STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
KIMBERLY-CLARK WORLDWIDE, INC., a Delaware Corporation.	No. DE 9476

TO: KIMBERLY-CLARK WORLDWIDE, INC.
Attention: Howard Sharfstein, Senior Counsel
Global Sustainability
1400 Holcomb Bridge Road
Roswell, Georgia 30076-2190

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I. INTRODUCTION

A. The mutual objective of the State of Washington, Department of Ecology (Ecology) and Kimberly-Clark Worldwide, Inc. (K-C) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. Ecology and K-C have worked in cooperation to agree to this Order. This Order requires K-C to conduct a Remedial Investigation and Feasibility Study (RI/FS) per WAC 173-340-350. This Order also requires K-C to develop a draft Cleanup Action Plan per WAC 173-340-350 through 173-340-380, addressing upland contamination at the Site. Ecology believes the actions required by this Order are in the public interest.

B. This Order shall not be construed as proof of liability or responsibility for any releases of hazardous substances or cost for remedial action nor an admission of any facts.

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. K-C agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter K-C's responsibility under this Order. K-C shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the Kimberly-Clark Worldwide Site and is located at 2600 Federal Avenue, Everett, Washington. The Site is generally located adjacent to East

Waterway on the west side of West Marine View Drive between Everett Avenue and 21st Street. K-C is an owner of the upland portion of the Site (about 56 acres), which includes approximately 12 acres of adjacent tidelands. The Site will be defined by the extent of contamination caused by the release of hazardous substances at the Site and is not limited by property boundaries. The Site includes areas where hazardous substances have been deposited, stored, disposed of, placed, or otherwise come to be located in the upland and in-water areas. The Site is more particularly described in the **Exhibit A** to the Order, which includes site and tax parcel maps (**Exhibit A**, Figures 1 to 12), a site location description, and property information from the Snohomish County Assessor's Office. Based on the results of previous investigations, the Site includes both upland and in-water areas as defined below. The Site constitutes a Facility under RCW 70.105D.020(5).

B. Parties: Refers to the State of Washington, Department of Ecology and Kimberly-Clark Worldwide, Inc.

C. Potentially Liable Person (PLP): Refers to Kimberly-Clark Worldwide, Inc.

D. Agreed Order or Order: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

E. Upland Area: Refers to areas of the Site that fall outside the In-Water Area, as generally depicted in **Exhibit A**, Figure 10.

F. In-Water Area: Refers to the intertidal (areas exposed to air at low tide) and subtidal (areas always covered by water) parts of the Site with marine waters (includes adjacent marine waters, as generally depicted in **Exhibit A**, Figures 10 and 11). To the extent that hazardous substances have come to be located, are known to be located, or are subsequently discovered in the In-Water Area, the Parties agree that such contamination will be addressed under a separate agreed order.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by K-C:

A. The Site is generally located between Everett Avenue and 21th Street on Federal Avenue, Everett, Snohomish County, Washington. The Site location is depicted in the diagrams attached to this Agreed Order as **Exhibit A**, Figure 1. The facility is depicted in **Exhibit A**, Figures 2 and 10. **Exhibit A** also contains a legal description of the property. The Facility Site ID No. is 9 and the Cleanup Site ID No. is 2569.

B. The area comprising the K-C Site was first developed in the late 1800s/early 1900s. Sanborn maps published in 1902 and 1914 show that the current K-C Site (between Everett Avenue and 21st Street) was occupied by the Clark-Nickerson Lumber Company (planing and saw mill) and the Everett Flour Mill Company. A brief Site history is provided below.

- Puget Sound Pulp and Timber Company formed in 1927, and in 1936 the Soundview Pulp Company assumed ownership. The sulfite pulp mill began operation in 1931 with five digesters and two pulp drying machines.
- Soundview Pulp Company merged with Scott Paper Company in 1951 and four Scott tissue machines were added to the facility from 1953 to 1955. The current distribution/warehouse facility located on the south end of the site was constructed in 1959.
- The facility contained a log pond that was used for temporary storage of logs that were rafted to the mill. **Exhibit A** Figures 3 – 6 show the log pond. The logs were chipped on-site. The log chipping equipment was removed and operations were discontinued at the mill in 1970. The log pond was filled in sometime between 1979 and 1981. In addition to the on-site chipping operations, K-C also barged wood chips to the mill for use in pulp and paper manufacturing during its operational history.
- A waste sedimentation facility with two primary clarifiers and an interceptor sewer system was installed in 1964 and put on-line in July 1965. **Exhibit A**, Figure 5. An industrial wastewater treatment plant was constructed in 1979 and put on-line in January 1980. **Exhibit A**, Figures 6 and 7.
- K-C and Scott Paper Company merged in 1995 and K-C was later registered as owner of the mill.

C. The sulfite mill produced approximately 500 tons per day of bleached sulfite pulp as reported in 1942. After 2007, the sustainable production capacity of the mill was estimated at 440 tons per day, with a maximum capacity of 450 tons. The sulfite pulping process involves cutting logs into wood chips which are then digested in a limestone and sulfur solution. The limestone and sulfur are treated to produce sulphurous acid, which was used in the cooking

process. According to Ecology's industrial section, the mill was converted to an ammonia-based sulfite process in 1974 and a recovery furnace was built.

D. In addition to the pulp and paper operations described above, bulk petroleum storage operations were conducted on the Site. These bulk petroleum storage operations included fuel storage facilities operated by Associated Oil Company (predecessor to Texaco) and Standard Oil (predecessor to Chevron). As early as 1930, Associated Oil Company and Standard Oil occupied the area underneath the K-C distribution/warehouse. Bulk petroleum storage operations associated with Associated Oil and/or Standard Oil are identified on aerial photographs from 1947 to 1992 as presented in **Exhibit A**, Figures 3 through 8. Two large above-ground storage tanks (ASTs), located northeast of Associated Oil's fuel farm and just south of the central maintenance shop appear on a 1976 aerial photograph presented in the 2010 ExxonMobil ADC Focused Feasibility Study Work Plan. According to K-C, these tanks contained spent sulfite liquor and can be seen on aerial photographs presented in **Exhibit A**, Figures 6 to 8. In about 1994-1995, the mill switched from Bunker C oil to diesel as fuel for the facility's Number 14 boiler. At that time, the eastern tank location was replaced with a 250,000-gallon diesel above ground storage tank (AST), which was smaller in diameter as compared to the former sulfite liquor tank. *See* **Exhibit A**, Figure 9. The western tank was used for storing spent sulfite liquor throughout its life. Another bulk petroleum storage facility operated just to the south of the distribution warehouse (outside of the K-C mill boundary) from 1927 to 1990. This was operated by ExxonMobil Corporation and its predecessors and by the American Distributing Company (ADC) (**Exhibit A**, Figures 3 through 8).

E. In the course of preparing the facility for sale, K-C retained AECOM, Inc. (AECOM) in 2010 to perform a Phase I Environmental Site Assessment (ESA) for the mill. The Phase I ESA report was published in April 2011. Some of the environmental releases that have occurred in the Upland Area as documented in the Phase I ESA and other investigations are summarized below.

- **Underground Storage Tank Removals** – Ten underground storage tanks (USTs) were operated on the K-C property at various times. In November 1989, eight USTs (Nos. 29, 67, 68, 69, 70, 71, 72, and 73) were removed from the property and Ecology

was notified of fuel releases from UST Nos. 29, 68, 70, 71, 72, and 73 in December 1989. Additional USTs were removed in 1995 (70R) and in 1999 (68R).

- **Naval Reserve Property** – K-C exchanged a K-C owned property located north of the current north end semi-truck parking area for a Navy owned parcel (Naval Reserve Center Property) located just south of the secondary clarifier and aeration basins with the Navy in the mid-1990's. Contaminated soil and groundwater was identified and the Navy conducted independent remedial actions prior to K-C acquiring the property in a land exchange.

- **Bleaching Tower area** – Petroleum-impacted soil was encountered during construction of a new bleaching tower in the late 1990s.

- **Polychlorinated biphenyl (PCB) Transformer** – PCB sampling at transformer stations 3/4 and 5/6 conducted in the 1990s exceeded EPA PCB clean up levels (10µg per 100 cubic centimeters) for concrete, and concrete removal was recommended by Safety-Kleen.

- **Former Paint Shop** – A Scott Paper Memorandum dated August 3, 1994, indicated that contamination described as paint thinner, gasoline or xylene was encountered during the excavation of a utility line in the area of a former Paint Shop.

- **Rail Car Dumper Containment Vault Valve** – A valve failure resulted in the release of two gallons of hydraulic fluid to the East Waterway in 1995.

- **ExxonMobil ADC Site** – In 2010, Ecology observed petroleum product and sheen on water weeping through cracks in the asphalt area adjacent to the south side of the distribution/warehouse building on K-C's property. Petroleum product contamination above soil and groundwater MTCA cleanup levels has been documented in this area. Soil exceedances have included benzene, polycyclic aromatic hydrocarbons (PAHs), and petroleum (diesel, oil, and gasoline range hydrocarbons). Groundwater exceedances have included diesel, oil, and gasoline range petroleum hydrocarbons. K-C is a PLP for the ExxonMobil ADC Site.

  In October 1995, free-phase petroleum liquid characterized as biodegraded heavy fuel oil fractions was observed to have seeped through the City of Everett's combined sewer overflow (CSO) line and into Port Gardner Bay. This CSO line runs adjacent to the K-C parking area located on the south end of the distribution/warehouse (**Exhibit A**, Figures 8 and 9). The section of CSO that was repaired, under a 1996 Agreed Order between Ecology, Mobil Oil, and ADC, was located on the K-C parking area in the vicinity of the current oil seeps. As part of the work conducted under the 1996 Agreed Order, approximately 23,000 gallons of petroleum were recovered within the vicinity of the CSO line by various interim remedial measures.

- **Former Oil House and Former Gasoline/Bunker C ASTs** – In approximately 1998 and again during 2012, oil range petroleum hydrocarbons were detected above the MTCA Method A groundwater cleanup level in the vicinity of the former oil house and former gasoline/Bunker C fuel oil AST farm. Former fuel tank farms located where the current distribution/warehouse is located are identified on aerial photographs presented in **Exhibit A**, Figures 3 through 8.

- **Heavy Duty Shop Sump** – Petroleum staining was visible around and in a catch basin located in the Heavy Duty Shop. Water and petroleum product was observed in the catch basin along with a sump pump. Staining was observed on the outside of the building below the former discharge point of the sump pump. This sump was

connected to the wastewater treatment plant in 2008. It's noted that a conveyance system could discharge to the East Waterway from the catch basin.

- **Railcar Dumper Hydraulic System Building (south side)** – In 2011, hydraulic fluids were observed on the interior floor and staining was observed on the interior walls, on a small area of the exterior south wall, and on the ground surface of the Rail Car Dumper hydraulic system building. These observations were made next to a small unpaved area on the south side of the building. K-C indicated that a pipe in the lower exterior south wall has been identified and plugged to assure the integrity of the secondary containment function of the building. This pipe could have historically discharged to the ground surface from inside the building.

- **Dutch Ovens 1 through 5** – In 2011, soils were excavated for the foundation for Sand Filter 1, which was constructed within a building in the area of the Dutch Ovens 1 through 5. Some of the excavated material was identified as potentially consisting of spent sulfite liquor. The soils were characterized for proper landfill disposal. Results of the profiling detected arsenic (35.4 mg/kg) and cadmium (5.21 mg/kg) above MTCA Method A soil cleanup levels and were found acceptable for landfill disposal.

- **Latex Spill Area** – In 2008, approximately 28,000 gallons of latex were released in an area at the K-C facility due to an undetected break in a railroad car off-loading line.

F. Until 1951, all waste water from the mill was discharged untreated to the In-Water Area at outfalls located adjacent to the facility. It was reported in 1949 that the K-C mill discharged approximately 45 million gallons of waste water daily into the In-Water Area. Waste water from the K-C mill, which was discharged through up to seven on-site sewers (*see* **Exhibit A**, Figure 5), largely consisted of concentrated sulfite waste liquor (SWL), waste bleach water, and pulp fiber wash water. In 1951, concentrated SWL from the mill was re-routed to a deepwater outfall (Outfall SW001) located south of the facility in the vicinity of the former Weyerhaeuser Mill A pulp and paper mill (*see* **Exhibit A**, Figure 11). Concentrated SWL from the Weyerhaeuser Mill A mill operation was also discharged through Outfall SW001 at this time. Outfall SW001 extended about 3,000 feet offshore; the terminal one-third was a multiple-port diffuser that discharged at depths of about 300 to 340 feet.

G. In July 1965, the mill put into operation waste sedimentation facilities (with two primary clarifiers) and an interceptor sewer system (*see* **Exhibit A**, Figure 5). Prior to implementation of this system in 1965, mill wastes were directly discharged untreated to the In-Water Area through seven sewers, or to deepwater Outfall SW001 as discussed above. An industrial wastewater treatment plant was constructed at the K-C mill in 1979 and put on-line in

January 1980 (**Exhibit A**, Figures 6 and 7). The plant included two secondary clarifiers and secondary aeration basins. At this time, treated mill waste water was discharged to the In-Water Area through two outfalls located adjacent to the facility (Outfalls 003 and 008) and via the deepwater outfall shared with Weyerhaeuser (Outfall SW001). Outfall 003 is identified on **Exhibit A**, Figure 5, and Outfall 008 is identified on **Exhibit A**, Figure 7.

H. In the early 2000s, K-C constructed deep water Outfall 100 to replace their 50-year old wood stave deep water Outfall SW001 which was in poor condition. Outfall 100 is located in the same general vicinity as former Outfall SW001 (*see* **Exhibit A**, Figure 11). Regional municipal wastewater from the Cities of Everett and Marysville is also discharged through Outfall 100. Under its current National Pollutant Discharge Elimination System (NPDES) permit, K-C is authorized to discharge treated process wastewater, storm water, and non-contact cooling water from deepwater Outfall 100. K-C is also authorized to discharge treated process wastewater, storm water, and non-contact cooling water from Outfalls 003 and 008 in emergencies and shutdowns.

I. Baseline sediment sampling and analysis proximate to Outfall 100 was conducted in 2004 under K-Cs NPDES Permit No. WA 000062-1. This sampling was performed to assess the quality of the surface sediments in the vicinity of Outfall 100 and to establish baseline conditions for any future NPDES or other sediment sampling related to Outfall 100. Eight sediment samples from Outfall 100 were analyzed for conventional parameters, 47 Sediment Management Standard (SMS) chemicals, dioxins/furans, resin acids, and guaiacols. The sediment sampling results showed no exceedances of any SMS criteria. No sampling has been conducted in the vicinity of Outfall 100 subsequent to initiating discharges.

J. The In-Water Area of the Site is located within the East Waterway. Environmental investigations conducted in the late 1930s to present have documented the presence of contamination within the East Waterway. Sampling investigations between 1982 and 2012 have documented the following contaminants in East Waterway marine sediments above published SMS criteria for Puget Sound Marine sediments (WAC chapter 173-204):

- **Metals** – arsenic, mercury, and zinc;

- **PAHs** – acenaphthene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorine, high molecular weight PAHs, low molecular weight PAHs, naphthalene, phenanthrene;
- **Semivolatile Organic Compounds** – 2,4-dimethylphenol, 2-methylnaphthalene, 2-methylphenol, 4-methylphenol, benzoic acid, benzyl alcohol, bis(2-ethylhexyl) phthalate, butyl benzyl phthalate, dibenzofuran, di-n-octyl phthalate, hexachlorobenzene, N-Nitrosodiphenylamine, pentachlorophenol, phenol;
- **Total PCBs**; and
- **Dioxins/Furans** – Dioxin concentrations from sediment samples collected in East Waterway have been documented to be as high as 312 parts per trillion (ppt).

Bioassay results from the 2008 Port Gardner Baywide sediment study failed SMS standards in four stations based on results from the 48-hour larval development test.

K. Some of the environmental conditions documented within East Waterway have included low dissolved oxygen, low pH, sludge deposits, high sulfide concentrations, high wood waste accumulations, high volatile solids, and damage to fish life. These environmental conditions were the result of discharges from multiple sources, including the K-C mill and other mills and log rafting operations.

L. All manufacturing operations at the K-C facility ceased on April 15, 2012. Prior to this (on March 30, 2012), K-C submitted permit applications and a SEPA checklist with the City of Everett for demolition activities proposed for the Upland Area of the Site. The proposed activities included demolition of the K-C mill facility upland from the shoreline, not including any structures or utilities wholly located more than 2 feet below existing grade. The purpose of the proposed demolition activities is, following facility closure, to prepare the property for sale. The City of Everett issued a final DNS related to these activities on May 25, 2012.

M. During its operation, the K-C facility was a Resource Conservation and Recovery Act (RCRA) regulated waste generator. The facility generated more than 2,200 pounds/month of RCRA regulated wastes. As a result, the facility was a "Large Quantity Generator" of dangerous wastes and is subject to the accumulation standards of WAC 173-303-200. Ecology conducted a dangerous waste inspection at the facility on November 16, 2009 and identified the following

waste streams to be present at that time: PCB ballast, fluorescent lights, used oil, paint, thinner, desiccant, dye, mortar containing lead, grease, paint chips with lead, spray cans, and lab waste.

VI. ECOLOGY DETERMINATIONS

A. K-C is an "owner or operator" as defined in RCW 70.105D.020(17) of a "facility" as defined in RCW 70.105D.020(5).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(25) and RCW 70.105D.020(10), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to K-C dated April 5, 2012, pursuant to RCW 70.105D.040, -.020(21) and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that K-C is a PLP under RCW 70.105D.040 and notified K-C of this determination by letter on May 8, 2012.

D. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

E. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance at a facility, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study or design of a cleanup action. Based on previous environmental investigative work, contaminated soil and groundwater have been identified in the Upland Area of the Site, which, if encountered during demolition, may require K-C to perform an interim action, as described in Section VII.B.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that K-C take the following remedial actions at the Site, as more fully described in the Scope of Work and Schedule attached to this Order as **Exhibit B**, and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. The PLP shall conduct the remedial actions fully described in **Exhibit B** to this Order. PLP shall perform the investigation and reporting required by this Order according to the work schedule set forth in **Exhibit B**, and, if hazardous substances are encountered in the course of demolition of the K-C facility, may as appropriate perform interim actions as set forth in Section B below. Generally, the PLP shall perform the following:

- Develop a work plan for an RI/FS to fill any remaining data gaps identified based on a review of the previous site investigations. The RI/FS Work Plan under this Order shall address Upland Areas of the Site. The results of interim remedial actions conducted at the Site should be described in the RI/FS Work Plan along with identifying data gaps that need filled.
- Perform an RI/FS study for the Upland Area.
- Prepare an RI/FS report for the Upland Area
- Develop a draft cleanup action plan (CAP) for the Upland Area of the Site.

