control points will be obtained using the National Oceanic and Atmospheric Administration's Online Positioning User Service.
- Intermediate sample grid nodes based on the primary control points can either be located using the above instrumentation or measured (swing tied) using measuring tapes from the control points. The use of measuring tapes over a distance greater than 200 ft between control points is not recommended.
- While an excavation is active, the sample depths will typically be referenced from the adjacent ground surface elevation for intermediate excavation cuts and floor elevations.
- If practicable, final excavation limits should be surveyed using the above GPS instrumentation. Primary features that should be surveyed are the upper and lower edges (shoulder and toe) of the excavation.
- If the final excavation limits cannot be surveyed using GPS instrumentation, at a minimum, they should be documented by field sketch maps showing the excavation limits with respect to the sample grid squares, and excavation depths measured by tape measure to the adjacent ground surface.

Examples of surveying equipment would include a Trimble R12 survey-grade real-time kinematic GNSS or equivalent, or a mapping grade Trimble Geo7X, with post-processed survey data. There is not a requirement to have a licensed surveyor perform the surveying for purposes of this Plan.

Survey coordinates will be loaded into GIS software for the production of maps and figures. For documenting sample locations and results on an ongoing basis, it is recommended preliminary maps are developed as soon as the initial ground surface samples are collected.

4.7 EXCAVATION DEWATERING

As stated in Section 4.1, excavation below the water table with the potential to remove significant quantities of groundwater from an excavation is not anticipated on a routine basis and will be addressed in a project specific Plan addendum, when needed. However, water may accumulate in excavations from precipitation or the use of a water knife to remove soil. In addition, excavations terminated at the water table may have some incidental groundwater infiltration. In such circumstances, the water may be removed to facilitate further excavation or perform pipeline inspection and maintenance. The water will be removed using a vacuum truck or pumping system and containerized (segregated) on an excavation-by-excavation basis. The water from each excavation will be sampled and analyzed for PCBs to determine the appropriate disposal methods (Section 7.2). The water may be treated by filtration to remove particulates prior to analysis.

5. SOIL MANAGEMENT AND LABORATORY ANALYSIS

This section describes analytical methods that will be employed for sampling of soil media.

5.1 SAMPLE HANDLING AND CUSTODY

Industry-standard sample handling and chain-of-custody (COC) procedures will be followed to preserve sample integrity. There is no specified holding time for PCB analysis by USEPA, Method SW846, Chapter Four, Update VI (USEPA, 2018). All samples will be shipped to the laboratory in a timely manner based on project data needs. Prior to shipping, samples will be kept in a secured area under the control of the sampler and/or signed custody seal.

Samples will be labeled immediately following collection, and COC documentation will be completed by the field sampler(s) for each sample prior to the transfer of the samples to the laboratory. Information on the sample container labels will be reviewed to verify the information is consistent with information on the COC form. The COC form will be sealed in the sample cooler during transport to the laboratory. Each cooler will be sealed with two signed custody seals for shipment.

Before leaving the Site, samples will be packaged according to the following procedures:

- Samples will be packed in hard plastic ice chests or coolers.
- Samples will be labeled and documented as described above. Field personnel will verify that all sample jar lids and bag closures are tightly sealed. Sample containers will be placed in laboratory-provided cardboard sample jar boxes intended for the specific sample containers or large Ziploc® bags and wrapped in bubble wrap. All samples will be placed upright in the cooler.
- Additional packing material will be placed around the containers to prevent breakage.
- A COC form will accompany each shipment, placed in a Ziploc® bag inside the lid of the cooler.
- The cooler will be secured with strapping tape, or equivalent, at a minimum of two locations, without obscuring any labels.
- The completed shipping label will be affixed to the top of the cooler.
- Custody seals will be affixed over both strapping tape locations.
- Coolers will not exceed 50 pounds.

5.2 QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance and quality control procedures for this project include collection of field duplicate samples and completion of a Laboratory Data Quality Assurance Review (QAR).

Field duplicates will be collected at a frequency of 10 percent of the total number of samples for each analyte and matrix collected during the sampling event. To ensure laboratory blindness, duplicates will be given false sample names on the label and COC. Duplicate sample names will follow the same convention

as primary sample names. Typically, a "9" will be added to the sample ID (e.g., the duplicate of S01 could be S91). Duplicate sample identification will be documented in the field logbook in connection with the primary sample identification.

Typically, matrix spike/matrix spike duplicate (MS/MSD) samples will not be specifically collected and submitted for analysis. MS/MSD analysis are performed by the laboratory at required rates of 5 percent and will be used to evaluate matrix interference. Typically, samples will be submitted in batches of close to 20 or more samples so the laboratory MS/MSD will likely be run on the project samples. If this is not the case and there is concern about matrix interference, additional sample volume may be collected and the lab can be specifically requested to run MS/MSD analysis on the project samples.

An ADEC Laboratory Data Review Checklist will be completed for each analytical report in accordance with ADEC data quality guidance (ADEC, 2022). The checklists will be included as attachments to the QAR, which will be submitted as part of the final report.

5.3 LABORATORY ANALYSIS AND DATA REPORTING

The soil samples collected will be submitted to an analytical laboratory with current American Association for Laboratory Accreditation (A2LA) approval for analysis of PCBs by USEPA Method SW8082A. Samples will be extracted using Method SW3550C with methylene chloride as the extraction solvent. An acid-wash cleanup using Method SW3665A will be performed as needed. Soil samples will typically be planned for analysis on a rush, three-day turnaround time (TAT). However, alternative TATs may be requested depending on data needs and laboratory capacity.

Table 1. Sample Containers, Preservatives, and Hold Times for PCB Soil Sampling

Analyte	Analytical Method	Container	Preservative	Maximum Holding Time
PCBs	SW8082A	One 4-ounce amber glass jar, Teflon-lined cap	4 ± 2 °C	None, 40 days to analysis after extraction

A laboratory report is required for each sample delivery group. A level II data package will be requested for all samples. The data quality objectives will include achieving a limit of detection (LOD) of ≤ 1 mg/kg for the seven PCB Aroclors listed in Method SW8082A (Section 1.1). The laboratory reports will include QA/QC results and will meet the requirements of the ADEC Technical Memorandum, Guidelines for Data Reporting (ADEC, 2022). In addition, an electronic data deliverable (EDD) compatible with Microsoft Access and Excel is required.

All reported data shall reflect dilutions and/or concentrations. Dilution factors shall be noted in the analytical report and reflected in the reporting limits. Raw data will be maintained by the laboratory for at least ten years after the analysis date.

5.4 SAMPLE DOCUMENTATION

5.4.1 SAMPLE NOMENCLATURE

Sample grid axis will be labeled numerically in one direction (1, 2, 3, etc.) and alphabetically (A, B, C, etc.) in the other. Grid nodes will be identified accordingly (A1, B1, C1, etc.).

The standard sample identification (ID) numbers will follow the naming convention "A1-1," with A1 denoting the grid node, and the last number(s) after the hyphen identifying the approximate depth in feet the sample was taken below the ground surface. The ground surface will be referenced to the original ground surface prior to the start of projects excavation. Deviations from this standard nomenclature are acceptable so long as they are documented. For example, an area ID may be added prior to the grid node (NWQ-A1-1). Duplicate samples will be identified as discussed in Section 5.2.

5.4.2 FIELD LOGS AND FORMS

A field logbook and field sampling forms will be maintained daily to document field activities, including the collection of samples. The field logbook will be bound, with consecutively numbered pages, and field notes will be entered in indelible ink. If any changes are made to the field record, the original notation will be crossed out with a single line and initialed and dated by the person making the correction. At a minimum, the field logbook and/or field sampling forms will contain the following information:

- Date and time that work commenced;
- Name and location of site;
- Dates and times of sample collection or event;
- Name(s) of sampling field personnel;
- Field observations such as weather conditions or issues that may affect sample results;
- Number and type of samples collected and sample ID numbers;
- Sample location names;
- Explanations of any deviations from this Plan, with rationale for deviation; and
- Problems encountered and their resolution.

In addition to field notes, photographs will be used to document site conditions.

6. DECONTAMINATION

Decontamination protects workers, the public, and the environment by limiting exposure to harmful substances and by preventing the spread of contamination. The following subsections describe personnel, equipment, and vehicle decontamination. Waste generated as a result of decontamination will be managed in accordance with the waste management plan (Section 7).

6.1 EQUIPMENT AND VEHICLES

To minimize vehicle decontamination, and potential spreading of contaminated media, an exclusion zone will be established and managed around the active project area as described in Section 4.3. Non-authorized personnel and vehicles will be excluded from this zone.

Project vehicles and/or heavy equipment needed within the exclusion zone will minimize crossing the zone boundary, remaining within the zone to the extent practicable until project work is completed. This practice will also apply to small hand tools such shovels. Equipment and personnel exiting the exclusion zone will follow appropriate decontamination procedures outlined in this section. However, decontamination for PCBs can be omitted if the associated project's soil sample results confirm that the soil excavated contained PCBs ≤ 1 mg/kg (or this has been established for the project area to the total planned excavation depth through previous sampling under this Plan).

When equipment leaves the exclusion zone, the equipment will undergo a multi-step decontamination process. Equipment will first be scraped or dry-brushed as necessary to remove any gross contamination (i.e., soil or other foreign matter that may be contaminated with PCBs). The equipment will be scrubbed and washed with a solution of water and industrial strength detergent, and then rinsed with clean water. Alternatively, if the equipment appears visibly clean, it will be wiped with damp disposable wipes or pads containing a water and cleaning solution and allowed to air dry. Citrus-based cleaning products (degreaser) such as Simple Green® can also be used. The decontamination will be performed in a lined area or container such that the decontamination fluids and removed residue are retained for disposal.

After this initial decontamination, the equipment will be visually inspected to verify the surface is free from visible soil or other foreign matter that may be contaminated. If not free of such matter, the decontamination process, will be repeated as needed until that criterion is met.

If the equipment is being released from the project and will leave the Facility Site boundary (Figure 3) a final decontamination step will occur following §761.79(c)(2) (self-implementing decontamination procedures), which are decontamination procedures and criteria for unrestricted use of movable equipment with non-porous surfaces (e.g., metal). This final step will consist of swabbing the equipment surfaces using a cleaning product consisting of either terpene hydrocarbons or a mixture of terpene hydrocarbons and terpene alcohols (e.g., Zep® Parts Washer Solvent with Citrus or UniClean America D-LIMOENE Citrus Solvent). The swabbing will be completed over 100 percent of the surface being decontaminated using a disposal scrub pad (or similar) containing the terpene solvent. Only portions of the equipment that have been in contact with potentially contaminated soil require decontamination (e.g., excavator bucket). The final decontamination and inspection process verifying that a given piece of

equipment has been decontaminated and is acceptable for unrestricted use will be documented in field notes or field forms (checklists) and with photographs.

Most sampling equipment will be used once, not decontaminated, and disposed of as potentially PCB contaminated waste (Section 7). While onsite, reusable field sampling equipment will be decontaminated prior to use by thorough brushing to remove solids, a wash with an Alconox®/potable water solution, and rinsing with potable water, followed by a distilled water rinse. When the sampling is complete, a final decontamination will be performed by swabbing with a terpene solvent, as described above, for general equipment leaving the Site for unrestricted use. However, the terpene solvent decontamination can be omitted if the sampling equipment is dedicated sampling equipment (i.e., not tooling for general unrestricted use), and will remain either onsite in a labeled container or in the custody of the company performing the sampling for other sampling applications.

All decontamination residue (e.g., soil), used wash solutions, pads, and wipes will be containerized and disposed of as described in Section 7.2.

6.2 PERSONNEL

All personnel exiting the exclusion zone where PCB contaminated soil may be present will follow appropriate decontamination procedures if they have been in contact with excavated project materials. These decontamination procedures are as follows:

- Wipe gross contamination from clothes and equipment.
- Scrub boots and gloves in decontamination solution or detergent water, if necessary, to remove any visible residue (e.g., soil).
- Step across to the next station and remove coveralls and gloves, if necessary. Deposit in container with plastic liner. Remove coveralls (if applicable) after gloves.
- Remove respirator (if applicable), avoiding touching face with fingers.
- Wash hands and face thoroughly.