B. Interim Actions During Facilty Demolition: As discussed in Section V.L, to prepare the property for sale, K-C will demolish the mill facility upland from the shoreline, not including any structures or utilities wholly located more than 2 feet below existing grade. Construction activities associated with the demolition of the facility could encounter circumstances which would warrant an interim action consistent with WAC 173-340-430. If hazardous substances are encountered in the course of demolition, K-C may as appropriate, and when it would cost substantially more to address if the remedial action is delayed, perform an interim action to remove and transport contaminated soil or groundwater to an approved facility for treatment or disposal. As part of the interim action and to document any residual levels of constituents that may be left, K-C will collect and analyze soil or groundwater samples (record samples) from the contaminated area, which includes the bottom and sides of any excavation. K-C shall conduct interim actions in accordance with the scope outlined in **Exhibit B**, consistent

with the Interim Action Plan contained in **Exhibit C**, and provide Ecology with updates consistent with the schedule in **Exhibit B**. The Interim Action Plan contains the approach and procedures for managing potentially contaminated soil or groundwater discovered during the demolition of the facility.

C. If at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required under the Scope of Work and Schedule (**Exhibit B**), Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Remedial Action Costs

K-C shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). K-C shall pay the required amount within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70.105D.055, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

B. Implementation of Remedial Action

If Ecology determines that K-C has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to K-C, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of K-C's failure to comply with its obligations under this Order, K-C shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.A (Remedial Action Costs), provided that K-C is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, K-C shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

C. Designated Project Coordinators

The project coordinator for Ecology is:

Andy Kallus
Toxics Cleanup Program
PO Box 47600, Olympia, WA 98504
Phone: 360-407-7259
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The project coordinators for K-C are:

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Global Sustainability
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Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site.

To the maximum extent possible, communications between Ecology and K-C, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working-level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

D. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

The project coordinator for K-C is identified in Section VIII.C above. The project coordinator shall direct work under this Order; K-C shall notify Ecology in writing of the identity of any other engineer(s), geologist(s), contractor(s), or subcontractor(s) to be used in carrying out the terms of this Order, in advance of their involvement at the Site. Ecology has received the current list of contractors and consultants.

E. Access

Subject to the terms of this paragraph, Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that K-C either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing K-C's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by K-C. K-C shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by K-C where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice (at least 72 hours) by email and phone to both the project coordinator and Site access coordinator for K-C, before entering any Site property owned or controlled by K-C unless an emergency prevents such notice.

Ecology shall undertake reasonable efforts to avoid interference with the demolition activities of K-C and its contractors. All persons who access the Site pursuant to this Section shall comply with any applicable Site security, health and safety requirements. Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

F. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, K-C shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal. Attached as **Exhibit D** is Ecology Policy 840, Data Submittal Requirements.

If requested by Ecology, K-C shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by K-C pursuant to implementation of this Order. K-C shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow K-C and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.E (Access), Ecology shall notify K-C prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

G. Public Participation

A required Public Participation Plan has been developed for this Site; this Plan is attached as **Exhibit E**. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment.

Ecology shall maintain the responsibility for public participation at the Site. However, K-C shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. With respect to activities included under this Order, notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before initiating major meetings with the interested public and local governments, except as provided below. Likewise, Ecology shall notify K-C prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public. A "major meeting with the interested public" is a meeting where (a) public notice is provided in advance; and (b) the meeting addresses

activities specified under Section VII (Work to be Performed) or **Exhibit B** (Scope of Work and Schedule). For all press releases, fact sheets, meetings, and other outreach efforts by K-C with respect to activities included under this Order that do not receive prior Ecology approval, K-C shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology and subject to reasonable notice, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Everett Public Library
2702 Hoyt Ave
Everett, WA 98201

b. Department of Ecology
Toxics Cleanup Program
Headquarters Office
300 Desmond Drive SE
Olympia, Washington 98504-7600

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this site shall be maintained in the repository at Ecology's Headquarters in Lacey, Washington.

H. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, K-C shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, K-C shall make all records available to Ecology and allow access for review within a reasonable time.

I. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII.A (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology's project coordinator's written decision or the itemized billing statement, K-C has twenty (20) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. K-C may then request regional management review of the decision. This request shall be submitted in writing to the Headquarters Land and Aquatic Lands Cleanup Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of K-C's request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

J. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least twenty (20) days prior to expiration of the

deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on K-C to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of K-C including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by K-C;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty;

c. Endangerment as described in Section VIII.L (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of K-C.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give K-C written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.K (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII.L (Endangerment).

K. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.M (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and K-C. If K-C proposes an amendment, K-C shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.I (Resolution of Disputes).

L. Endangerment

In the event Ecology determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct K-C to cease such activities for such period of time as it deems necessary to abate the danger. K-C shall immediately comply with such direction.

In the event K-C determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment, K-C may cease such activities. K-C shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction K-C shall provide Ecology with documentation of the basis for the

determination or cessation of such activities. If Ecology disagrees with K-C's cessation of activities, it may direct K-C to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, K-C's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII.J (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

M. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against K-C to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against K-C regarding remedial actions required by this Order, provided K-C complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

N. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by K-C without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to K-C's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, K-C shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, K-C shall notify Ecology of said transfer. Upon transfer of any interest, K-C shall assure that the transfer mechanism prohibits uses and activities inconsistent with this Order and notifies all transferees of the restrictions on the use of the property.

O. Compliance with Applicable Laws

1. All actions carried out by the PLP pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. At this time, other than stormwater permits under 90.48 RCW, no federal, state, or local requirements have been identified as being applicable to the actions required by this Order.

2. Pursuant to RCW 70.105D.090(1), K-C is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, K-C shall comply with the substantive requirements of such permits or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this Section.

K-C has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or K-C determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or K-C shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, K-C shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by

K-C and on how K-C must meet those requirements. Ecology shall inform K-C in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. K-C shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and K-C shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

P. Indemnification

K-C agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of K-C, its officers, employees, agents, or contractors in entering into and implementing this Order. However, K-C shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon K-C's receipt of written notification from Ecology that K-C has completed the remedial activity required by this Order, as amended by any modifications, and that K-C has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. A liable party, who refuses without sufficient cause to comply with any term of this Order, will be liable for:

a. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

b. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: December 20, 2012

KIMBERLY-CLARK WORLDWIDE, INC.

Lisa Morden
Sr. Director, Global Sustainability
1400 Holcomb Bridge Road
Roswell, Georgia 30076
(920) 380-6755

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Tim L. Nord, Manager
Land and Aquatic Lands Cleanup Section
Toxics Cleanup Program
300 Desmond Drive Southeast
Lacey, Washington 98503
(360) 407-7226

REVIEWED
12/11/12

EXHIBIT A

SITE LOCATION AND PROPERTY LOCATION INFORMATION

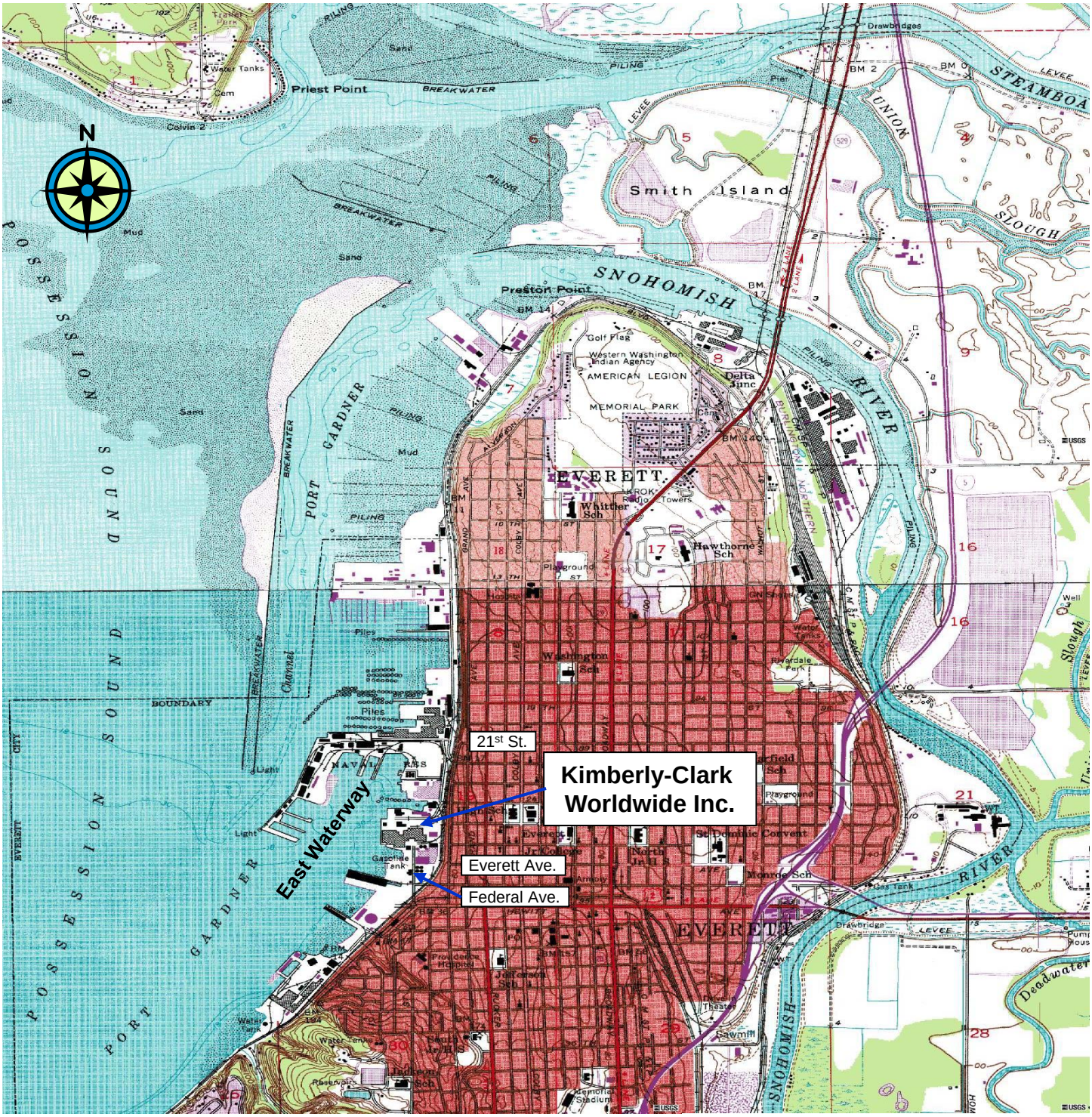
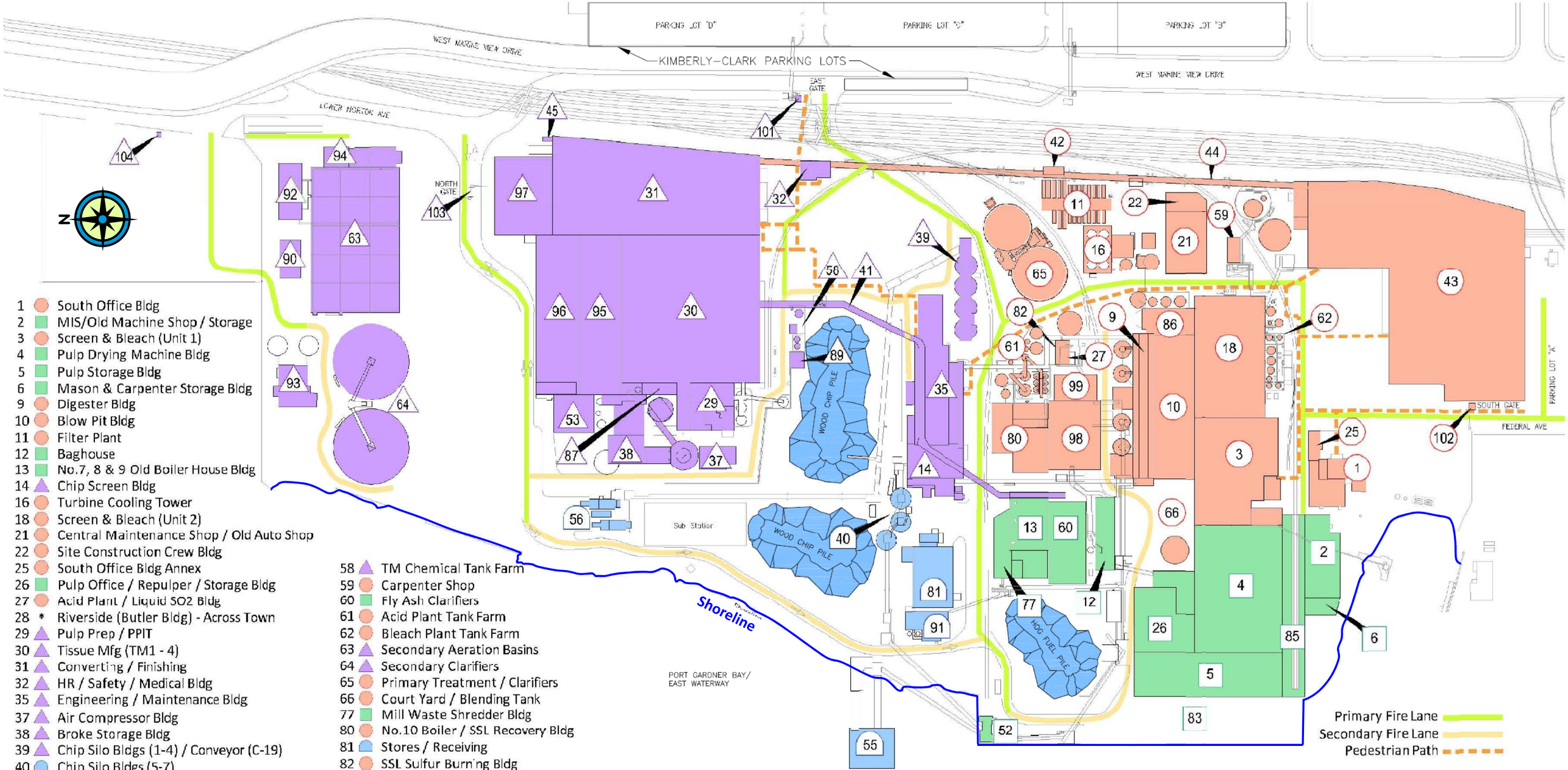


Exhibit A – Figure 1
Site Location Map

Source: USGS 7.5 Minute Quadrangle Maps (Everett and Marysville Quadrangle Maps; Photo Revised – 1968 and 1973)

QUADRANGLE LOCATION



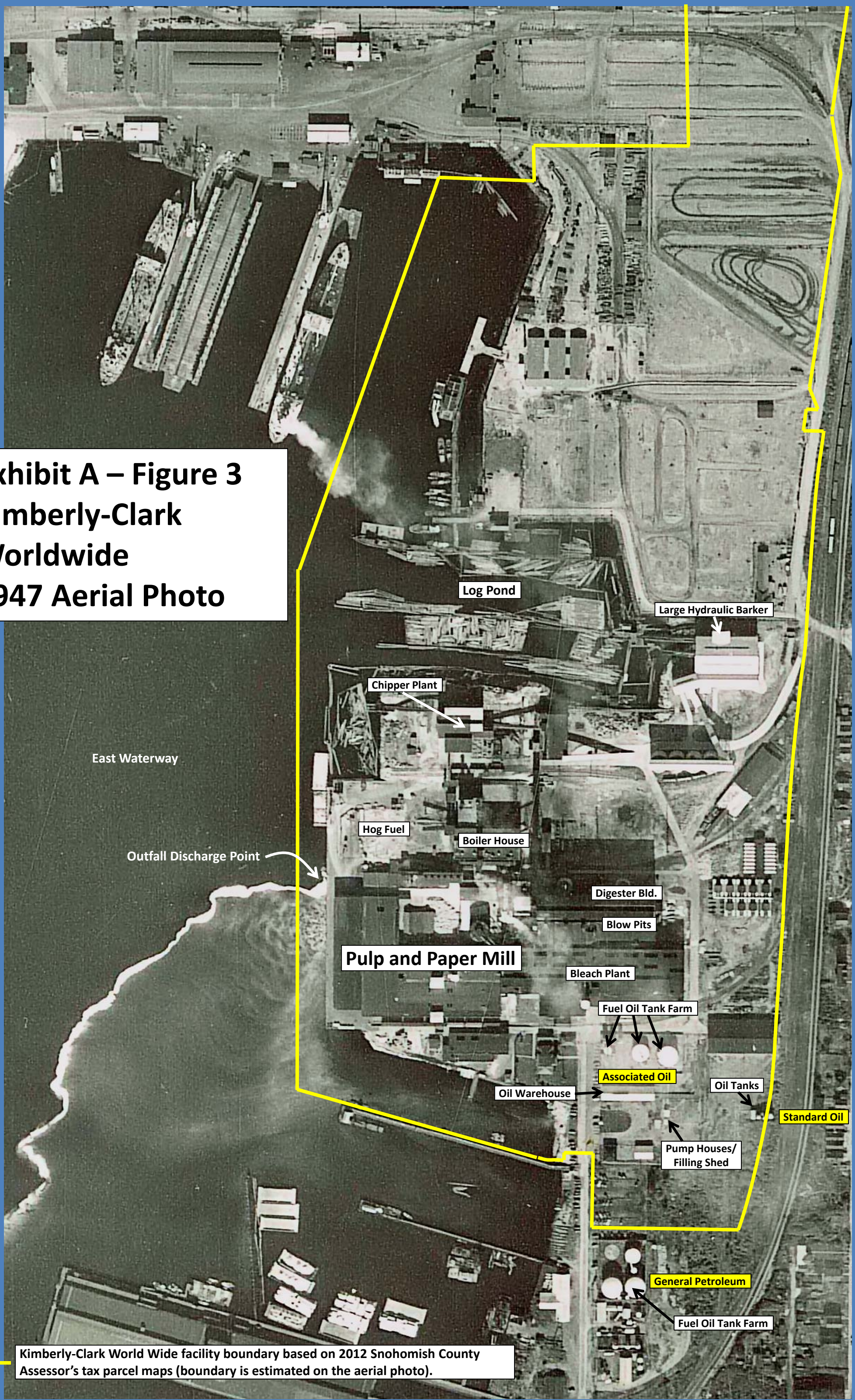
1 South Office Bldg
2 MIS/Old Machine Shop / Storage
3 Screen & Bleach (Unit 1)
4 Pulp Drying Machine Bldg
5 Pulp Storage Bldg
6 Mason & Carpenter Storage Bldg
9 Digester Bldg
10 Blow Pit Bldg
11 Filter Plant
12 Baghouse
13 No.7, 8 & 9 Old Boiler House Bldg
14 Chip Screen Bldg
16 Turbine Cooling Tower
18 Screen & Bleach (Unit 2)
21 Central Maintenance Shop / Old Auto Shop
22 Site Construction Crew Bldg
25 South Office Bldg Annex
26 Pulp Office / Repulper / Storage Bldg
27 Acid Plant / Liquid SO2 Bldg
28 * Riverside (Butler Bldg) - Across Town
29 Pulp Prep / PPIT
30 Tissue Mfg (TM1 - 4)
31 Converting / Finishing
32 HR / Safety / Medical Bldg
35 Engineering / Maintenance Bldg
37 Air Compressor Bldg
38 Broke Storage Bldg
39 Chip Silo Bldgs (1-4) / Conveyor (C-19)
40 Chip Silo Bldgs (5-7)
41 Pipe Bridge
42 Gas Meter Station #1
43 Distribution / Warehouse
44 Main Conveyor
45 Gas Meter Station #2
52 Chip Unloading / Rail Dump
53 Chemical Storage Bldg
55 Barge Unloading
56 North Chip Dump
57 * Riverside Scale House - Across Town
58 TM Chemical Tank Farm
59 Carpenter Shop
60 Fly Ash Clarifiers
61 Acid Plant Tank Farm
62 Bleach Plant Tank Farm
63 Secondary Aeration Basins
64 Secondary Clarifiers
65 Primary Treatment / Clarifiers
66 Court Yard / Blending Tank
77 Mill Waste Shredder Bldg
80 No.10 Boiler / SSL Recovery Bldg
81 Stores / Receiving
82 SSL Sulfur Burning Bldg
83 Pulp Mill Dock
85 Pulp Shipping / Train Shed
86 SSL Washer Bldg / Filtrate Tank Farm
87 Secondary Fiber Bldg
89 Hazardous Waste Storage
90 Stores Storage @ Secondary Treatment
91 Sludge Dewatering
92 Secondary Treatment Blower Bldg
93 Secondary Treatment Pump Bldg / Offices
94 Secondary Treatment Chemical Bldg
95 Tissue Mfg (TM5)
96 Parent Roll Storage (TM5)
97 Converting Addition (1995)
98 No.14 Boiler
99 No.14 Turbine Generator Bldg
101 E Gate (Security)
102 S Gate (Security)
103 N Gate (Security)
104 N Staging Yard / Lock Shop