If disposable personal protective equipment (PPE) is used, such as gloves, Tyveks, or booties, the disposable items will be removed and containerized for disposal prior to leaving the exclusion zone.

7. WASTE MANAGEMENT

This section describes waste management practices that will be employed to track, manifest, and dispose of waste generated by soil excavation activities applicable to this Plan and known or suspected to contain PCBs above 1 mg/kg based on generator knowledge or sampling. This section also defines project roles and responsibilities in terms of waste generation, management, and disposal.

7.1 SOIL CLEANUP WASTE

The soil cleanup waste will be classified for disposal purposes as PCB bulk remediation waste, as defined in § 761.3, and sent offsite for disposal to a permitted TSDF to accept the waste following § 761.61(a)(5). The soil that is sent offsite will be classified and disposed of based on the applicable sample results ("as found" concentration) using the sampling methods described in Section 4.4 of this Plan. If the PCB concentrations are > 1 and < 50 mg/kg, the PCB remediation waste soil will be sent to a permitted Resource Conservation and Recovery Act (RCRA) subtitle D (non-hazardous waste) landfill in the Lower 48 states. If the PCB concentrations are ≥ 50 mg/kg, the waste will be sent to a permitted RCRA subtitle C (hazardous waste) landfill or permitted TSCA treatment or disposal facility in the Lower 48 states. In the event the PCB remediation waste is not characterized following methods consistent with this Plan, or § 761.61(a), the waste will be assumed to contain PCB ≥ 50 mg/kg and will be disposed of accordingly following § 761.61(b) (self-Implementing cleanup), which requires disposal at a TSCA-permitted PCB treatment or disposal facility.

The soil will be placed in a container (e.g., supersacks and bulk shipping containers) acceptable for transporting the waste per USDOT requirements.

7.2 OTHER PROJECT GENERATED WASTE, INCLUDING DECONTAMINATION AND INVESTIGATIVE-DERIVED WASTE

Used PPE, sorbent pads and scrub pads used for decontamination, filter media, and disposable sampling equipment (e.g., spoons, mixing bowls, etc.) will be classified as containing PCBs ≤ 1 mg/kg, < 50 mg/kg or ≥ 50 mg/kg based on the soil it has been in contact with and the highest associated sample results, and disposed accordingly. If kept segregated by excavation or cut this determination will be made on an excavation-by excavation or cut basis. This waste steam will be disposed of in the same containers as the PCB impacted soils or in separate containers. Conservatively, until laboratory results are available it will be assumed this waste stream contains PCBs > 50 mg/kg. Typically, it is anticipated that soil with PCB ≥ 50 mg/kg will not be encountered based on the prior 1987-1990 cleanup results and this waste stream will ultimately be classified as containing PCBs < 50 mg/kg for disposal purposes.

Sampling equipment will be single use and disposable when practical. Some sampling equipment that comes in contact with potentially contaminated media will be decontaminated for reuse (Section 6.1). When equipment is decontaminated for reuse between sample points within an excavation area using a water and/or Alconox® solution, the wash fluids may be disposed on the ground surface where the sample was collected prior to excavating the soil.

For disposal purposes, used decontamination fluids (e.g., water, soap or terpene solvents) generated at the end of the project by equipment decontamination will be containerized and assumed to contain PCBs at the same concentration as the soil the equipment was in contact during soil handling or sampling, or alternatively it will be sampled to determine the concentration of PCBs in the fluids. The fluids may be mixed with the PCB remediation waste (soils) in containers for offsite disposal, so long as the liquid volume is sufficiently low it will be absorbed. If soil sample results demonstrate that PCB concentrations in the soils that contacted the equipment were < 10 mg/kg, water and soap solutions generated during decontamination may be discharged over the respective excavation area(s) that generated the fluids.

Water which is removed from excavations (Section 4.7) will be containerized and sampled for analysis of PCBs by method SW8082A. The water will not be discharged onsite regardless of the PCB results. The water will be used or discharged (disposed) in accordance with standards in §761.79 (b)(1) if the PCB concentrations are within the applicable standards. Under those standards, water may be used without restrictions if PCBs are ≤ 0.5 (µg/L). Water containing PCBs < 3 µg/L may be discharged to a treatment works as defined in §503.9(aa). If the PCB concentrations are ≤ 0.5 µg/L the water will typically be disposed of at the Hilcorp Kenai Gas Field Grind and Inject (KGFG&I) Facility (USEPA Underground Control Class I permit AK-110018-A). If disposal at a G&I facility or treatment works in Alaska is not an option, the water will be disposed at a TSDF permitted to receive the liquid waste.

7.3 OFFSITE SHIPPING APPROVAL AND MANIFESTING

Prior to transporting PCB remediation waste offsite, an ADEC *Contaminated Media Transport and Treatment or Disposal Form* will be submitted to ADEC for approval. In addition, a manifest will be completed and signed by a Site Operator representative (generator). A copy of the manifest containing the initial transporter signature and acceptance date will be retained by the generator until a signed copy is received from the designated disposal facility that received the PCB waste. The final signed copies of the manifest from the disposal facility will be retained by the Site Operator onsite or alternative designated location for a minimum of three years from the date of the shipment. Manifests and any associated certificate(s) of disposal will be made available for agency inspection.

8. REPORTING

Following the completion of each applicable project, a report will be prepared documenting, at a minimum, the following:

- Excavation areas (surface area and depth);
- Backfill material used (reused material, imported clean fill, and corresponding PCB concentrations) and associated locations and depths;
- The quantity of soil sent offsite and the associated TSDF(s);
- Associated analytical results, with data tables and laboratory data package; and
- Figure(s) showing excavation limits, sample locations, and backfill material type and location, and any unexcavated project sample location results reflecting final site conditions when the project was completed.

The report will also include a data QAR following the ADEC Technical Memorandum, *Guidelines for Data Reporting* (ADEC, 2022). The Project Soil Management Report will be submitted to the USEPA with courtesy copies to USFWS, BLM and ADEC. The Waste disposal manifests and certificate(s) of waste disposal will be provided with the report if available at the time of reporting. Otherwise, they will be provided to agencies upon request when available. If multiple projects are completed in one field season, the associated data may be compiled and submitted a single annual report. All applicable activities and sample results for a given calendar year must be reported by April 15 of the following calendar year.

8.1 LONG-TERM DATA RETENTION AND USE

For long-term Site management purposes, the sampling data will be compiled into a Facility-wide GIS-supported database or similar. If a subsequent project overlaps an area where the soils were previously characterized under this Plan, sampling will not be required on the subsequent project in areas previously characterized, including backfilled material. For example, a pipeline route previously excavated and backfilled would not need additional soil characterization if it is excavated again within the prior excavation footprint. However, the soil would still need to be managed for reuse or disposal following the requirements of this Plan. In addition, the subsequent project must produce a report documenting the final site conditions with respect to areas excavated and backfill material used.

In addition, it is Hilcorp's intent and understanding of this Plan that the Site characterization data produced during projects conducted in accordance with this Plan will be acceptable to the USEPA and associated agencies for making final cleanup planning decisions when the Facility is decommissioned.

9. REFERENCES

AECOM. 2019. *2018 Compressor Plant 10 and Soldotna Creek Unit 14-3 Polychlorinated Biphenyl Groundwater Monitoring Report, Swanson River Field, Sterling, Alaska.* January.

Alaska Department of Environmental Conservation (ADEC). 2022. *Guidelines for Data Reporting*. August.

---------. 2023. *Title 18, Alaska Administrative Code, Chapter 75 (18 AAC 75); Oil and Hazardous Substances Pollution Control*, as amended through October 18.

Brice Engineering, LLC (Brice). 2021. *2021 Groundwater Monitoring Program Work Plan, Kenai Peninsula Sites, Alaska.* June.

Ecology and Environment, Inc. (E&E). 1986a. *Mitigation and Restoration Plan for PCBs at the Swanson River Field*. June.

---------. 1986b. *Risk Assessment for Residual PCBs in the Swanson River*. Prepared for Chevron USA, Inc. April.

---------. 1986c. *Addendum to Risk Assessment for Residual PCBs in the Swanson River Field.* Prepared for Chevron USA, Inc. July.

---------. 1989a. *1988 PCB Remediation Documentation Report, Swanson River Oil Field, Kenai Peninsula, Alaska*. May.

---------. 1989b. *1989 Swanson River Field Excavation Report*. Memorandum from G.L. Upson, E&E to J.A. Ives, Arco Alaska Inc. February 3.

---------. 1990. *1989 PCB Remediation Documentation Report*, *Swanson River Oil Field, Kenai Peninsula, Alaska*. March.

---------. 1991. *1990 PCB Remediation Documentation Report*, *Swanson River Oil Field, Kenai Peninsula, Alaska*. January.

OilRisk Consultants (OilRisk). 2006. *Compressor Plant PCB Monitoring, Swanson River Field.* December.

Rieger, S and T.H. Day. 1962. *Soil Survey of Kenai-Kasilof Area*. U.S. Department of Agriculture, Soil conservation Service.

Stantec. 2022. *Chevron Swanson River Plant 10 PCB Monitoring Report for 2022.* October.

United States Fish and Wildlife Service (USFWS). 1985. *Cleanup Order by Consent, Mitigation Plan – Swanson River Oil Field, Kenai National Wildlife Refuge*. August.

---------. 1991. *Addendum to Amendment Number Five to The Order By Consent Mitigation Plan – Swanson River Oil Field, Kenai National Wildlife Refuge.* March.

---------. 2001. *Kenai National Wildlife Refuge Contaminant Assessment*. January.

LIMITATIONS

The services described in this work product (plan) were performed in accordance with generally accepted professional consulting principles and practices. No other representations or warranties, expressed or implied, are made. These services were performed consistent with our agreement with our client. This work product is intended solely for the use and information of our client unless otherwise noted. Any reliance on this work product by a third party is at such party's sole risk.

The subject plan is based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work product.

The subject plan is based on professional opinions and findings of a scientific and technical nature. The work product shall not be construed to offer legal opinion or representations as to the requirements of, nor the compliance with, environmental laws, rules, regulations, or policies of federal, state or local governmental agencies.

APPENDIX B

SWANSON RIVER FACILITY 1987-1990 PCB REMEDIATION AREAS (GENERALIZED)