East Waterway

Exhibit A – Figure 2
Kimberly-Clark World Wide Facility Layout

Source: AECOM April 2011 Phase 1 Environmental Site Assessment

Exhibit A – Figure 3
Kimberly-Clark Worldwide
1947 Aerial Photo



Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

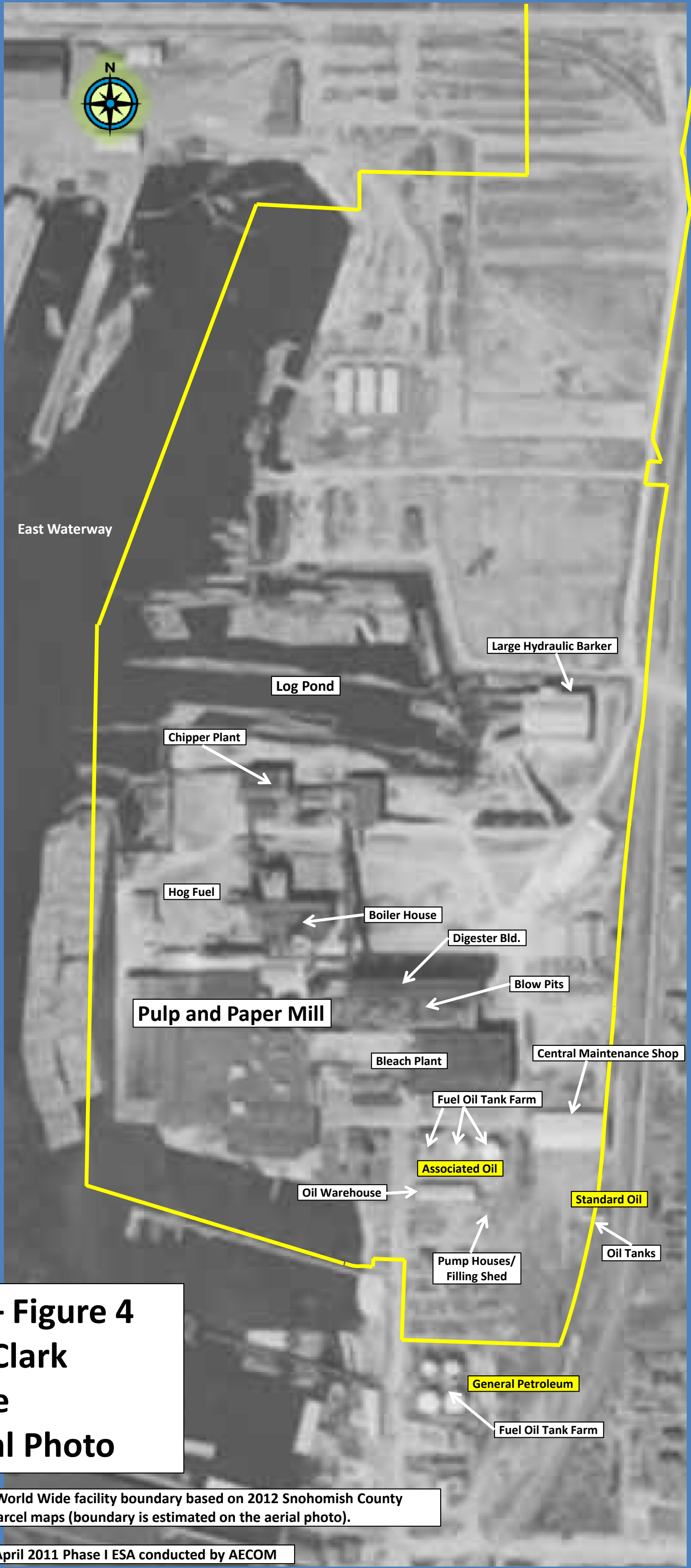


Exhibit A – Figure 4
Kimberly-Clark Worldwide
1952 Aerial Photo

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from the April 2011 Phase I ESA conducted by AECOM

N

Machine Water

Paper Mill

Outfall 004
(abandoned in 1981)

White Water Discharge

Machine Water

Log Pond

Large Hydraulic Barker

Machine Shop/Office

Small Hydraulic Barker

Waste Sedimentation Tanks
(on-line in 1965)

Bark Press

Boiler House

Hog Fuel

East Waterway

Central Maintenance Shop

Digesters

Low Suspended Solids Waste Discharge

Blow Pits

Pulp Drying
Machine Room

Bleach Plant

Pulp Mill

To Deepwater Outfall SW001 (Strong Digester Wastes shared with Weyerhaeuser)

Multi-port Diffusers – Outfall 003
(on-line beginning in 1963)

Associated Oil
Fuel Oil Tank Farm

Outfall 002 (abandoned in 1980)

Defoam Box

Fuel Oil Tanks

Oil Warehouse

Associated Oil

Mobil Oil Corp. Tank Farm

Exhibit A – Figure 5
Kimberly-Clark Worldwide
1966 Aerial Photo

Sewer System in 1965[1]

Discontinued sewers

Existing Sewers

New sewers and units of the Primary waste treatment facilities (on-line beginning July 1965)

Flow Direction

[1]Washington State Pollution Control Commission, Olympia, Washington. Pollutional Effects Of Pulp And Paper Mill Wastes In Puget Sound. A Report On Studies Conducted By The Washington State Enforcement Project. March 1967.

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from WSDOT: 7/29/66

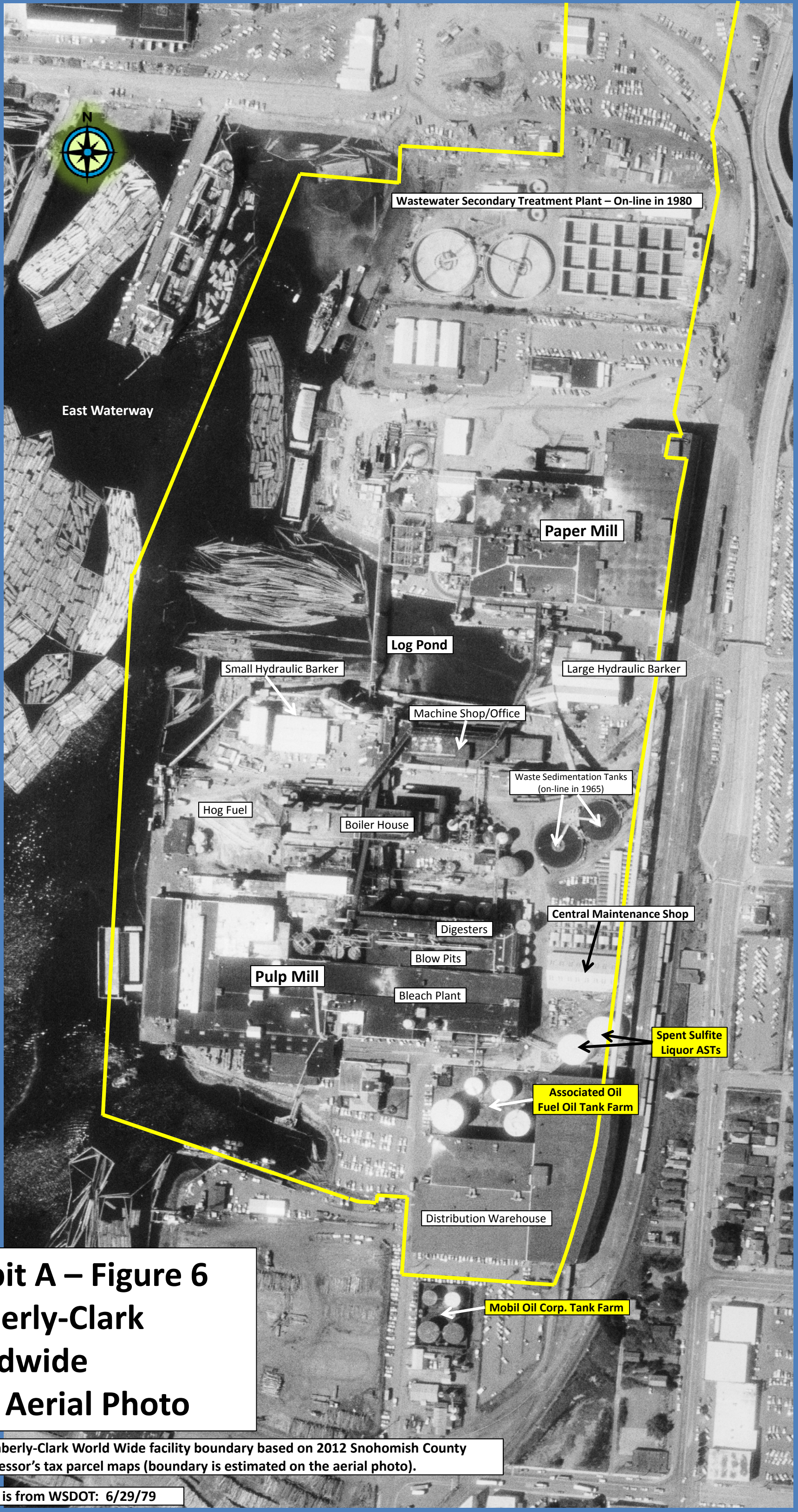


Exhibit A – Figure 6
Kimberly-Clark Worldwide
1979 Aerial Photo

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from WSDOT: 6/29/79

Exhibit A – Figure 7
Kimberly-Clark Worldwide
1985 Aerial Photo

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from WSDOT: 8/14/85

Exhibit A – Figure 8
Kimberly-Clark Worldwide
1992 Aerial Photo

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from WSDOT: 8/10/92

Exhibit A – Figure 9
Kimberly-Clark Worldwide
2006 Aerial Photo

Kimberly-Clark World Wide facility boundary based on 2012 Snohomish County Assessor's tax parcel maps (boundary is estimated on the aerial photo).

Aerial Photo is from the April 2011 Phase I ESA conducted by AECOM

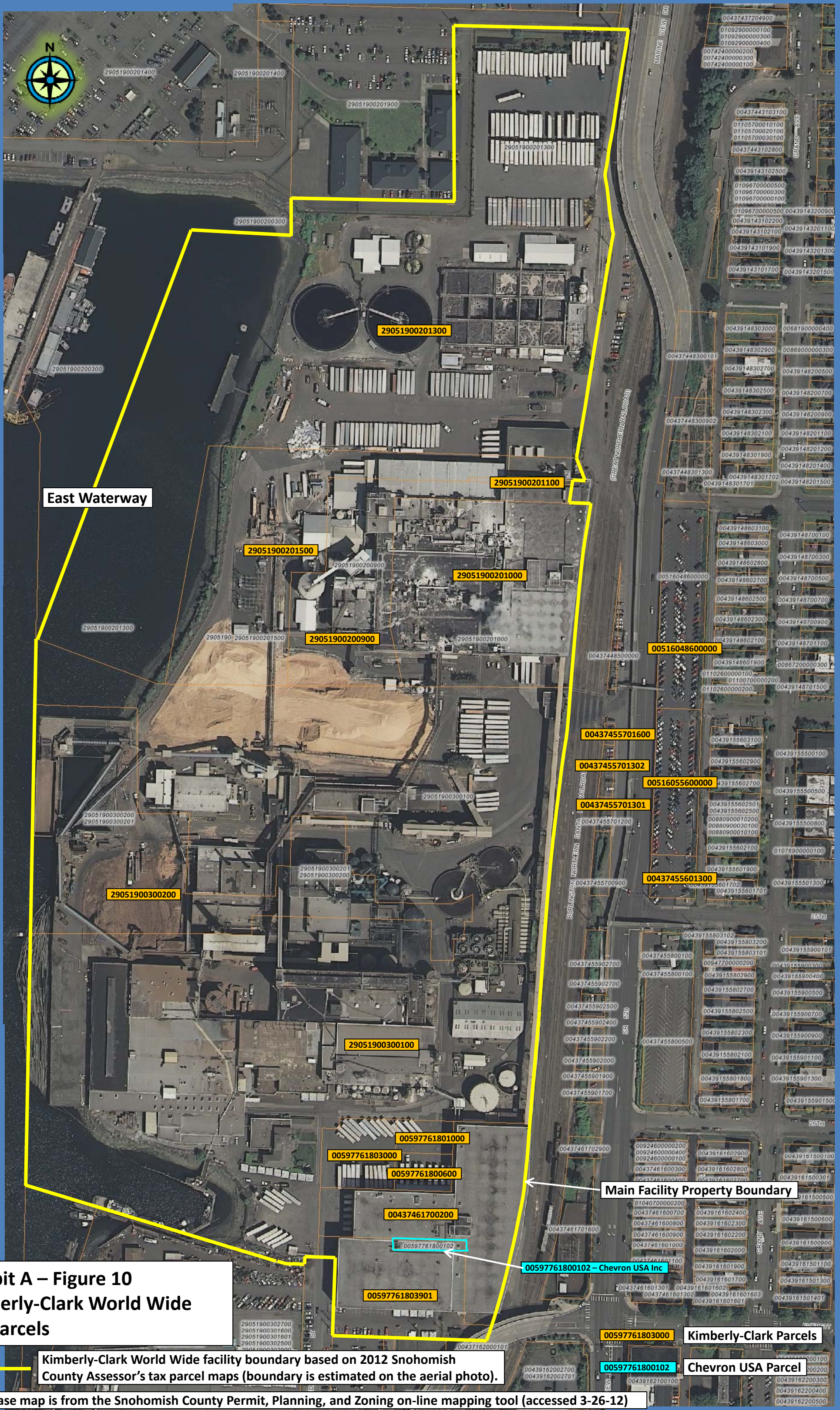


Exhibit A – Figure 10
Kimberly-Clark World Wide
Tax Parcels

Enclosure 1 – Figure 11[1]
Location of Deepwater Diffusers

Current Deep Water Outfall 100
Source: Anchor, 2004. *Sampling and Analysis Report, Outfall 100 Baseline Sediment Sampling For NPDES Permit #WA00062-01 and Associated Permits*. June 2004.

Historic Deep Water Outfall SW001
Sources: 11/22/72 Weyerhaeuser Company Mill Site Drawing (Drawing No. 5041 D).
CH2MHILL, 1998. Technical Memorandum. *Kimberly Clark Everett Outfall Replacement Project: Analysis of Sediment Chemistry Database of Stations Located in Port Gardner*. April 28, 1998.

Former Weyerhaeuser Mill A Property Boundary
Source: 11/22/72 Weyerhaeuser Company Mill Site Drawing (Drawing No. 5041 D)

[1]The base map was obtained from Ecology's EIM Database.

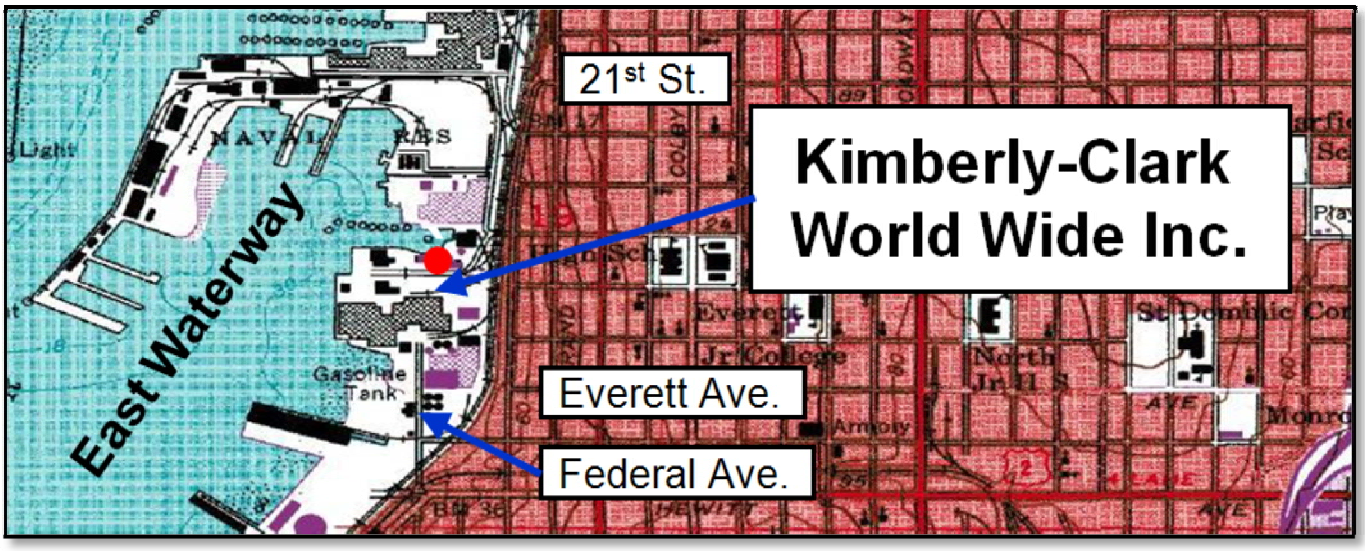
KIMBERLY CLARK WORLD WIDE SITE

SITE/PROPERTY LOCATION INFORMATION

The address for the Kimberly Clark World Wide Site (Site) is 2600 Federal Avenue, Everett Washington. The Site is generally located adjacent to East Waterway on the east side of West Marine View Drive between Everett Avenue and 21st Street, Everett Washington. Site coordinates, a legal description, and county assessor's parcel numbers are provided below. Additional property information from the Snohomish County Tax Assessor's Office is attached.

Coordinates: Latitude: 47°59'7.22" North; Longitude: 122°13'0.16" West.

Latitude/Longitude Reference Point: Approximate center of the Kimberly-Clark Engineering/Maintenance Building (see red circle on the figure below for approximate location).



Legal Description: The Site encompasses portions of the following:

- NW Quarter of Section 19, Township 29 North, Range 5 East
- NE Quarter of Section 19, Township 29 North, Range 5 East
- SW Quarter of Section 19, Township 29 North, Range 5 East
- SE Quarter of Section 19, Township 29 North, Range 5 East

County Assessor's Parcel Numbers: Tax account numbers corresponding to the Kimberly Clark World Wide Site include: *Main Facility and East Waterway Tidelands* – 29051900201300, 29051900201100, 29051900201500, 29051900201000, 29051900200900, 29051900300200, 29051900300100, 00597761801000, 00597761803000, 00597761800600, 00437461700200 and

00597761803901; *Parking Areas* – 00516048600000, 00516055600000, 00437455601300, 00437455701302, 00437455701301, 00437455701600; *Chevron USA Inc.* – 00597761800102

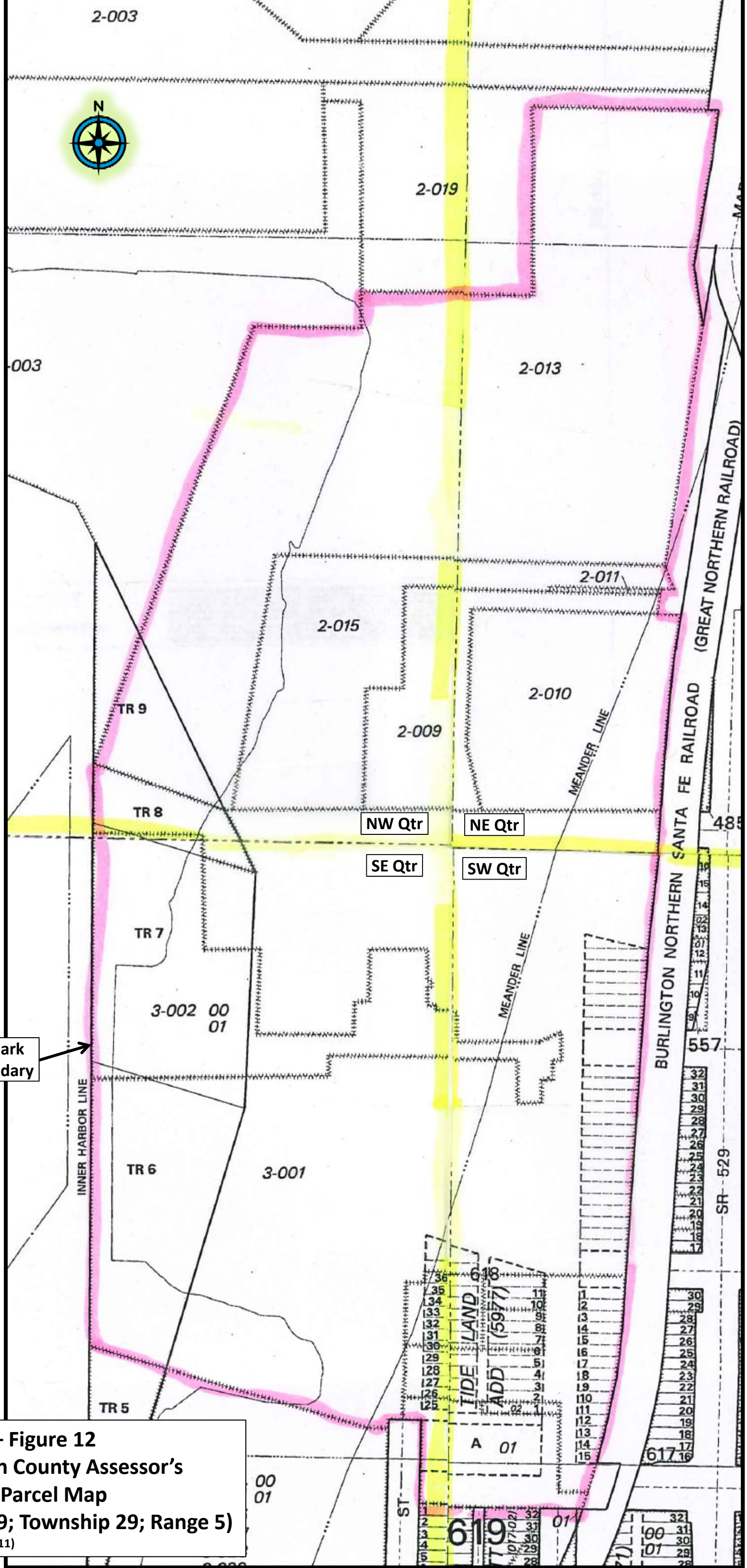


Exhibit A – Figure 12
Snohomish County Assessor's Office Tax Parcel Map
(Section 19; Township 29; Range 5)
(Printed March 2011)

EXHIBIT B

SCOPE OF WORK AND SCHEDULE

EXHIBIT B

SCOPE OF WORK AND SCHEDULE

Pursuant to the Agreed Order (Order) to which this Scope of Work and Schedule is attached, Kimberly-Clark Worldwide, Inc. (K-C) shall take the following remedial actions at the Kimberly-Clark Worldwide Site (Site), as defined in the Order, and these actions shall be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. Remedial Actions to be Performed – Upland Area

As described in the main Order, operations at the K-C facility ceased on April 15, 2012 and K-C is planning to demolish the mill upland from the shoreline, not including any structures or utilities located more than 2 feet below existing grade. The purpose of the proposed demolition activities is, following facility closure, to prepare the property for sale. To expedite the Upland Area cleanup and eventual sale of the property, and to take advantage of potential opportunities to remove contaminated media (e.g., soil and groundwater) during facility de-construction, K-C may conduct interim actions in the Upland Area of the Site. K-C shall conduct the remedial actions generally described below.

- **Interim Actions** – K-C may as appropriate conduct interim actions to remove and transport contaminated soil or groundwater (that may be discovered during facility demolition) to an approved facility for treatment or disposal. An Interim Action Plan that contains the approach and procedures for managing potentially contaminated soil or groundwater discovered during the demolition of the facility is provided in **Exhibit C** of this Order. K-C shall present the results of the interim actions conducted during the demolition of the facility within the Remedial Investigation/Feasibility Study (RI/FS) Work Plan for the Upland Area. Interim remedial actions occurring during facility demolition within the Upland Area of the Site after finalization of the RI/FS Work Plan shall be summarized in an Interim Action Report and submitted to Ecology for review and approval. When reporting on interim actions, either in the RI/FS Work Plan or separately in a technical memorandum, K-C shall document the interim action activities including how the contaminated media was managed, the lateral and vertical limits of any excavations, the volume of contaminated soil or groundwater removed from each excavation, and all sampling results including pre-excavation characterization of site media, post-excavation compliance monitoring, and characterization of environmental media for hazardous waste disposal purposes. All interim actions at the Site will be fully described and documented in the Upland Area RI/FS report and the draft Cleanup Action Plan (CAP) for the Site.

- **Upland Area RI/FS Work Plan** – Prepare a Work Plan for RI/FS of the Upland Area in accordance with the specifications described in Section A.1 of this Exhibit. K-C shall submit the RI/FS Work Plan to the Washington State Department of Ecology (Ecology) for review and approval.
- **Upland Area RI/FS** – K-C shall conduct field data collection (as part of the RI) as described in the Ecology-approved RI/FS Work Plan. Multiple phases of field data collection may be required to delineate the nature and extent of contamination in the Upland Area. The results of the initial field data collection will be presented to Ecology in a Data Report Technical Memorandum so that a determination can be made with regard to whether additional investigation is required to define the full nature and extent of contamination. Results of other phases of field data collection will also be presented to Ecology in the same format and for the same purpose. On agreement that no substantial data gaps exist, K-C shall conduct a FS based on the results of the RI. The RI/FS approach for the Upland Area is further described in Sections A.1.g and A.1.h of this Exhibit.
- **Upland Area RI/FS Report** – Prepare an RI/FS report for the Upland Area. K-C shall submit the draft Upland Area RI/FS Report (combined as a single document) to Ecology for review and approval.
- **Upland Area Draft CAP** – Upon Ecology approval of the draft final RI/FS report for the Upland Area, the PLPs shall prepare a draft CAP. The PLPs shall submit the draft CAP to Ecology for review and approval.

Additional details regarding the remedial actions to be performed by K-C for the Upland Area are provided below.

1. Preparation of an Upland Area RI/FS Work Plan

K-C shall develop an RI/FS Work Plan (including draft, draft final, and final versions) that describes prior investigations and interim remedial actions completed to date, defines gaps in the existing environmental characterization data, and includes a scope of work to delineate and quantify (i.e., identify the levels of contamination) the potential contaminants in all upland media (e.g., soil and groundwater). The RI/FS Work Plan shall also address the proper handling of wastes generated during the RI/FS (e.g., soil cuttings, groundwater development and purge water, free-product, etc.). Note that draft documents for Ecology review may be submitted in redline strike-out format (preferably in Microsoft® WORD format) to facilitate the review. The RI/FS Work Plan shall be conducted to meet the requirements of WAC 173-350 and should include the elements listed below.

a. Development of a Site-Specific Health and Safety Plan (HSP) and Sampling and Analysis Plan (SAP)

A site-specific HSP describing worker safety during the project will be developed in accordance with WAC 173-340-810 and included in the RI/FS Work Plan. A site-specific SAP, which includes quality assurance/quality control requirements, will be included in the RI/FS Work Plan. The SAP should be based on the type, quality, and quantity of data necessary to support selection of a cleanup action. The SAP should provide the details on numbers and locations of samples for each media and the analytical requirements. The SAP shall conform to the requirements specified in WAC 173-340-820.

b. Investigation of Site Background and Setting

This section will include detailed descriptions of the following:

(i) The property and site operational/industrial history (including current and previous ownership).

(ii) Historical sources and releases of contamination (include a review of historical photos, Sanborn Maps, Ecology hazardous or dangerous waste inspections, and available information on fill forming the uplands).

(iii) Current site conditions (including descriptions of surface features, geology, soil and the vadose zone, hydrogeology, and climate).

(iv) Current and future land and water use (including descriptions of human populations).

(v) The terrestrial ecological setting, including a description of ecological receptors and potentially threatened/endangered species. A terrestrial ecological evaluation shall be conducted in accordance with WAC 173-340-7490 to 173-340-7494 to determine if the Site may qualify for an exclusion from any further ecological evaluation, or if a simplified or site-specific ecological evaluation is required.

c. Previous Investigations and Cleanup Actions

The RI/FS Work Plan shall summarize the prior investigations and interim remedial actions completed, including media sampled and types of analyses performed. Note that prior interim remedial actions are not considered to be a

complete cleanup action. In addition, the RI/FS Work Plan shall identify data gaps that need to be filled, following the prior remedial actions, to fully define the nature and extent of contamination associated with any upland media of concern.

d. Development of Preliminary Conceptual Site Model (CSM)

The CSM should describe release mechanisms from the potential primary sources of hazardous substances to secondary and tertiary sources, the exposure media and routes, and the potential human and ecological receptors. The CSM should reflect both current conditions and potential future development in assessing exposure pathways. In accordance with WAC 173-340-720(2), rationale should be included to substantiate that groundwater at the Site cannot be used, or has an extremely low probability to be used, for potable purposes (i.e., as viable drinking water aquifer).

e. Establishment of Screening Levels

Based on the CSM, identify appropriate screening levels[1] under a residential (unrestricted) land use scenario. Note that the screening levels must consider all applicable pathways, including direct contact (including inhalation); media transfer pathways (e.g., leaching to groundwater, groundwater migration to surface water, and sediment, etc.); and exposure to terrestrial and/or aquatic ecological and human receptors. Screening levels shall be updated as necessary based on new toxicity data that may become available under Ecology's hierarchy for identifying non-cancer reference doses and carcinogenic slope factors (*see* 173-340-708). Generally, K-C can review Ecology's Cleanup Level and Risk Calculations (CLARC) database to identify screening levels that need to be updated.

[1] Levels established under MTCA (*see* WAC 173-340-700 through 173-340-760), and applicable state and federal laws.

f. Evaluation of Existing Data and Identification of Preliminary Indicator Hazardous Substances

The existing analytical data should be plotted as accurately as possible on a base map using geo-referencing techniques to depict identified sources and areas where suspected releases have occurred. Review the sample locations with respect to identified sources and areas where suspected releases (e.g., outfalls, spills, dumping, hazardous waste accumulation areas, leaks, etc.) have occurred. All of the existing analytical data collected at the Site should be evaluated in terms of data usability (analytical methods used to evaluate the effectiveness of a cleanup action shall comply with the requirements in WAC 173-340-830) and be screened against the screening levels identified based on the CSM for the Site (see Sections A.1.d and A.1.e above). Both non-detect and detected data should be included in the screening. Identify sampling points containing exceedances on a map, and also discuss the adequateness of the reporting limits (i.e., Method Detection and Practical Quantitation Limits) in terms of achieving the screening levels for the Site. Constituents exceeding the screening levels should be identified as preliminary indicator hazardous substances for the Site. Additionally, preliminary indicator hazardous substances will be identified based on historical site use where no existing and or valid data is available.

g. RI Approach

This section of the RI/FS Work Plan shall provide an overview of the methods that will be used in conducting the RI for the Upland Area of the Site, which, depending where contamination has been deposited, stored, disposed of, placed, or otherwise come to be located, may include areas outside the property boundary shown in **Exhibit A**, Figure 10. Based on the background information gathered, past interim remedial actions, and the evaluation of existing data, the RI/FS Work Plan shall discuss by media (e.g., soil, groundwater) the data required to complete the RI for the Upland Area of the Site. The RI approach shall be consistent with WAC 173-340-350. The RI/FS Work Plan also will identify data gaps and the

overall approach for conducting the RI. The SAP will provide the details on numbers and locations of samples for each media and the analytical requirements.

The RI field investigation will be designed to identify the full nature and extent of contaminants and toxic effects in the Upland Area. K-C shall provide Ecology with the results of the investigation (in the form of a technical memo) so that a determination can be made with regard to whether additional investigation is required to define the full nature and extent of contamination. The information provided to Ecology should describe the analytical results of the field activities, including the identification of indicator hazardous substances, the affected media, preliminary cleanup levels, the extent of contamination (plotted on maps), and any data gaps that need to be filled to define the nature and extent of contamination. Note that the preliminary cleanup levels may be different than the screening levels used in the RI/FS Work Plan based on a better understanding of the CSM (e.g., contaminants in soil may not be impacting groundwater) or changes to toxicity data. Additional field investigation (if necessary based on initial results) will be conducted to further define the nature and extent of contamination based on findings of the initial investigation. Results of additional phases of field investigations will also be presented to Ecology in the form of a technical memo as described in this paragraph.

h. FS Approach

This section of the RI/FS Work Plan shall provide an overview of the methods that will be used in conducting the FS, which, depending where contamination has been deposited, stored, disposed of, placed, or otherwise come to be located, may include areas outside the property boundary shown in **Exhibit A**, Figure 10. The FS approach shall be consistent with WAC 173-340-350 and should consist of the following sections:

(i) **Establishment of Cleanup Levels, Points of Compliance, and Remediation Levels** – Unless otherwise specified under this Order, cleanup levels and points of compliance should be established for each hazardous substance in each medium and for

each exposure pathway. K-C may also consider establishing potential remediation levels as defined per WAC 173-340-355.

(ii) **Applicable or Relevant and Appropriate Requirements** – The FS should include additional information or analyses to comply with the State Environmental Policy Act (SEPA) or other applicable laws to make a threshold determination per WAC 197-11-335(1) or to integrate the RI/FS with an environmental impact statement per WAC 197-11-262.

(iii) **Delineation of Media Requiring Remedial Action** – Based on the results of the RI, the FS will delineate areas and/or volumes of affected media to which remedial action objectives might be applied.

(iv) **Development of Remedial Action Objectives** – Remedial Action Objectives should generally describe the objectives of the upland cleanup, which is media-specific. Remedial action objectives are established on the basis of the nature and extent of the contamination, the resources that are currently and potentially threatened, and the potential for human and ecological (both terrestrial and aquatic) exposures. The FS shall clearly define a basis and rationale for Remedial Action Objectives for each media.

(v) **Screening and Evaluation of Cleanup Action Alternatives** – A reasonable number and type of cleanup action alternatives should be evaluated, taking into account the the characteristics and complexity of the Site, including current site conditions and physical constraints. Evaluation of cleanup action alternatives and the selection of preferred cleanup alternative must meet the requirements of WAC 173-340-360.

i. Public Involvement

This section of the RI/FS Work Plan shall present the general process for public involvement (in accordance with WAC 173-340-600), along with a reference to the Public Participation Plan presented in this Order as **Exhibit E**.

j. Project Management

This section of the RI/FS Work Plan shall discuss project staffing and coordination associated with the RI/FS activities. The organizational structure and responsibilities are designed to provide project control and quality assurance for the duration of the RI/FS.

k. Schedule and Reporting

This section should contain the schedule and reporting requirements for the RI/FS project as defined in this Order.

2. Data Report Technical Memorandum

K-C shall provide Ecology with the results of the field investigation in the form of a Data Report Technical Memorandum so that a determination can be made with regard to whether additional investigation is required to define the full nature and extent of contamination. The information provided to Ecology should describe the analytical results of the field activities, the affected media, the extent of contamination (plotted on maps and screened against preliminary cleanup levels (if appropriate), and identification of data gaps that need to be filled to complete the RI/FS with respect to the nature and extent of contamination and toxic effects. Results of additional field investigation phases will also be presented to Ecology in the form of a technical memo as described in this paragraph.

3. Interim Action Report

Interim remedial actions occurring during facility demolition within the Upland Area of the Site after finalization of the RI/FS Work Plan shall be summarized in an Interim Action Report and submitted to Ecology for review and approval as discussed previously in the first bullet under Section A. All Upland Area interim actions will be fully described and documented in the Upland Area RI/FS report and Upland Area Draft CAP.

4. Prepare Draft RI/FS Report

A draft, draft final, and final RI/FS report for the Upland Area of the Site shall be prepared that meets the requirements of WAC 173-340-350. The RI/FS report shall contain the results of the RI and will provide information regarding the full nature and extent of soil and groundwater contamination. The FS portion of the report will present and evaluate cleanup action alternatives to address the identified contamination in soil and/or groundwater. Based on the evaluation of alternatives (WAC 173 340-350(8)), the

FS will identify a preferred cleanup action alternative for the Kimberly-Clark Mill Upland Area in compliance with WAC 173-340-360.