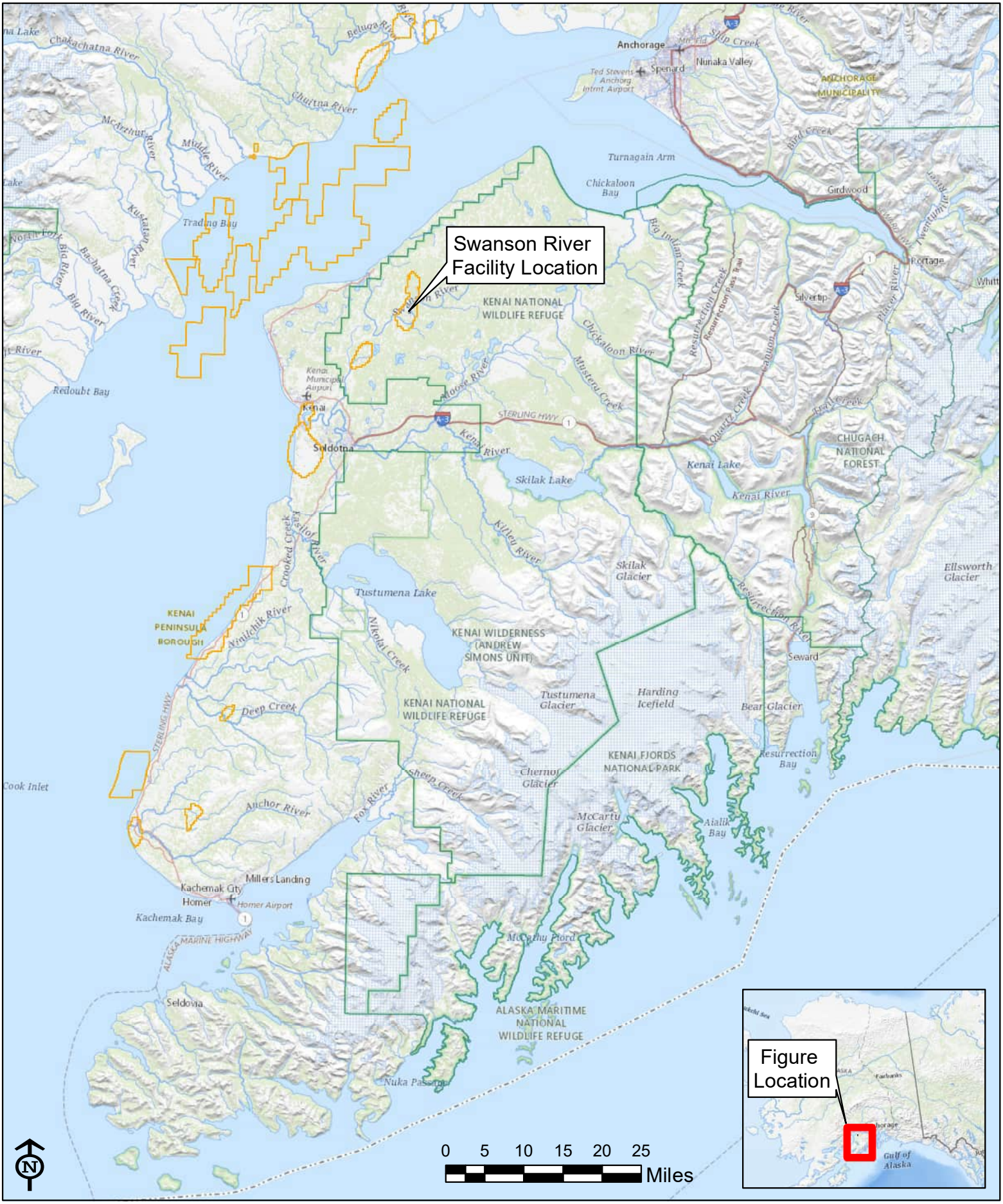
SWANSON RIVER FACILITY, SOIL MANAGEMENT PLAN FOR PCBS

Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

November

FIGURES

Figure 1	General Site Location Map
Figure 2	Site Vicinity Map
Figure 3	Swanson River Facility PCB Soil Management Plan Boundary
Figure 4	Schematic of PCB Soil Sampling Grid
Figure 5	Schematic of Pipeline Integrity Dig Excavation and Associated Soil Sampling



Legend

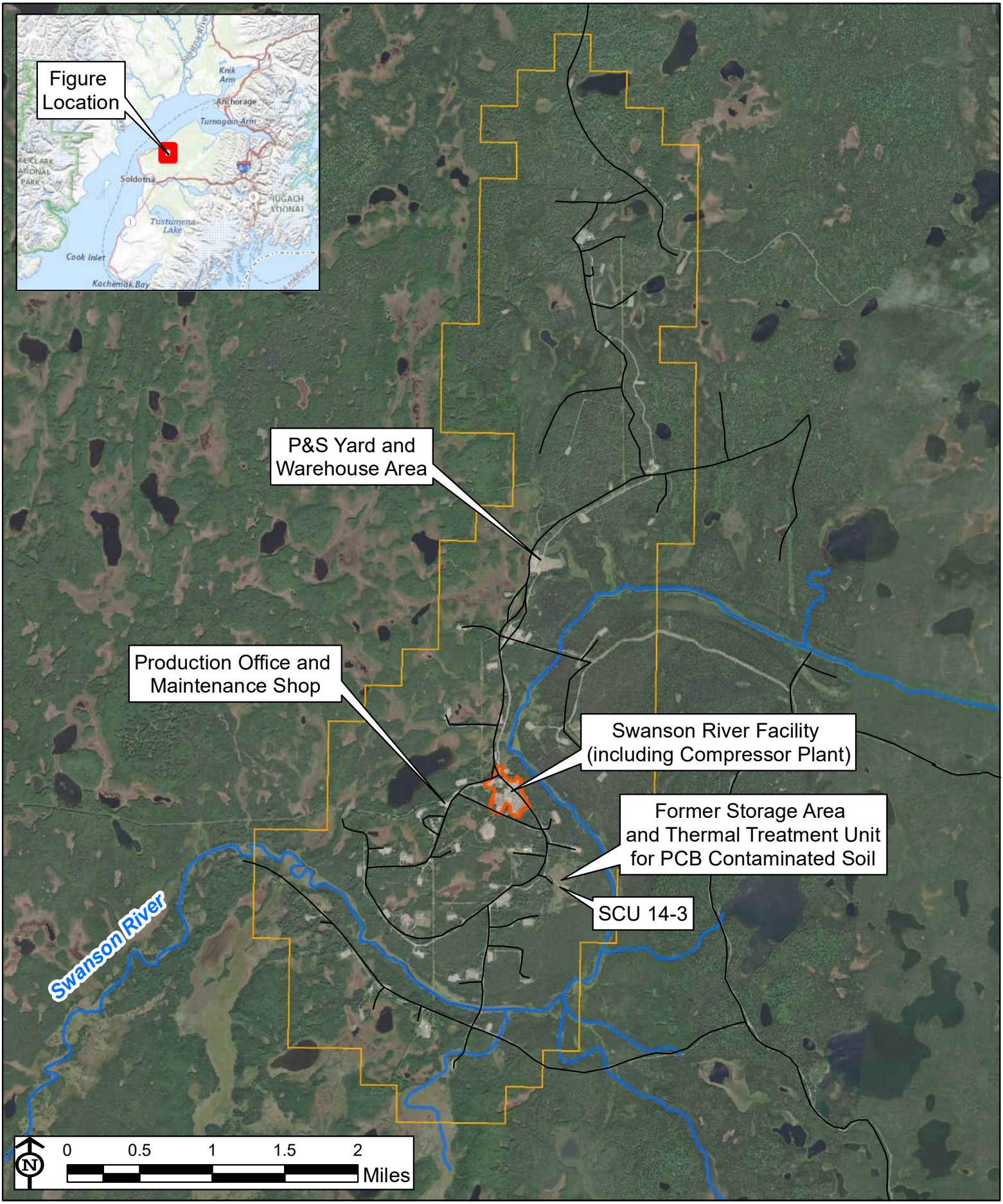
- Oil and Gas Unit Boundary
- Conservation Area Boundary

Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Figure 1
General Site Location



Legend

- Roads
- Swanson River Oil and Gas Unit Boundary
- SRF PCB Soil Management Plan Boundary

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Figure Prepared by SLR June, 2023

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Figure 2
Site Location and Vicinity

Notes:
1) During the 1987-1990 remedial actions per the Order By Consent (OBC) a PCB cleanup level of 12 mg/kg was reportedly achieved at all areas shown on this figure based on release (confirmation) sample results, with the exception of the "Pipeway Area" north of the Compressor Plant where a 24 mg/kg cleanup level was achieved (E&E 1990).

Legend

- SRF PCB Soil Management Plan Boundary (35.2 acres)
- OBC PCB 24 mg/kg Cleanup Area [1]
- Underground Pipelines

Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023

Background Imagery 2021, QSI

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Figure 3
PCB Soil Management Plan Boundary

Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023

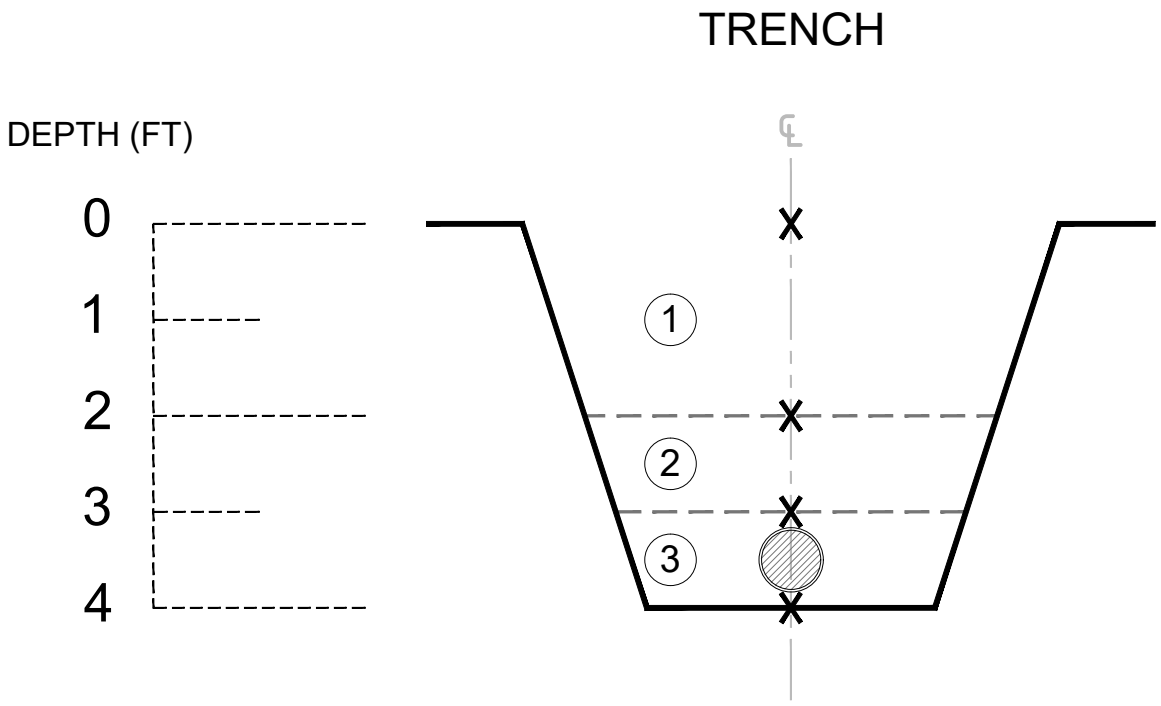
Background Imagery 2021, QSI

Legend

- SRF PCB Soil Management Plan Boundary
- Example 10x10ft sample grid [1]
- Underground Pipelines

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Figure 4
Schematic of PCB Soil Sampling Grid (10 ft x 10 ft)



Legend

X SAMPLE LOCATION

2 CUT

BOTTOM OF CUT

PIPELINE

SCALE: 1" = 2'
WHEN PLOTTED AT 8.5 x 11 PAGE SIZE

0 2' 4' 6'

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

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Figure Prepared by SLR June, 2023

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Figure 5

Schematic of Pipeline Integrity Dig Excavation and Associated Sampling

APPENDIX A

ADDITIONAL PHOTOGRAPHS

SWANSON RIVER FACILITY, SOIL MANAGEMENT PLAN FOR PCBS

Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

November 2023

Photo 1: Photo from 1972 showing Plant 10. (View From East)