5. Develop a Draft CAP

Upon Ecology approval of the draft final RI/FS report for the Upland Area, the PLPs shall prepare a draft and draft final CAP in accordance with WAC 173-340-380 that provides proposed cleanup action alternatives to address potential contamination at all impacted media in the Upland Area of the Site, based on the results of the RI/FS. The draft CAP shall include a general description of the proposed cleanup actions along with the following sections:

- A general description of the proposed cleanup action and restoration alternatives and the rationale for selection, including results of any remedial technology pilot studies, if necessary.
- A summary of the other alternatives evaluated in the RI/FS.
- A summary of applicable local, state, and federal laws pertinent to the proposed cleanup and restoration actions.
- Cleanup standards and rationale regarding their selection for each hazardous substance and for each medium of concern at the Site based on the results of the RI/FS.
- Descriptions of any institutional/engineering controls, if proposed.
- A preliminary schedule for implementation of field construction work and subsequent maintenance and monitoring.

B. Upland Area Schedule

K-C shall perform the actions required by this Order according to the schedule below. K-C shall address Ecology comments on all deliverables through written responses. Note, when Ecology provides comments in red-line strikeout format (i.e., comments made directly within the electronic version of the document), K-C may respond to those comments directly within the electronic document.

1. Upland Area RI/FS Work Plan Submittal

- **Draft Document** – The draft RI/FS Work Plan shall be due 90 calendar days after finalization of this Order. The draft Work Plan will then undergo a 30-day review period by Ecology.
- **Draft Final Document** – The draft final RI/FS Work Plan shall address any comments/suggestions submitted by Ecology. The draft final RI/FS Work Plan shall be due 60 days after Ecology provides its comments. The draft final version will undergo a 20-day review period by Ecology.
- **Final Document** – The final RI/FS Work Plan shall address comments/suggestions submitted by Ecology. The final RI/FS Work Plan shall be due 45 days after Ecology provides its comments.

2. Upland Area RI/FS Field Activities

- **RI/FS Field Activities** – RI/FS field activities shall be commenced within 30 days of submittal of the final RI/FS Work Plan to Ecology.
- **Data Report Technical Memorandum** – The field RI results, as described in Section A.1.g, shall be provided to Ecology 30 calendar days after the validation of all RI/FS analytical data.
- **Additional RI/FS Field Activities (if needed)** – Additional field RI/FS activities may be required to adequately delineate the nature and extent of contamination, and/or to conduct pilot testing of a remedial alternative as part of the FS. The scope, schedule, and submittal requirements for additional field RI/FS activities shall be developed by K-C, and shall be submitted to Ecology for review and approval.

3. Upland Area Interim Actions

- **Interim Action Technical Memorandum(s)** – Interim remedial actions occurring during facility demolition within the Upland Area of the Site after finalization of the RI/FS Work Plan shall be summarized in the form of an Interim Action Report as discussed previously in the first bullet under Section A and in Section A.3. The Interim Action Report shall be due to Ecology within 90 days of completing the interim action. K-C shall provide Ecology with quarterly updates (in the form of a technical memorandum) on interim actions that have taken place in the Upland Area. In addition, Ecology and K-C shall have meetings on a monthly basis to discuss the status of site activities including upland interim actions.

4. Upland Area RI/FS Report Submittal

- **Draft RI/FS Report** – The draft Upland Area RI/FS report shall be due to Ecology 180 calendar days after receipt by K-C Project Manager of confirmation from Ecology that data gaps have been filled as documented in the Data Report Technical Memorandum(s). This draft will then undergo a 30-day review period by Ecology.
- **Draft Final RI/FS Report** – The draft final Upland Area RI/FS report shall be due 90 days after receipt of Ecology comments on the draft RI/FS report. This draft final RI/FS report will then go to a 30-day public comment period.
- **Final RI/FS Report** – The final RI/FS report shall be submitted to Ecology 45 days after Ecology's completion of the responsiveness summary to public comment on the draft final RI/FS report.

5. Draft CAP Submittal

- Draft CAP – The draft CAP shall be submitted to Ecology 120 days after the draft final RI/FS Reports (for the Upland and In-Water Areas) are finalized and ready for public comment. This draft CAP will then undergo a 30-day review period by Ecology.
- Draft Final CAP – The draft final CAP shall address comments/suggestions submitted by Ecology on the draft CAP. This draft final CAP shall be due 60 days after submittal of Ecology comments on the draft CAP.

6. Environmental Data Submittals

- All sampling data that will be used to define contaminant nature and extent, and thus make decisions regarding selection of a cleanup alternative (including previously collected data described in Attachment A of this Agreed Order) shall be submitted to Ecology in both printed and electronic formats in accordance with Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements) and/or any subsequent procedures specified by Ecology for data submittal. Policy 840 is presented in **Exhibit D** of this Agreed Order.
- Historical data used in the RI/FS Work Plan and/or RI/FS Report for the Upland Area, to the extent available and determined to be suitable for cleanup action decision making, shall be supplied to Ecology in electronic format (i.e., EIM) as part of the first draft Upland Area (for upland EIM data) RI/FS Work Plan deliverable.
- New data collected as part of the initial or first phase of the Upland Area RI/FS, shall be supplied to Ecology in electronic format (i.e., EIM) 60 days after the new data has been validated. Data collected as part of additional RI/FS activities associated with the Upland Area shall also be supplied to Ecology in electronic format (i.e., EIM) 60 days after the data has been validated.

Based on the work schedule presented above, the K-C shall develop an overall cleanup schedule for the site starting from the RI/FS Work Plan to final cleanup construction and long-term compliance monitoring. K-C shall provide Ecology with an updated cleanup schedule on an as needed basis. The project schedule will be updated when events are identified that may result in significant project schedule changes, or at a minimum, once in the spring and once in the fall (i.e., March and October). It is important that Ecology maintains updated cleanup schedules for project planning, and for periodically updating the public, tribes, and resources/permitting agencies.

EXHIBIT C

INTERIM ACTION PLAN

INTERIM ACTION PLAN

Kimberly-Clark Worldwide Site Upland Area
Everett, Washington

Prepared for: Kimberly-Clark Worldwide, Inc.

Project No. 110207-002-04 • September 20, 2012 Draft Final

Exhibit C to Agreed Order No. DE 9476

Aspect CONSULTING

earth + water

INTERIM ACTION PLAN

Kimberly-Clark Worldwide Site Upland Area
Everett, Washington

Prepared for: Kimberly-Clark Worldwide, Inc.

Project No. 110207-002-04 • September 20, 2012 Draft Final

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Acronyms and Abbreviations

This list applies for the entire document including appendices.

%R	percent recovery
ARAR	applicable or relevant and appropriate requirements
Aspect	Aspect Consulting, LLC
AST	above-ground storage tank
ASTM	American Society for Testing Materials
bgs	below ground surface
BMP	best management practice
BNSF	BNSF Railway Inc.
BTEX	benzene, toluene, ethylbenzene, xylenes
CAP	Cleanup Action Plan
CFR	Code of Federal Regulations
City	City of Everett, Washington
CLARC	Cleanup Levels and Risk Calculation database
COC	chain of custody
DA	discharge authorization
DAHP	Washington State Department of Archaeology and Historic Preservation
DCAP	Draft Cleanup Action Plan
DQO	data quality objective
Ecology	Washington State Department of Ecology
EIM	Ecology's Environmental Information Management database
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FBI	Friedman and Bruya Inc.
GC-MS	gas chromatograph-mass spectrometry
GPS	global positioning system
HREC	historical recognized environmental condition
IDW	investigation-derived waste

K-C	Kimberly-Clark Worldwide, Inc.
LCS/LCSD	laboratory control samples/laboratory control sample duplicate
LUST	leaking underground storage tank
MC	measured concentration
MDL	method detection limit
mil	millimeter
MLLW	mean lower low water
MS/MSD	matrix spike/matrix spike duplicate
MTCA	Washington State Model Toxics Control Act Cleanup Regulation
NAPL	non-aqueous phase liquid
NAVD88	North American Vertical Datum of 1988
Order	Agreed Order No. DE 9476 between Kimberly-Clark and Ecology
OSHA	Occupational Safety and Health Act
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCB	polychlorinated biphenyl
PID	photoionization detector
PPE	personal protective equipment
PQL	practical quantitation limit
PSCAA	Puget Sound Clean Air Agency
Pyron	Pyron Environmental Inc.
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
REC	recognized environmental condition
RI/FS	Remedial Investigation/Feasibility Study
RL	reporting limit
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SC	spiked concentration
SDG	sample delivery group
SEPA	State Environmental Policy Act

SHSP	Site-Specific Health and Safety Plan
Site	Kimberly-Clark Worldwide Site
SOP	standard operating procedure
SVOC	semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TSS	total suspended solids
TPH	total petroleum hydrocarbons
U.S.	United States
USC	unspiked sample concentration
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WSDOT	Washington State Department of Transportation

1 Introduction

Aspect Consulting, LLC (Aspect) has prepared this Interim Action Plan, on behalf of Kimberly-Clark Worldwide, Inc. (K-C), to guide opportunistic cleanup activities during facility demolition on the Upland Area of the Kimberly-Clark Worldwide Site (Site). The Site is located at 2600 Federal Avenue in Everett, Washington (herein referred to as the Upland Area) (Figure 1). The Interim Action Plan is prepared as Exhibit C to Agreed Order No. DE 9476 (Order). The Site and the Upland Area of the Site are defined in Section IV of the Order.

A Phase 1 Environmental Site Assessment (ESA) of the K-C Everett Mill property conducted in 2010 by AECOM, Inc. (AECOM, 2011) identified the following recognized environmental conditions (RECs), the locations of which are shown on Figure 1:

- REC 1: ExxonMobil ADC Site;
- REC 2: Former Oil House and Former Gasoline/Bunker C Above Ground Storage Tanks (ASTs);
- REC 3: Heavy Duty Shop Sump;
- REC 4: Railcar Dumper Hydraulic System Building;
- REC 5: Dutch Ovens 1 through 5;
- REC 6: Latex Spill Area; and
- REC 7: East Waterway[1].

The Phase 1 ESA also identified six historical RECs (HRECs), which at the time would have required environmental response "but may or may not be considered a REC currently." These six, located on Figure 1, are as follows:

- HREC 1: Underground Storage Tank (UST) Removals (former UST numbers 29, 67, 68, 68R, 69, 70, 70R, 71, 72, 73);
- HREC 2: Naval Reserve Property;
- HREC 3: Bleaching Tower Area;
- HREC 4: Polychlorinated biphenyl (PCB) Transformers;
- HREC 5: Former Paint Shop; and
- HREC 6: Rail Car Dumper Containment Vault Valve.

[1] The in-water area of the Site is located within the East Waterway. Contamination identified in the in-water area will be addressed under a separate Agreed Order. This interim action plan only applies to the Upland Area of the Site.

The Phase 1 ESA can be viewed for reference purposes on Washington State Department of Ecology's (Ecology) web site using the following web link:

https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2569.

The Work Plan for Independent Phase 2 ESA of the Upland Area prepared in May 2012 by Aspect (Aspect, 2012) describes the RECs and HRECs, along with proposed environmental characterization for several of them. The Phase 2 ESA Work Plan can be viewed for reference purposes on Ecology's web site using the same web link as provided previously for the Phase 1 ESA.

Based on information gathered during the ongoing Phase 2 ESA, and during mill demolition, the RECs and HRECs may or may not be candidates for opportunistic interim cleanup actions during the demolition program. The locations for the opportunistic interim action will be defined as the environmental assessment proceeds and site demolition proceeds. Based on the understanding of environmental conditions at the time of this Interim Action Plan, Figure 2 identifies locations where opportunistic interim action will likely occur during demolition.

Because locations in which to conduct opportunistic cleanup actions are not yet fully defined, this Interim Action Plan describes the general procedures for conducting the opportunistic cleanups during demolition, wherever they may occur within the Upland Area. The opportunistic cleanup actions will involve excavation and proper off-Site disposal of contaminated soil, with concurrent dewatering to facilitate soil removal and handling. In addition, separate-phase petroleum ("free product") identified in the groundwater during excavation activities will be collected (either by vacuum truck or adsorbent material), characterized, and sent for off-Site disposal. As such, the interim action will involve permanent removal of contaminated soil and/or groundwater from the Upland Area, and will not conflict with or eliminate reasonable alternatives for the final Site cleanup action in accordance with WAC 173-340-430(3)(b). The opportunistic interim actions will be limited solely to the Upland Area (bounded on the west by the mean higher high water elevation), and will not include any work in the in-water area of the Site as defined in Section IV of the Order.

Aspect is the engineering firm responsible for overseeing, monitoring, and reporting the opportunistic interim cleanup activities on behalf of K-C, and is termed the Engineer in this Plan. A construction contractor (Contractor) identified by K-C will be contracted with K-C or the Engineer to conduct the interim cleanup activities.

1.1 Plan Organization

The Interim Action Plan is organized into the following sections:

- **Section 2—Upland Area Subsurface Conditions** presents a brief description of the subsurface conditions at the Upland Area.
- **Section 3—Permits and Other Requirements** describes permitting requirements for conducting the opportunistic interim cleanup activities.
- **Section 4—Generalized Approach for Opportunistic Cleanups** describes the generalized interim cleanup activities including interim action cleanup levels,

erosion and sediment controls, dewatering and water management, soil excavation and handling, and excavation backfilling.

- **Section 5—Compliance Monitoring** presents the procedures for protection and performance monitoring to be conducted during interim cleanup activities.
- **Section 6—Waste Management** identifies preliminary options for off-Site disposal of contaminated soil and groundwater which will be encountered during interim cleanup activities conducted in the Upland Area.
- **Section 7—Reporting** describes the reporting of interim cleanup activities conducted in the Upland Area.
- **Section 8—References** lists the documents cited in this Plan.

A Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP), included as Appendices A and B, respectively, have also been developed in support of the interim cleanup activities in accordance with WAC 173-340-820.

2 Upland Area Subsurface Conditions

This section provides a general description of the Upland Area subsurface conditions that have relevance for conducting the opportunistic interim cleanup activities.

The local topography surrounding the Upland Area slopes westward toward the Waterway. Property ground surface elevations above NAVD88 range from approximately 17 to 19 feet along the eastern boundary to approximately 13 to 17 feet on the western boundary.

A wedge of fill, generally thickening from east to west, comprises the shallow subsurface soils across the Upland Area. The fill was placed on the Waterway tidal flats to create new upland beginning in the early 1900s. Within the west-center portion of the Upland Area, a former log pond was filled in stages between the mid-1950s and early 1980s to create land for wood chip and hog fuel storage. The fill across the Upland Area has variable composition, predominantly including sand and silty sand with shell fragments (probable dredge fill), and localized occurrences of gravel, variable debris, and wood.

A shallow unconfined (water table) water-bearing zone occurs within the fill, overlying siltier native tidal flat deposits. The water table is relatively shallow, generally ranging in depth from 2 to 6 feet below grade in the eastern portion of the Upland Areas to 8 to 15 feet below grade in the western portion. Groundwater in the fill is hydraulically connected to the Waterway. Based on tidal monitoring data collected during the independent Phase 2 ESA, tidally induced water table fluctuations near the Waterway range between about 2 and 7 feet depending on location

3 Permits and Other Requirements

When performing the opportunistic interim actions within the Upland Area under the Order, K-C is exempt from the procedural requirements of Chapters 70.94 (Washington Clean Air Act), 70.95 (Solid Waste Management Act), 70.105 (Hazardous Waste Management Act), 90.48 (Water Pollution Control), and 90.58 (Shoreline Management Act) Revised Code of Washington (RCW), and of laws requiring or authorizing local government permits or approvals; however, K-C must still comply with the substantive requirements of such permits or approvals.

The starting point for Applicable or Relevant and Appropriate Requirements (ARARs) is Ecology's Model Toxics Control Act (MTCA) regulations (Chapter 173-340 WAC) that address implementation of a cleanup and define cleanup standards under the MTCA statute (Chapter 173.105D RCW). Other ARARs include the following:

1. State Water Pollution Control Act (Chapter 90.48 RCW);
2. Water Resources Act (Chapter 90.54 RCW);
3. Applicable surface water quality criteria published in the water quality standards for surface waters of the State of Washington (Chapter 173-201A WAC);
4. Applicable surface water quality criteria published under Section 304 of the Clean Water Act;
5. Applicable surface water quality criteria published under National Toxics Rule (40 C.F.R. Part 131);
6. Washington State Hazardous Waste Management Act (Chapter 70.105 RCW);
7. State Dangerous Waste Regulations (Chapter 173-303 WAC);
8. Solid Waste Management-Reduction and Recycling (Chapter 70.95 RCW);
9. Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 RCW);
10. Washington Clean Air Act (Chapter 70.94 RCW);
11. Puget Sound Clean Air Agency Regulations (http://www.pscleanair.org);
12. Occupational Safety and Health Act (OSHA), 29 CFR Subpart 1910.120;
13. Washington Industrial Safety and Health Act (WISHA);
14. Shoreline Management Act (Chapter 90.58 RCW);
15. Archaeological and Cultural Resources Act (Chapter 43.53 RCW); and
16. State Environmental Policy Act (SEPA; Chapter 43.21C RCW, Chapter 197-11 WAC, and Chapter WAC 173-802)

Section 3.1 describes the substantive permit requirements applicable to conducting the opportunistic interim cleanup activities. No federal permits will be required because the

interim action will be limited to the Upland Area and will not include any in-water work. Section 3.2 describes other requirements for conducting the interim cleanup actions.

3.1 Permitting and Substantive Requirements

3.1.1 State Environmental Policy Act (SEPA)

Compliance with SEPA, Chapter 43.21C RCW, will be achieved by conducting a SEPA review in accordance with applicable regulatory requirements, including WAC 197-11-268, and Ecology guidance as presented in Ecology Policy 130A (Ecology, 2004). SEPA review will be conducted concurrent with public review of the Order. It is planned that public review for the SEPA documentation will be conducted concurrently with public review for the Order.

3.1.2 Stormwater Pollution Prevention Plan

K-C's existing Stormwater Pollution Prevention Plan (SWPPP; David Evans and Associates, 2012) for the mill provides procedures for implementing erosion control and other stormwater pollution prevention measures during both demolition and remediation activities, including the opportunistic interim cleanup activities addressed under this Interim Action Plan. K-C shall adhere to the SWPPP when conducting the demolition phase interim actions described herein. The SWPPP can be viewed for reference purposes on Ecology's web site using the same web link as provided previously for the Phase 1 ESA. Figure 8 in AECOM's (2011) Phase 1 ESA depicts the stormwater drainage basins within the Upland Area (available at same web link as provided above).

3.1.3 City of Everett Discharge Authorization

K-C has obtained a discharge authorization (DA) from the City of Everett (City) industrial pretreatment program to allow discharge of pre-treated dewatering water generated during the interim cleanup action. Groundwater treatment and disposal methods are described in Section 6.2. The DA imposes daily discharge volume limitations and numerical water quality limits for effluent discharged, and it will require sampling and analysis of the discharge water, recording of the volumes discharged, and submittal of the monitoring data at the end of the permit. Treated water not in compliance with the City discharge limits will be re-run through the treatment system until passing discharge limits or containerized, characterized, and sent for off-Site disposal.

3.1.4 City of Everett Grading Permit

Soil excavations exceeding 50 cubic yards are subject to a grading permit from the City. Substantive requirements of the grading permit include erosion control, which is addressed by the SWPPP described in Section 3.1.2.

3.1.5 Shoreline Permit

The substantive requirements of a City of Everett Shoreline Substantial Development Permit will apply for Upland Area interim cleanup activities conducted within 200 feet of the East Waterway shoreline. The substantive requirements would include compliance with the City of Everett Shoreline Management Program, noise ordinance, and critical areas regulations, staging construction work outside the 200-foot shoreline buffer zone,

preventing spills of hazardous materials (e.g., fuel), and use of best management practices (BMPs) substantially equivalent to those included in the SWPPP.

3.2 Other Requirements

This subsection provides a description of additional requirements that will be considered during planning and execution of interim cleanup activities within the Upland Area.

Utilities Protection and Decommissioning

The Upland Area includes subsurface utilities that may be decommissioned as part of the demolition activities and active utilities that will need to be protected during interim cleanup activities (e.g., active stormwater infrastructure). Prior to initiating interim cleanup activities, active subsurface utilities that require protection will be located using any combination of electromagnetic methods, reviewing utilities maps for the mill, manual post hole excavations, and, if warranted, vacuum excavation (e.g., air knife). The Utility Notification Center ("one call") utility locate service will also be contacted, to locate public utilities up to the property boundary. Active utilities will be protected to prevent damage to them, or, potentially, temporarily removed and then restored to their pre-construction condition. Subsurface utilities that will be decommissioned during mill demolition may be decommissioned prior to or during the interim cleanup activities.

Monitoring Well Decommissioning

Groundwater monitoring wells located within the footprints of interim cleanup excavations will be properly decommissioned in accordance with the requirements of Chapter 173-160 WAC. Following completion of the interim cleanup activities, replacement monitoring wells may be installed as warranted, in accordance with procedures described in Appendix A.

Archaeological Resources Monitoring

Ecology is working with landowners/stakeholders including local Indian tribes to clean up contaminated sites and sediments in the vicinity of the Port Gardner Bay area and the Snohomish River Estuary. Port Gardner Bay is identified as a high-priority, "early-action", cleanup area under the Puget Sound Initiative (PSI). The Kimberly-Clark Worldwide Site has been identified as a cleanup site under the PSI. Local tribes that have been actively engaged by Ecology under the PSI at Port Gardner include the Tulalip, Suquamish, Swinomish, and Lummi. Ecology has worked with a tribal liaison to assist in developing contacts and early engagement with cultural and natural resource sections within each of the aforementioned tribes. Engagement with the tribes has consisted of meetings to discuss PSI cleanup sites and cultural resources, providing the Tribes with draft work products for early input, and providing them with updates containing the current status of each PSI site, near-term work products for tribal review, project schedules, and a summary of tribal engagement for the Port Gardner PSI sites.

Based on Ecology's discussion with the Tribes and information provided in a 1973 Historical Survey of Everett (Dilgard and Riddle, 1973), people have inhabited the Port Gardner Bay area for thousands of years. For centuries, the northwest point of the peninsula (i.e., Preston Point) was the site of Hebolb, the principal village of the Snohomish Tribe. Its location near the mouth off the Snohomish River and next to Port

Gardner Bay provided both abundant food and transportation. Native tribes used the Everett shoreline in part for subsistence activities such as shellfish collection, hunting, plant gathering and fishing. According to local tribes, native long houses were located up and down the Everett waterfront. Local tribes have communicated to Ecology that the Everett waterfront is a culturally sensitive area. With that in mind, the procedures to be used in the event archaeological resources are encountered during Site activities are presented below.

Prior to initiating the interim action, a professional archaeologist will prepare a cultural resource assessment and an inadvertent discovery plan specific to the Upland Area interim actions. The assessment will map, based on readily available information, estimated probabilities for areas of native soil within the Upland Area to contain significant Native American archaeological materials (low, medium, high probability).

It is currently planned that excavation work associated with the interim actions will occur principally in the non-native fill. The interim action excavations and excavated soils will be observed by a geologist overseeing the interim action activities, with attention paid to looking for evidence of non-soil materials. If a potential archaeological object is discovered during interim action activities, work will be stopped immediately and a professional archaeologist will mobilize to the excavation location to observe and assess the materials encountered. If the professional archaeologist confirms that an archaeological object has been encountered, they will notify Ecology, the Department of Archaeology and Historic Preservation (DAHP), the City of Everett Planning and Community Development Department, and the Tulalip Tribes Cultural Resources Department in a timely manner (current day if possible) and no later than the next business day. Contact information is provided below.

- **Ecology** – Andy Kallus, Site Manager, Toxics Cleanup Program – (360) 407-7259.
- **DAHP** – (360) 586-3065.
- **City of Everett Planning and Community Development Department** – (425) 257-8731
- **Tulalip Tribes Cultural Resources Department** – (360) 716-2600

The professional archeologist will invite the parties to attend an on-site inspection. The archaeologist will document the discovery and provide a professionally documented site form and report. In the event of any discovery of human remains, work will be immediately halted in the discovery area, the remains will be covered and secured against further disturbance, and the Everett Police Department and Snohomish County Medical Examiner will be immediately contacted, along with the DAHP Physical Anthropologist and authorized Tribal representatives. A treatment plan by the professional archaeologist will be developed in consultation with the above-listed parties consistent with Chapter 27.44 RCW (Indian graves and records) and Chapter 27.53 RCW (Archaeological sites and resources) and implemented according to Chapter 25.48 WAC (Archaeological excavation and removal permit). The archaeologist will submit documentation regarding the discovery to DAHP so that they may control access to information regarding potential sensitive-site locations, in accordance with RCW 27.53.070.

4 Generalized Approach for Opportunistic Cleanups

As stated in Section 1, the opportunistic cleanup actions conducted under this Interim Action Plan will involve excavation and proper off-Site disposal of contaminated soil, with concurrent dewatering to facilitate soil removal and handling. In addition, separate-phase petroleum identified in the groundwater during excavation activities will be collected to the extent practicable (either by vacuum truck or adsorbent material), characterized, and sent for off-Site disposal. Separate-phase petroleum can also be recovered from the system used to treat dewatering water (Section 6.2). Specific locations for the opportunistic cleanup actions are not yet defined. While each opportunistic cleanup location will have unique physical conditions to be adapted to, this section describes the generalized procedures/approach to be conducted during the opportunistic interim cleanup actions irrespective of location — including application of interim action cleanup levels guiding the extent of interim cleanup, erosion and sediment controls, dewatering and water management, soil excavation and handling procedures, stockpile management, and excavation backfilling.

4.1 Interim Action Cleanup Levels

The Order requires completion of a Model Toxics Control Act (MTCA) Remedial Investigation/Feasibility Study (RI/FS) and draft Cleanup Action Plan (DCAP) for the Upland Area. Therefore, Ecology has not yet established final soil or groundwater cleanup levels for the Upland Area.

Therefore, the opportunistic interim cleanups addressed under this Plan will, to the extent practicable, remove soil containing contaminant concentrations above soil interim action cleanup levels, which may be less stringent than final soil cleanup levels, in accordance with WAC 173-340-355.

For the purposes of conducting the opportunistic interim cleanups, interim action cleanup levels are established as MTCA soil cleanup levels for unrestricted land use, the more stringent of Method A (see WAC 173-340-740(1); WAC 173-340-900, Table 740-1) or Method B unrestricted values (see WAC 173-340-740(3)). Cleanup levels based on unrestricted land use are protective of residential land use scenarios and natural resources such as groundwater and adjacent surface water.

If, during the course of the interim action, it becomes known that the Upland Area will remain in traditional industrial land use (consistent with WAC 173-340-200 [definitions] and -745) , interim action soil cleanup levels for an industrial land use can be used during the demolition-phase interim action, subject to prior discussion with and approval by Ecology.

4.2 Erosion and Sediment Controls

The construction storm water best management practices (BMPs) described in Section 3 of the SWPPP for demolition and remediation of the K-C Everett Mill (David Evans and Associates, 2012) will be implemented during soil excavation, stockpiling, loading, and transportation on-Site during the interim action. Soil erosion due to precipitation runoff

or run-on to or from soil excavations, stockpiles, or other soil areas exposed or disturbed throughout the interim cleanup activities will be prevented using berms, surface water control, straw bales, plastic covers (minimum 10-mils), or other measures appropriate for the conditions. The Engineer will monitor and maintain the BMPs and apply all available and reasonable methods to control runoff from leaving the immediate area of the soil management activity.

4.3 Dewatering and Water Management

Construction dewatering may be conducted during the interim cleanup activities to dewater saturated contaminated soil in place to facilitate effective soil excavation/handling and performance soil sampling within the excavation (discussed in Section 5.2). Means and methods for dewatering will be determined by the construction contractor specific to each location, and may include:

- Temporary sumps within the open excavation;
- Well points outside the excavation; and/or
- Groundwater cutoff technologies.

Sumps are an effective means of dewatering excavations within lower permeability material where groundwater heads need only be depressed several feet. If sumps are inadequate for dewatering the excavation, closely-spaced vacuum well points may be used outside the excavation footprint. Methods such as temporary shoring, trench boxes, etc. may also be employed to reduce water inflow and/or stabilize the excavations, if needed.

Groundwater pumped during dewatering will be treated on-Site and disposed of as described in Section 6.2.

Separate-phase petroleum identified in the groundwater during excavation activities will be collected to the extent practicable (either by vacuum truck or adsorbent material), characterized, and sent for off-Site disposal. Separate-phase petroleum can also be recovered from the system used to treat dewatering water (Section 6.2).

4.4 Soil Excavation and Handling

Interim cleanup activities in the Upland Area will involve conventional excavation and off-Site disposal of contaminated soils to anticipated depths to 15 feet or more below existing grade. Excavation sidewalls will be sloped or otherwise stabilized as needed to facilitate excavation to the depths required to achieve cleanup goals. Asphalt and concrete removed in the course of interim action excavation will be managed with like materials being removed during the mill demolition. However, visibly contaminated (e.g., petroleum stained) asphalt, concrete, or other debris will be handled and properly disposed off Site.

To the extent practical, contaminated soil that has been drained to an unsaturated condition will be direct loaded into waiting dump trucks or intermodal containers for off-Site transport to a licensed disposal facility, rather than stockpiled temporarily on-Site. If

contaminated soils are temporarily stockpiled on-Site, the stockpiles will be managed as described in Section 4.5.

Some of the soil excavated is expected to be saturated since the depth to the groundwater table varies from 2 to 15 feet below ground surface (bgs). Saturated soil will be drained directly back into the excavated area prior to loading. Care will be taken so that groundwater from the excavation bucket flows back into the excavated region and not to adjacent areas.

During soil removal, the Engineer will initially make a determination of whether or not the soils being excavated are contaminated or not (meet interim action cleanup levels or not), based on information from prior investigations and field screening evidence during excavation. Field screening methods include visual and olfactory observations, use of a photoionization detector (PID) for determining presence/absence of volatile organic compounds, use of a sheen test for presence of petroleum, and/or other methods appropriate to the known contaminant type.

Excavated soils that the Engineer determines to be potentially not contaminated, using the field screening methods described above, are termed “overburden”. The Engineer will also make a determination of whether or not excavated overburden soils are geotechnically suitable to be reused as fill on-Site. Geotechnically suitable soils are defined as having composition, grain size, and moisture characteristics that allow its placement and ability to meet compaction requirements defined in Section 4.6. Conversely, geotechnically unsuitable soils would have undesirable physical soil characteristics and/or an excessive percentage of organic matter or debris, and would not meet compaction requirements. Geotechnically suitable overburden, if confirmed through chemical testing to be not contaminated, can be reused as fill on-Site. Geotechnically unsuitable soils, irrespective of whether contaminated or not, are assumed to have no beneficial use on-Site, and therefore will be disposed of off site. Overburden stockpiles will be managed and sampled/chemically analyzed for the purpose of proper waste designation, as described in Section 4.5.

If the performance monitoring data collected from the excavation extents (Section 5.2) indicate that interim action cleanup levels have not been achieved, the excavation will be expanded to remove additional soil so as to meet interim action cleanup levels, to the extent practicable. Where an excavation sidewall sample exceeds a soil interim action cleanup level, the length of sidewall represented by that sample will be over-excavated approximately 2 feet laterally, followed by collection of a new sidewall verification sample in that location. Where an excavation bottom sample exceeds a soil interim action cleanup level, additional soil from the bottom of the excavation will be over-excavated by a depth of approximately 1 foot, followed by collection of a new bottom verification soil sample at that location.

4.5 Stockpile Management

If soil stockpiling is needed during the interim cleanup excavation activities, the Contractor will stockpile the excavated soils in a location (designated by Aspect) which will not hinder completion of the cleanup activities or nearby demolition activities.

If potentially uncontaminated soils (overburden) require removal to access contaminated soils, separate stockpiles will be designated for contaminated soil versus overburden based on the Engineer's field screening.

To the extent practical, stockpiles will be located away from storm drain catch basins and the waterway shoreline. Areas designated for stockpiling will be cleared of debris or obstructions before stockpiling thereon. Soil will be transported in a way so as to limit spillage of soil between the interim cleanup excavation location and the stockpile location.

The maximum individual size for a stockpile of overburden soil will be 100 cubic yards. The overburden stockpiles can be contiguous, but 100 cubic yard increments must be clearly delineated so that stockpiles of 100 cubic yards or less can be sampled and managed individually based on laboratory analytical results. If contaminated soils are stockpiled, they need not be further sampled, unless needed for waste profiling, and can be of any size.

Each stockpile, irrespective of soil type, will be underlain by plastic sheeting with a minimum thickness of 10-mils, with adjacent sheeting sections continuously overlapped by a minimum of 3 feet. The ground surface on which the sheeting will be placed will be free of rocks greater than 1-inch in diameter and other objects that could damage the sheeting. Alternatively, a layer of geotextile or plywood may be placed beneath the sheeting to protect it in locations containing rocks or debris greater than 1-inch in diameter on the ground surface, or in areas through which vehicular traffic will travel. The stockpile area will be surrounded by straw bales or equivalent to limit transport of sediment potentially generated from the stockpiles.

The soil stockpiles will be covered by plastic sheeting of minimum 10-mil thickness to prevent precipitation from entering the stockpiled soil. Each stockpile cover will be anchored (e.g., using sand bags) sufficiently to prevent it from being removed by wind. Soil stockpiles will be covered when not in use and as needed during periods of rain and wind to prevent transport of soil. The stockpile management measures will be inspected regularly and maintained as needed as long as the stockpile remains at the Site.

4.5.1 Sampling and Disposition of Stockpiled Soil

The Engineer will conduct soil sampling and analysis of each stockpile of overburden soil to characterize it for appropriate disposition. Stockpiles of soil known/suspected to be contaminated based on the Engineer's judgment will not be sampled, unless needed for disposal profiling (assumed to already have been profiled for disposal based on prior data).

For each overburden stockpile being sampled (100 cubic yards or less in size), three (3) grab samples of soil will be collected, in accordance with stockpile sampling requirements provided in Ecology (2011). Stockpile soil sampling procedures are described in Appendix A, and analytical quality assurance procedures are outlined in Appendix B. Once the laboratory chemical testing data are available, each stockpile of overburden soil will be characterized according to the highest level of contamination detected in any one sample.

Based on the analytical results, each stockpile of geotechnically suitable overburden soil will be managed as follows:

- If chemical testing data confirm contaminant concentrations above interim action cleanup levels, it will be designated as contaminated soil, and will be transported and disposed of at an appropriately permitted off-Site disposal facility (disposal facility options described in Section 6.1).
- If chemical testing data confirm contaminant concentrations below interim action cleanup levels, it will be designated as non-contaminated and can be reused as fill on-Site.

Based on the analytical results, each stockpile of geotechnically unsuitable overburden soil will be managed as follows:

- If chemical testing data confirm contaminant concentrations above interim action cleanup levels, it will be designated as contaminated soil, and will be transported and disposed of at an appropriately permitted off-Site disposal facility (see Section 6.1).
- If chemical testing data confirm contaminant concentrations below interim action cleanup levels, it will be designated as non-contaminated soil. However, because it cannot be reused on-Site, the non-contaminated stockpiled soil will be loaded and transported to an off-Site facility permitted to accept it (see Section 6.1).

4.6 Excavation Backfill and Compaction

Each interim cleanup action excavation will be backfilled to surrounding grade using a combination of crushed concrete (less than 4 inch) recycled from demolition of former mill structures, (stockpiled) geotechnically suitable overburden confirmed to be uncontaminated, and/or granular materials (sand/gravel or crushed rock) imported from a known source of uncontaminated fill (e.g., Washington State Department of Transportation [WSDOT]-approved borrow pit).

Visibly contaminated concrete will be properly disposed of off Site as contaminated material (Section 4.4), so will not be used for backfill. Only concrete from locations where hazardous materials were not handled, and which has no visual or olfactory evidence of contamination and no surface coatings (e.g., paint) would be a candidate for use as backfill for the interim action excavations. Stockpile(s) of crushed concrete that are candidate for use as backfill will be chemically tested to demonstrate they are not contaminated, prior to use as excavation backfill.

For imported backfill, the Contractor must provide to the Engineer documentation of the fill source area land use and operational history, as well as representative analytical testing data for the fill material, to demonstrate it is not contaminated.

Representative sampling and chemical analyses for the imported fill soil and crushed concrete proposed for backfill will include the following: 5 samples for up to 1,000 cubic yards of material, and 1 additional sample for every additional 1,000 cubic yards of material, with each sample analyzed for gasoline-range petroleum hydrocarbons

(NWTPH-Gx method), diesel-/oil-range petroleum hydrocarbons (NWTPH-Dx method), volatile organic compounds (EPA Method 8260), semivolatile organic compounds (EPA Method 8270), priority pollutant metals (EPA Methods 6000/7000), and PCBs (EPA Method 8082).

Depending on the condition of the excavation bottom prior to backfill, a layer of quarry spalls may be required as a base for the granular backfill materials. Where crushed concrete is used as backfill, it will be capped with no less than 1 foot of clean granular material or organic soils.

The excavation backfill will be placed in lifts not to exceed 12 inches in thickness, and will be compacted to minimum 95 percent of maximum dry density as determined by ASTM D-1557 and measured by the Engineer. It is expected that the interim action excavations will not be repaved.