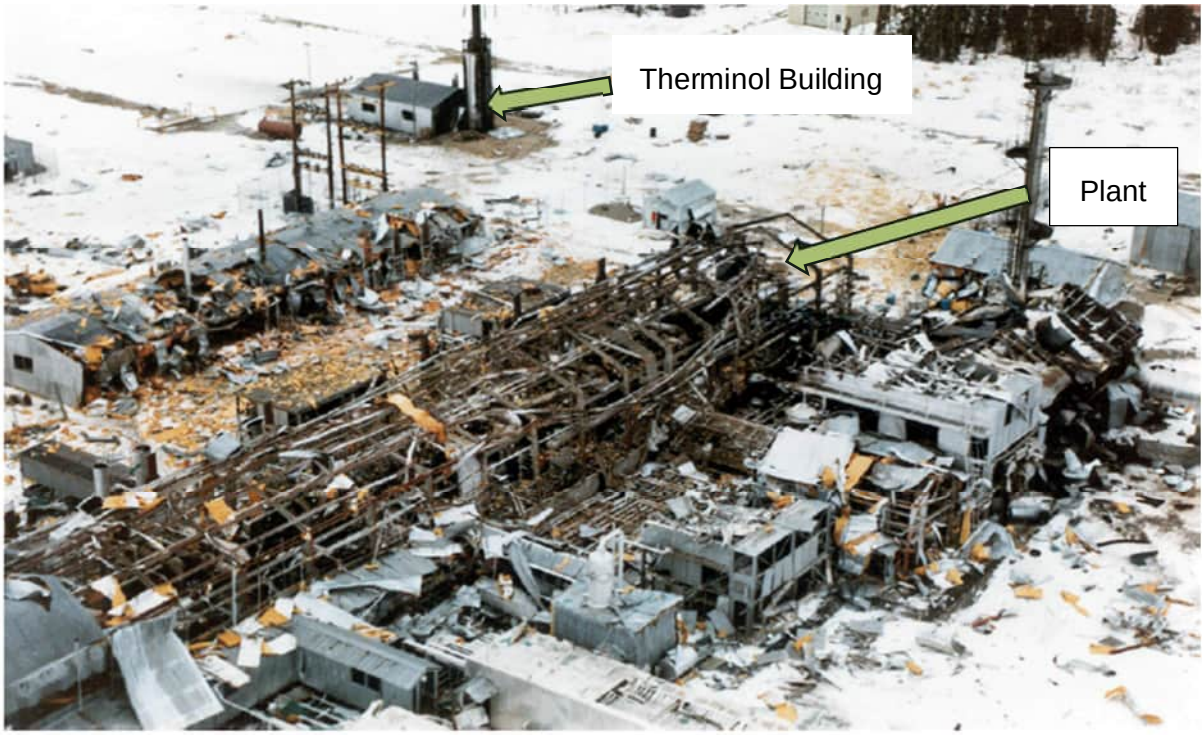

Photo 2: Photo from 2022 showing rebuilt Plant 10. (View From Southwest)

Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Appendix A-1

1972 and 2022 Oblique Photos

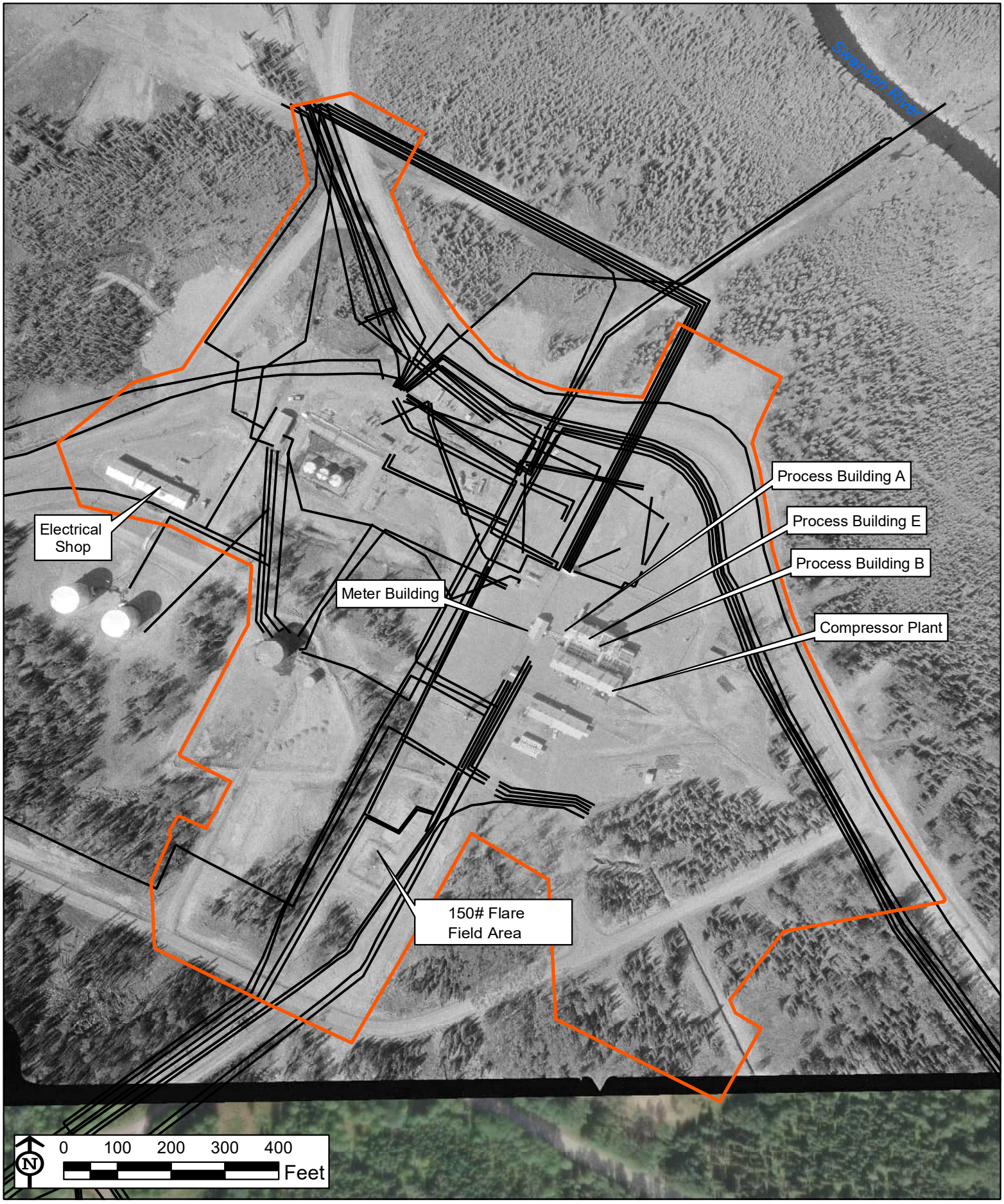

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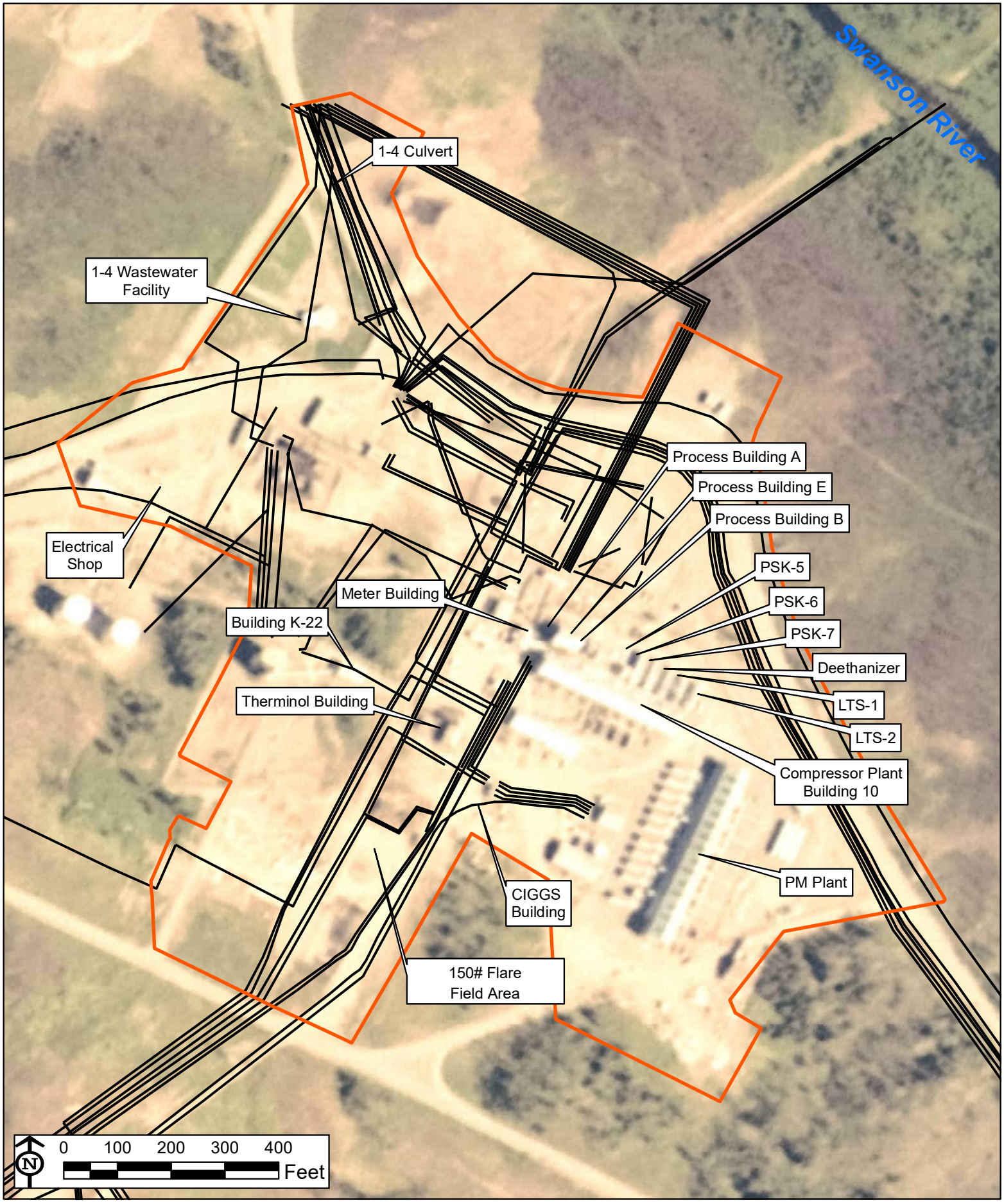
Figure Prepared by SLR June, 2023

Legend

- Underground Pipelines
- SRF PCB Soil Management Plan Boundary (35.2 acres)

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Appendix A-2
1962 USGS Historical Aerial Photograph with Soil Management Plan Boundary



Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023

Legend

Underground Pipelines

SRF PCB Soil Management Plan Boundary (35.2 acres)

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Appendix A-3

1972 USGS Historical Aerial Photograph with Soil Management Plan Boundary

APPENDIX B

SWANSON RIVER FACILITY 1987-1990 PCB REMEDIATION AREAS (GENERALIZED)

SWANSON RIVER FACILITY, SOIL MANAGEMENT PLAN FOR PCBS

Hilcorp Alaska, LLC
3800 Centerpoint Drive, Suite 1400
Anchorage, AK 99503

November

Notes
1) General areas where PCB contaminated soil was excavated during the 1987-1990 remedial actions per Order By Consent (OBC) are identified with call out arrows.
2) During the OBC remedial actions a PCB cleanup level of 12 mg/kg was reportedly achieved at all areas shown based on release (confirmation) sample results, with exception the "Pipeway Area" north of the Compressor Plant the cleanup level where a 24 mg/kg cleanup level was achieved.
3) References

Ecology and Environment . 1989. 1988 PCB Remediation Documentation Report, Swanson River Oil Field, Kenai Peninsula, Alaska. May.
---------. 1990. 1989 PCB Remediation Documentation Report, Swanson River Oil Field, Kenai Peninsula, Alaska. March.
---------. 1991. 1990 PCB Remediation Documentation Report, Swanson River Oil Field, Kenai Peninsula, Alaska. January.

Legend

- SRF PCB Soil Management Plan Boundary (35.2 acres)
- OBC PCB 24 mg/kg Cleanup Area[2]
- Underground Pipelines

Hilcorp Alaska, LLC

Figure Prepared by SLR June, 2023
Background Imagery 2021, QSI

PCB Contaminated Soil Management Plan for Site Operations, Swanson River Facility

Appendix B-1
1988-1990 PCB Remediation Areas (Generalized)[1]