4.7 Control of Dust and Spreading of Contaminated Soil

During the interim action, the Contractor will use the following methods as needed to minimize off-Site migration, as airborne dust, track out, or stormwater runoff, of any contaminated soils identified based on visual observation or measurements:

- Apply water to dry soils as necessary to suppress airborne dust;
- Use BMPs identified in the SWPPP to prevent contaminated soils at the Site from entering the stormwater drainage systems;
- Use pipe plugs to fit internal lines in catch basins in the event of a release;
- Use other erosion control devices to prevent contaminated soils suspended in stormwater from migrating off-Site (e.g., soil piles will be covered in plastic and placed on plastic within berms);
- Maintain excavation equipment in good working order. The contractor must immediately clean up any contaminated soil resulting from spilled hydraulic oils or other hazardous materials from equipment;
- Minimize equipment traffic through the exclusion zone to prevent contaminated soils from being transported via track-off to other parts of the Site, or off of the Site;
- Establish specific truck haul routes before beginning off-Site transport of contaminated soil. Use on-Site truck routes that minimize or prevent traffic over contaminated areas;
- Locate loading areas for contaminated soil in, or at the edge of, the exclusion zone;
- Load only soils without free liquid in trucks (wet soils with free water will not be loaded into trucks);
- Load trucks in a manner that prevents the spilling, tracking, or dispersal of contaminated soils. Cover all loads prior to exiting the Site;

- Remove soil from the exterior of vehicles before they leave soil-loading areas or exit the Site. Place any soil collected in the loading area back into the truck; and
- Verify that loaded truck weights are within acceptable limits.

5 Compliance Monitoring

In accordance with WAC 173-340-410, compliance monitoring for a cleanup action includes the following elements:

- **Protection monitoring** confirms that human health and the environment are adequately protected during the cleanup action;
- **Performance monitoring** confirms that the cleanup action has attained interim action cleanup levels and/or other performance standards; and
- **Confirmation monitoring** confirms the long-term effectiveness of the cleanup action once interim action cleanup levels and/or other performance standards have been attained.

Protection and performance monitoring will be conducted for the opportunistic interim cleanups conducted in the Upland Area. Confirmation monitoring will be conducted as part of the final cleanup remedy established in the final Cleanup Action Plan, not as part of the interim action. However, based on approval from Ecology, K-C may initiate groundwater monitoring following completion of the interim soil cleanups to expedite data collection supporting confirmation monitoring.

The protection and performance monitoring requirements for the opportunistic interim cleanup actions are briefly described below.

5.1 Protection Monitoring

Protection monitoring will be conducted pursuant to WAC 173-340-410(1)(a) to confirm that human health and the environment are adequately protected during implementation of the interim action. On-Site workers conducting the interim action are required to be appropriately trained in hazardous waste operations in accordance with WAC 296-843-200, and follow an applicable site-specific health and safety plan (SHSP) that they develop as required by WAC 173-340-810. Activities performed under the SHSP will comply with the applicable section of 29 CFR 1910.120. In general, protection monitoring will include air monitoring within the exclusion zone (worker breathing zone) using PID to measure volatile organic compound concentrations and, if warranted based on PID information, using instruments (e.g., Draeger tubes) for measuring airborne concentrations of contaminants specific to the interim action location. Visual monitoring of fugitive dust will also be conducted, with dust control BMPs (Section 4.7) conducted as needed to minimize visible dust emissions in accordance with Puget Sound Clean Air Agency (PSCAA) rules (Section 9.15 of PSCAA Regulation I). If visible dust is generated, either work will stop until the visible dust is eliminated, or dust levels will be

measured to assure that they meet appropriate action levels protective of human health. If measured volatile organic compounds or dust levels exceed action levels established for the interim action, measures will be implemented to reduce the emissions to below action levels. Some of the measures may include those discussed previously in Section 4.7, covering exposed soils with plastic, reducing the areal extent of soil disturbance, or use of a vapor barrier. By achieving occupational health standards within the exclusion zone and dust control during the short-term interim action excavations, the off-Site public will also be protected. Protection monitoring data collected by the Engineer during cleanup will be made available to other on-Site workers and Ecology, if requested.

Nothing in this Plan precludes other on-Site contractors/consultants from choosing to conduct additional protection monitoring. All contractors, subcontractors, and other persons on-Site are solely responsible for the safety of their employees, including training and preparation and execution of their own site-specific health and safety plan.

5.2 Performance Monitoring

During the interim cleanup actions, the Engineer will conduct performance monitoring consisting of collecting and analyzing soil samples from the limits of cleanup excavations to determine if interim action cleanup levels are achieved. The Engineer will collect the performance soil samples when field screening indicates that sufficient soil has been removed to meet interim action cleanup levels for that portion of an excavation.

Performance samples will be collected from both bottom and sidewalls of the interim cleanup action excavations to document that the vertical and lateral extents of soil exceeding interim action cleanup levels have been removed. Excavation bottom verification samples will be collected using the excavator bucket on a systematic 15-foot grid (i.e., one sample per 15-foot by 15-foot square), with a minimum of three samples from the bottom of each excavation. Excavation sidewall verification samples will be collected at a horizontal spacing of approximately 15-feet and at 3-feet depth intervals (e.g., 0 to 3 feet, 3 to 6 feet, 6 to 9 feet, etc.) across the full depth of excavation. A minimum of two verification samples will be collected from each sidewall at each depth interval within each excavation.

Chemical analyses for the excavation verification soil samples in each interim cleanup area will be determined based on the existing data (contaminants of concern) that identified the area for interim cleanup and/or other information regarding historical operations in that location. The Engineer will determine the specific chemical analyses for the verification soil samples based on contaminants of concern, as determined by sufficient prior characterization sampling and analysis, for each interim action excavation area. For example, verification soil samples collected from areas with diesel or oil (e.g., Bunker C) fuel contamination will be analyzed for diesel-/oil-range TPH (with silica gel cleanup) and PAHs. Verification soil samples collected from areas with gasoline contamination will be analyzed for gasoline-range TPH, volatile organic compounds (VOCs) which include fuel oxygenates, and lead. Verification soil samples collected from areas with xylene contamination will be analyzed for gasoline-range TPH and VOCs. Verification soil samples collected from the latex spill area will be analyzed for VOCs including vinyl acetate and 1,4-dioxane. The Engineer will expand the list of

analytes if an interim action excavation area expands into an area with different contaminants.

The procedures for excavation verification soil sample collection and analysis are presented in detail in the SAP and QAPP (Appendices A and B).

6 Waste Management

This section describes management and disposal of soil and groundwater generated during the Upland Area opportunistic interim cleanup activities.

6.1 Soil Disposal

K-C will dispose of contaminated and geotechnically unsuitable overburden soils generated during the interim cleanups at an appropriate off-Site facility permitted to accept the waste. Trucks transporting contaminated soil from the site will comply with applicable state and federal regulations and local ordinances, and will be covered from the time they are loaded on-Site until they off-load at the designated off-Site disposal facility.

Final disposal facilities for contaminated soil generated during the interim cleanup activities will be determined based on the soil's chemical characteristics relative to disposal facilities' permit requirements. Potential disposal facilities for contaminated soil include:

- **Soil contaminated by only petroleum:** CEMEX USA, Everett, Washington.
    - Restrictions: Cannot accept soil containing concentrations of metals or chlorinated compounds above MTCA unrestricted soil cleanup levels.
    - Contact: Larry Baker, (425) 210-8429, lbaker@cemexusa.com.
- **Non-hazardous contaminated soil (special waste):** Republic Services Inc.'s Roosevelt Regional Subtitle D Landfill in Roosevelt, Washington.
    - Restrictions: Cannot accept hazardous waste.
    - Contact: Leslie Whiteman, (206) 332-7711, LWhiteman@republicservices.com.
- **Non-hazardous contaminated soil (special waste):** Waste Management Inc.'s Subtitle D landfills, including one in Wenatchee, Washington, and three in Oregon (Columbia Ridge, Riverbend, and Hillsboro).
    - Restrictions: Cannot accept hazardous waste.
    - Contact: Michael McQuarrie, (360) 913-4781, mmcquarr@wm.com.

- **Hazardous contaminated soil (dangerous waste):** Waste Management Inc.'s Chemical Waste Management Subtitle C Landfill in Arlington, Oregon.
    - Restrictions: Waste must meet universal treatment standards prior to disposal. Note that Waste Management has technical capabilities at their Arlington facility for treating soils to achieve treatment standards prior to land disposal.
    - Contact: Michael McQuarrie, (360) 913-4781, mmcquarr@wm.com.

Prior data from the environmental assessments and/or interim action performance monitoring will be used to profile the contaminated soil for off-Site disposal. Additional testing of soil may be required during the interim cleanups, if requested by the disposal facility.

Geotechnically unsuitable overburden (not contaminated) will be retained on site for use in final site grading and/or landscaping.

Irrespective of the type of soil disposed of off site, the Engineer will obtain and retain copies of the certificates of disposal and other disposal records for it; this documentation will be included in the Interim Action Report (Section 7).

6.1.1 On-Site Treatment Option

K-C retains the option to treat waste on-Site to remove a hazardous waste characteristic prior to off-Site disposal (e.g., stabilize soil on-Site to reduce Toxicity Characteristic Leaching Procedure [TCLP]-leachable concentrations to below federal characteristic criteria). For example, chemical stabilization for metals-contaminated soil could include mixing the soil with reagents including cement, phosphate minerals, etc. to reduce leachability under the TCLP test Bench-scale testing of specific reagent mixes with Site soil would likely be conducted prior to full-scale stabilization. If on-Site treatment successfully removes the hazardous characteristic, the waste can be disposed of as solid waste in a Subtitle D landfill. Likewise, on-Site treatment can be used to achieve universal treatment standards and thereby allow land disposal of hazardous waste in a Subtitle C landfill. If hazardous waste is treated on-Site, its excavation, treatment, and loading for off-Site disposal would be completed within 90 days.

6.2 Groundwater Treatment and Disposal

Groundwater pumped during dewatering will be pre-treated on-Site using a temporary treatment system, and then discharged to City of Everett's wastewater treatment plant via their sanitary sewer, in accordance with a discharge authorization (DA) obtained by K-C (Section 3.1.3). The temporary water pre-treatment system will consist of a 3-chamber weir tank(s), bag filters, and granular activated carbon vessels. The weir tank will provide removal of settleable solids and, if present, floating separate-phase petroleum. Weir tank effluent will be pumped through bag filters (mesh sizing to be determined) for removal of suspended solids, and then through vessels of granular activated carbon (sized for flow rate and expected concentrations) for removal of dissolved-phase organics. The treated water will then be discharged into K-C's on-Site wastewater treatment facility, from which it will be discharged to City sanitary sewer. Treated water not in compliance with

the City discharge limits will be re-run through the treatment system until passing discharge limits, or will be containerized, characterized, and sent for off-Site disposal. Rates of treated water discharge to sewer will comply with the DA. Additional storage tanks may be used to provide additional on-Site storage if necessary.

Separate-phase petroleum (free product) identified in the groundwater during excavation activities will be collected to the extent practicable (either by vacuum truck or adsorbent material), characterized, and sent for off-Site disposal consistent with the following:

- Petroleum free product collected by vacuum truck may be drummed, characterized, and sent for off-Site disposal.
- Petroleum free product collected on adsorbent materials will be characterized and disposed of along with the adsorbents together with contaminated soils from the excavation or dewatering.

Prior to demobilization of the temporary water treatment system, the Contractor will clean the weir tank(s), including removing and stockpiling the settled solids from within the tank(s).The Engineer will chemically test the stockpiled solids for waste profiling in accordance with the sampling procedures described in Appendix A and chemical analyses outlined in Appendix B. The settled solids stockpile will be designated for disposal according to the highest level of contamination detected in any one sample, and will then be loaded, transported, and disposed of at a licensed off-Site disposal facility.

7 Reporting

As specified in the Order, K-C shall provide Ecology with quarterly written updates on interim actions that have taken place in the Upland Area. In addition, once active cleanup has begun, Ecology and K-C shall have meetings or teleconferences on a monthly basis to discuss the status of Site activities including upland interim actions. Within 90 days of completing an opportunistic interim cleanup action, an Interim Action Report, describing the methods and outcome of the interim cleanup activities, will be prepared and submitted to Ecology in accordance with the Order. Information provided in the Interim Action Report will include a description of how the contaminated media was managed, the lateral and vertical limits of any excavations, the volume of contaminated soil or groundwater removed from each excavation, and all sampling results including pre-excavation characterization of site media, post-excavation compliance monitoring, and characterization of environmental media for waste disposal purposes. All interim actions at the Site will subsequently be fully described and documented in the Upland Area RI/FS report and the draft Cleanup Action Plan (CAP) for the Site.

The results of the interim cleanup activities will subsequently be incorporated into the draft RI/FS for the Upland Area. The data collected during the interim action will also be uploaded to Ecology's EIM database (within 60 days after it has been validated) along with the other RI/FS data, in accordance with the Order.

8 References

AECOM, 2011, Phase I Environmental Site Assessment, Everett Pulp and Paper Mill, Everett Washington, April 2011.

Aspect Consulting, 2012, Work Plan for Independent Phase 2 Environmental Site Assessment, Kimberly-Clark Mill Upland, Everett, Washington, May 21, 2012.

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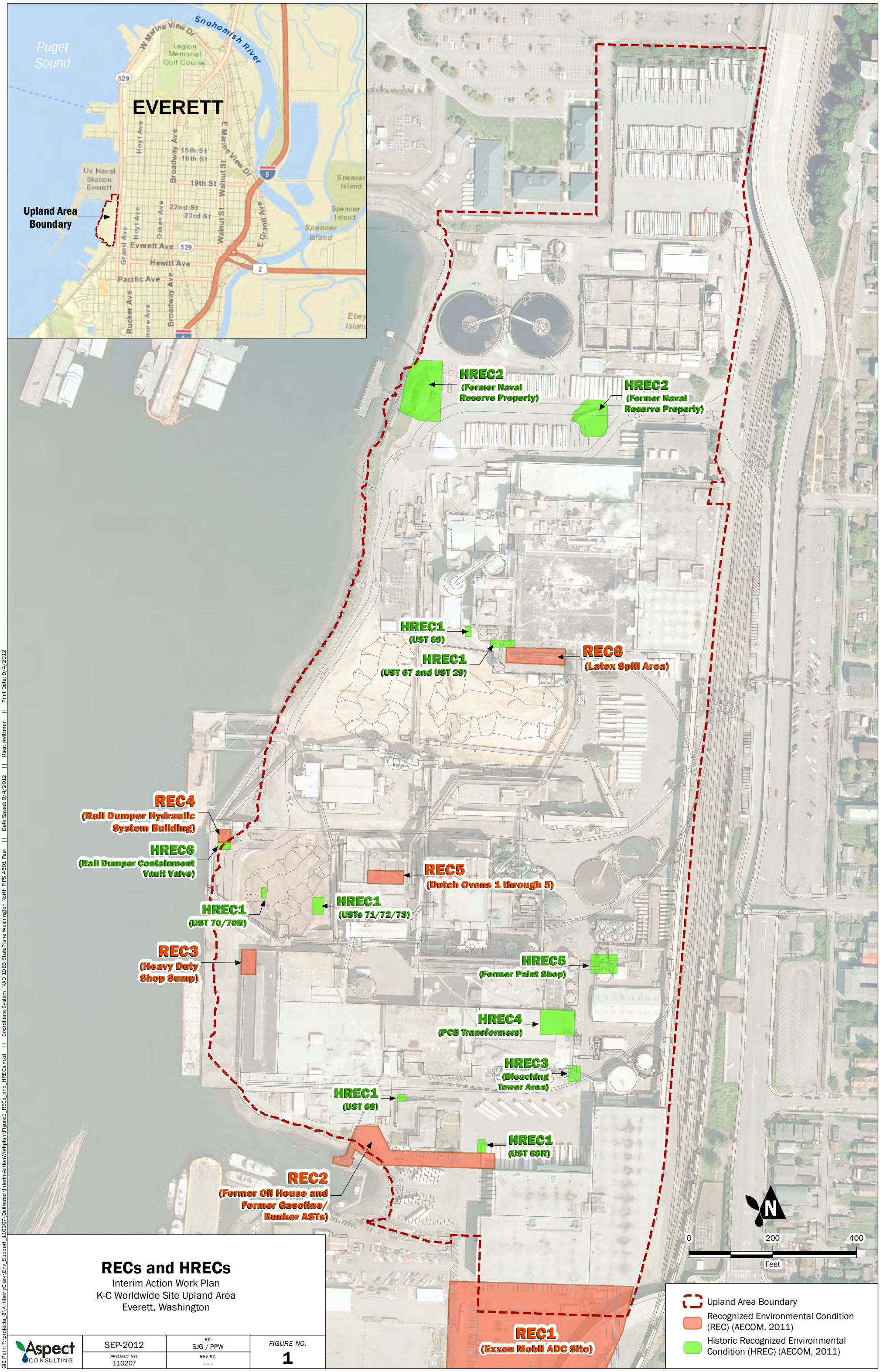
Dilgard and Riddle, 1973. Shoreline Historical Survey Report, Shoreline Master Plan Committee for City of Everett. 1973.

Ecology, 2004, Toxics Cleanup Program Policy 130A, Coordination of SEPA and MTCA, Revised July 28, 2004.

Ecology, 2011, Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology Toxics Cleanup Program, September 2011.

Landau Associates, 1991, Soil and Groundwater Investigation, Former Underground Petroleum Storage Tanks, Everett Pulp and Paper Mill, Everett, Washington,



RECs and HRECs

Interim Action Work Plan
K-C Worldwide Site Upland Area
Everett, Washington

Aspect CONSULTING			
	SEP-2012	BY: SJG / PPW	FIGURE NO. 1
	PROJECT NO. 110207	REV BY: ---	

GIS Path: T:\projects_8\KimberlyClark\Env_Support_110207\Delivered\InterimActionWorkplan\Figure1_RECs_and_HRECs.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 9/4/2012 || User: pwittman || Print Date: 9/4/2012

Xylene UST 29/Latex Spill

Rail Car Dumper Hydraulic System Building

Diesel UST 70

Bunker C USTs 71/72/73

Heavy Duty Shop Sump

Bunker C ASTs

N

0 200 400

Feet

Upland Area Boundary

Current Probable Area for Interim Action During Demolition (areas are schematic)

Current Probable Areas for Interim Action During Demolition

Interim Action Work Plan
K-C Worldwide Site Upland Area
Everett, Washington

Aspect CONSULTING	SEP-2012	BY: SJG / PPW	FIGURE NO. 2
	PROJECT NO. 110207	REV BY: ---	

GIS Path: T:\projects_8\KimberlyClark\Env_Support_110207\Delivered\InterimActionWorkplan\Figure2_CurrentProbable_IA_Areas.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 9/4/2012 || User: pwittman || Print Date: 9/4/2012

APPENDIX A

Sampling and Analysis Plan

Appendix A Contents

A1 Introduction

This Sampling and Analysis Plan (SAP) describes field sampling and quality control (QC) procedures to be followed during interim cleanup activities conducted in the Upland Area of the Kimberly-Clark Worldwide Site located at 2600 Federal Avenue in Everett, Washington (herein referred to as the Upland Area). Additional information on laboratory analytical methods and QC are provided in the Quality Assurance Project Plan (QAPP), included as Appendix B of the Interim Action Plan. It is the responsibility of the project personnel performing or overseeing the sampling and analysis activities to adhere to the requirements of the SAP and QAPP.

A1.1 Purpose of SAP

The purpose of this SAP is to ensure that field sample collection, handling, and analysis conducted during interim cleanup activities in the Uplands Area will generate data to meet project-specific data quality objectives (DQOs) in accordance with MTCA requirements (WAC 173-340-350). The SAP includes requirements for sampling activities such as sampling frequency and location, analytical testing, documentation, and quality assurance/quality control (QA/QC) for performance monitoring and waste characterization.

A2 Excavation Verification Soil Sampling Procedures

Soil sampling will be collected from the bottoms and sidewalls of the interim cleanup excavations to determine if interim action cleanup levels are achieved, as described in Section 5 of the Interim Action Plan. The Engineer will collect the verification soil samples when field screening indicates that soils within a segment of the excavation may be clean (i.e., below interim action cleanup levels). The Engineer's field screening will include visual and olfactory observations of the soil, and using a photionization detector (PID) to monitor for the presence of volatile organic compounds (VOCs). In using the PID, bagged soil will be sealed, briefly shaken, and then allowed to equilibrate to allow vaporous head accumulations to become representative. Field personnel will then measure the potential presence of volatiles in the air of the head space in a manner sufficient to not allow vaporous head concentration to escape. In areas of known or suspected petroleum contamination, soil samples will also be field screened for the presence of petroleum using a sheen test: placing a small aliquot of soil into a plastic cup containing water, gently shaking, adding a hydrophobic dye such as Sudan IV, and watching for presence of petroleum sheen. Care will be taken to differentiate sheen created by petroleum (iridescent swirl of colors, does coalesce after being disturbed)

versus other organic matter (angular “waxy sheets”, do not coalesce after being disturbed), and recording the information appropriately.

The excavation verification soil samples will be collected using the excavator bucket, unless an excavation is shallow enough and appropriately sloped/shored to allow safe entry and egress of the Engineer. Soil samples will be obtained directly from the center of excavator bucket, avoiding contact with the bucket itself.

All soil samples to be submitted for VOC and gasoline-range petroleum analyses will be collected in accordance with EPA Method 5035A. The soil aliquot for VOC analysis will be collected from the undisturbed soil sample core using a laboratory-supplied modified disposable plastic syringe as required by the 5035A method, and placed in pre-weighed laboratory supplied vials.

For all other analyses, the soil samples will be collected using a stainless steel spoon and placed in a stainless steel bowl for homogenization with the stainless steel spoon. Gravel-sized material greater than approximately 0.5 inch will be removed from the sample during mixing. A representative aliquot of the homogenized soil will be placed into certified-clean jars supplied by the analytical laboratory.

QC soil samples (e.g., field duplicates, rinsate blanks, and trip blanks) will be collected at the respective frequencies prescribed in Section 8.1 of the QAPP (Appendix C).

Each excavation verification soil sample collected for chemical analysis will be assigned a unique sample identification number including a prefix designating the interim action cleanup area, a designation for bottom sample (B) or sidewall sample (S) with sequential numbers for each, the sample depth below surrounding grade, and the date the sample was collected. Recording sample date helps track progress of the excavation, particularly when sample locations need to be subsequently over-excavated to meet interim action cleanup levels. For example, within an excavation at hypothetical underground storage tank (UST) 10, the fourth excavation sidewall verification soil sample, collected from a depth of 7 feet, on October 31, 2012, would be identified as UST10-S4-7-103112. The location of each verification soil sample will be recorded using a global position system (GPS) instrument or other measurement techniques (tape measure) based on its accessibility.

A3 Stockpile Sampling and Analysis Procedures

The Engineer will conduct sampling and analysis of each stockpile of overburden soil, and the stockpile of settled solids removed from the water treatment system, to characterize it for appropriate disposition. For each soil stockpile (100 cubic yards or less in size), three (3) grab samples of soil will be collected, in accordance with stockpile sampling requirements provided in Ecology (2011). Each soil sample will be collected from a minimum of 6 inches below the exposed surface of the stockpile, with decontamination of sampling utensils, or replacement of disposal utensils, between each sample location. The location of each of the grab samples will be where field instrument

readings indicate contamination is most likely to be present. If field instruments do not indicate contamination, the pile will be divided into sections and each section sampled.

The soil samples will be submitted under chain of custody to an analytical laboratory, accredited by Ecology, for the following chemical analyses:

- Gasoline-range petroleum hydrocarbons (Method NWTPH-Gx);
- Diesel- and oil-range petroleum hydrocarbons (Method NWTPH-Dx with silica gel cleanup);
- Priority pollutant metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, zinc) (EPA Methods 6010/mercury by 7471). At Engineer's discretion to designate waste for off-Site disposal, RCRA 8 TCLP metals analysis (EPA Methods 1311 and 6010/mercury by 7470) may also be conducted, or can be conducted contingent upon results from the total metals analysis;
- Semivolatile organic compounds including PAHs (SVOCs; EPA Method 8270);
- Volatile organic compounds (VOCs; EPA Method 8260); and
- Polychlorinated biphenyls (PCBs; EPA Method 8082).

The Engineer may adjust this analyte list based on knowledge of contamination in a specific area (e.g., during soil remediation), and/or analytical data requirements of the intended disposal facility. Depending on the time available for disposition of the soil stockpiles, the Engineer can coordinate with the laboratory to provide expedited analysis (rush turnaround of results) at additional cost.

A4 Monitoring Well Installation and Development

Groundwater monitoring wells located within the footprints of the interim cleanup action excavations will be properly decommissioned in accordance with the requirements of Chapter 173-160 WAC.

Following completion of the interim cleanup activities, replacement monitoring wells may be installed as necessary to initiate post-construction groundwater monitoring. This section presents the procedures for installation of replacement monitoring wells, if needed.

A4.1 Monitoring Well Installation

Monitoring wells will be constructed by a state-licensed resource protection well driller and in accordance with Chapter 173-160 WAC. An Aspect field geologist will oversee and document installation of each monitoring well, including completion of an As-Built Well Completion Diagram.

New monitoring wells will be constructed with 1-inch or 2-inch-diameter, threaded Schedule 40 PVC slotted screen and blank casing. Well screens will be 0.010-inch (10 slot) or 0.020-inch slot (20-slot) slotted screen either 5 feet of 10 feet in length, depending on field conditions; however, where there is potential for light non-aqueous phase liquid petroleum, a 10-foot screen will be placed to straddle the water table observed at time of drilling and spanning the expected depth range of water table fluctuation (expected less than 3 feet at shoreline wells, and less than 0.5 feet more than 200 feet or so inland of the shoreline). An artificial filter pack consisting of 10/20 silica sand will be placed around the well screen, and an annular seal consisting of bentonite chips will be placed above the filter pack. A concrete surface seal will be set at grade for each new monitoring well. The finished monitoring wells will be protected with a steel flush-mount monument, or steel above-ground monument, embedded in the concrete surface seal.

A4.2 Monitoring Well Development

Following installation, each new monitoring well will be developed to remove fine-grained material from inside the well casing and filter pack to the extent practical, and to improve hydraulic communication between the well screen and the surrounding water-bearing formation. The new 1-inch-diameter wells will be developed using a peristaltic pump and downhole 1/4-inch tubing surged gently along the length of the well screen; a downhole submersible well development pump can be used for new 2-inch diameter wells. Each well will be developed until visual turbidity is reduced to minimal levels or until a maximum of 15 casing volumes of water has been removed.

A5 Sample Custody and Field Documentation

A5.1 Sample Custody

Upon collection, samples will be placed upright in a cooler. Ice or blue ice will be placed in each cooler to meet sample preservation requirements. Inert cushioning material will be placed in the remaining space of the cooler as needed to limit movement of the sample containers. If the sample coolers are being shipped, not hand carried, to the laboratory, the chain of custody (COC) form will be placed in waterproof bag taped to the inside lid of the cooler for shipment.

After collection, samples will be maintained in Aspect's custody until formally transferred to the analytical laboratory. For purposes of this work, custody of the samples will be defined as follows.

- In plain view of the field representatives;
- Inside a cooler that is in plain view of the field representative; or
- Inside any locked space such as a cooler, locker, car, or truck to which the field representative has the only immediately available key(s).

A COC record provided by the laboratory will be initiated at the time of sampling for all samples collected. The record will be signed by the field representative and others who subsequently take custody of the sample. Couriers or other professional shipping representatives are not required to sign the COC form; however, shipping receipts will be collected and maintained as a part of custody documentation in project files. A copy of the COC form with appropriate signatures will be kept by Aspect's project manager.

Upon sample receipt, the laboratory will fill out a cooler receipt form to document sample delivery conditions. A designated sample custodian will accept custody of the shipped samples and will verify that the chain of custody form matches the samples received. The laboratory will notify as soon as possible the Aspect project manager of any issues noted with the sample shipment or custody.

A5.2 Field Documentation

While conducting field work, the field representative will document pertinent observations and events on field forms specific to each activity (e.g., boring log form, as-built well completion form, well development form, groundwater sampling form, etc.) and/or in a field notebook, and, when warranted, provide photographic documentation of specific sampling efforts. Field notes will include a description of the field activity, sample descriptions, and associated details such as the date, time, and field conditions.

A6 Exploration Surveying

The final as-built perimeter of each interim action excavation will be recorded using hand-held GPS with real-time differential correction. Horizontal coordinates for each soil sampling location will also be recorded with GPS However, the verification soil sample locations within excavations will be taken within a grid (see Section 5.2 in the main body of this Plan), which will be recorded by GPS. The horizontal coordinates and elevations of monitoring wells included in the assessment will be surveyed by a licensed surveyor relative to a common horizontal and vertical datum. The NAVD88 vertical datum will be used as the reference elevation datum. Monitoring well top-of-casing elevations will be surveyed to the nearest 0.01 foot, and horizontal coordinates to the nearest 0.1 foot, or better. Each well will be surveyed at the marked spot on the top of the PVC well casing from which depth-to-water measurements are collected.

A7 Decontamination and Investigative-Derived Waste Management

All non-disposable sampling equipment (stainless steel spoons and bowls) will be decontaminated before collection of each sample. The decontamination sequence consists

of a scrub with a non-phosphate (Alconox) solution, followed by tap water (potable) rinse, and finished with thorough spraying with deionized or distilled water.

Investigation-derived waste (IDW) water generated during equipment decontamination and monitoring well development and sampling will be conveyed to the dewatering pre-treatment system for pre-treatment and discharge to City sanitary sewer under the DA, as described in Section 6.2. If the treatment plant is not operating, and/or the water cannot be conveyed to City sewer under DA, the IDW water may be placed in labeled DOT-approved drums and disposed of appropriately at a permitted off-Site disposal facility.

Soil cuttings from borings and disposable personal protective equipment (PPE) will be placed in labeled DOT-approved drums pending the analytical results to determine appropriate disposal. The drums will be temporarily consolidated on-Site, profiled based on available analytical data, and disposed of appropriately at a permitted off-Site disposal facility.

Documentation for off-Site disposal of IDW will be maintained in the project file.

APPENDIX B

Quality Assurance Project Plan

Appendix B Contents

Table

Attachment

B1 Introduction

This Quality Assurance Project Plan (QAPP) identifies quality control (QC) procedures and criteria required to ensure that data collected during the opportunistic interim actions are of known quality and acceptable to achieve project objectives. Specific protocols and criteria are also set forth in this QAPP for data quality evaluation, upon the completion of data collection, to determine the level of completeness and usability of the data. It is the responsibility of the project personnel performing or overseeing the sampling and analysis activities to adhere to the requirements of the Sampling and Analysis Plan (SAP; Appendix A) and this QAPP.

B1.1 Purpose of the QAPP

As stated in Ecology's Guidelines for Preparation of Quality Assurance Project Plans for Environmental Studies (Ecology Publication No. 04-03-030, July 2004), specific goals of this QAPP is to:

- Focus project manager and project team to factors affecting data quality during the planning stage of the project;
- Facilitate communication among field, laboratory, and management staff as the project progresses;
- Document the planning, implementation, and assessment procedures for QA/QC activities for the investigation;
- Ensure that the data quality objectives (DQOs) are achieved; and
- Provide a record of the project to facilitate final report preparation.

DQOs dictate sampling and analysis designs and sample collection procedures are presented in the Interim Action Plan and SAP. The DQOs for the project include both qualitative and quantitative objectives, which define the appropriate type of data, and specify the tolerable levels of potential decision errors that will be used as a basis for establishing the quality and quantity of data needed to support the environmental assessment. To ensure that the DQOs are achieved, this QAPP details aspects of data collection including analytical methods, QA/QC procedures, and data quality reviews. This QAPP describes both quantitative and qualitative measures of data to ensure that the DQOs are achieved. DQOs dictate data collection rationale, sampling and analysis designs that are presented in the Interim Action Plan, and sample collection procedures that are presented in the SAP.

B2 Project Organization and Responsibilities

The project consultant team involved with data generation includes representatives from Aspect Consulting, LLC (Aspect), Pyron Environmental, Inc. (Pyron), and Friedman and Bruya Inc. (FBI), which is an accredited laboratory with the Washington State Department of Ecology (Ecology). Key individuals and their roles on this project are as follows:

Aspect Project Manager – Steve Germiat, Aspect Consulting. The project manager is responsible for the successful completion of all aspects of this project, including day-to-day management, production of reports, liaison with Kimberly-Clark (K-C) and regulatory agencies, and coordination with the project team members. The Aspect project manager is also responsible for resolution of non-conformance issues, is the lead author on project plans and reports, and will provide regular, up-to-date progress reports and other requested project information to Kimberly-Clark and Ecology.

Field Manager – Brett Carp or Bob Hanford, Aspect Consulting. The Field Manager is responsible for overseeing the monitoring program outlined in this plan, including collecting representative samples and ensuring that they are handled properly prior to transfer of custody to the project laboratory. The field manager will manage procurement of necessary field supplies, assure that monitoring equipment is operational and calibrated in accordance with the specifications provided herein, and act as the Site Health and Safety Officer.

Data Quality Manager – Mingta Lin, Pyron Environmental. The Data Quality Manager is responsible for developing data quality objectives, selecting analytical methods, coordinating with the analytical laboratory, overseeing laboratory performance, and approving quality assurance/quality control (QA/QC) procedures. The data quality manager is also responsible for conducting QA validation of the analytical data reports received from the project laboratory.

Laboratory Project Manager – Mike Erdahl, Friedman and Bruya. The laboratory project manager is responsible for ensuring that all laboratory analytical work for soil and water media complies with project requirements, and acting as a liaison with the project manager, field manager, and data quality manager to fulfill project needs on the analytical laboratory work.

B3 Analytical Methods and Reporting Limits

Analytical methodologies applied to the analyses of samples collected during the opportunistic interim action are in accordance with the following documents:

- USEPA SW Methods - USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

- USEPA Method 1631, Revision E: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, Office of Water, U.S. Environmental Protection Agency, August 2002, EPA-821-R-02-019.
- USEPA Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983 and updates.
- Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 20th Edition, 1995.
- Ecology (Washington State Department of). 1997. *Analytical Methods for Petroleum Hydrocarbons*. Publication No. ECY 97-602. June 1997.

Table B-1 lists the laboratory analytical methods for soil and groundwater analyses to be performed during the interim action, along with samples containers, preservation, and analytical holding times for each analysis.

The analytical method detection limit (MDL) is the minimum concentration of a compound that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero; MDLs are established by the laboratory using prepared samples, not samples of environmental media. The analytical reporting limit (RL) is defined as the lowest concentration at which a chemical can be accurately and reproducibly quantified, within specified limits of precision and accuracy, for a given environmental sample. The RL can vary from sample to sample depending on sample size, sample dilution, matrix interferences, moisture content, and other sample-specific conditions. Operationally, it is equivalent to the concentration of the lowest calibration standard (at a minimum) in the initial calibration curve. In accordance with MTCA, the RL is equivalent to a practical quantitation limit (PQL) which cannot be greater than 10 times the MDL. The laboratories analytical RLs and MDLs for the individual constituents identified above are summarized in Attachment B-1.

B3.1 Sample Preparation for Brackish Groundwater Samples

Saline groundwater may create analytical interferences for trace metals analyses. Additional sample preparation/analysis techniques, including reductive precipitation, hydrided atomic absorption spectrometry, and/or direct dilution, may be applied in cases of brackish water samples, as indicated by elevated specific electrical conductance of the samples. To assist the laboratory in identifying saline groundwater samples, the field-measured specific conductance for each groundwater sample will be recorded on the corresponding chain-of-custody document.

B4 Data Quality Objectives

Data quality objectives (DQOs), including indicators for precision, accuracy, representativeness, comparability, and completeness (PARCC parameters), and data RLs

are dictated by the data quality objectives, project requirements, and intended uses of the data. For this project, the analytical data must be of sufficient technical quality to determine whether contaminants are present and, if present, whether their concentrations are above or below applicable screening criteria based on protection of human health and the environment.

An assessment of data quality is based upon quantitative (precision, accuracy, and completeness) and qualitative (representativeness and comparability) data quality indicators. Definitions of these parameters and the applicable QC procedures are presented below.

B4.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared with their average values. Analytical precision is measured through matrix spike/matrix spike duplicate (MS/MSD) samples and laboratory control samples/laboratory control sample duplicate (LCS/LCSD) for organic analysis and through laboratory duplicate samples for inorganic analyses.

Analytical precision is quantitatively expressed as the relative percent difference (RPD) between the LCS/LCSD, MS/MSD, or lab duplicate pairs and is calculated with the following formula:

$$RPD\ (\%) = 100 \times \frac{|S - D|}{(S + D)/2}$$

where:
S = analyte concentration in sample
D = analyte concentration in duplicate sample

Analytical precision measurements will be carried out at a minimum frequency of 1 per 20 samples for each matrix sampled, or one per laboratory analysis group. Laboratory precision will be evaluated against laboratory quantitative RPD performance criteria provided with the lab's analytical data report. If the control criteria are not met, the laboratory will supply a justification of why the limits were exceeded and implement the appropriate corrective actions. The RPD will be evaluated during data review and validation. The data reviewer will note deviations from the specified limits and will comment on the effect of the deviations on reported data.

B4.2 Accuracy

Accuracy measures the closeness of the measured value to the true value. The accuracy of chemical test results is assessed by "spiking" samples with known standards (surrogates, blank spikes, or matrix spikes) and establishing the average recovery. Accuracy is quantified as the percent recovery (%R). The closer the %R is to 100%, the more accurate the data.

Surrogate recovery will be calculated as follows:

$$\text{Recovery (\%)} = \frac{MC}{SC} \times 100$$

where:

SC = spiked concentration
MC = measured concentration

MS percent recovery will be calculated as follows:

$$\text{Recovery (\%)} = \frac{MC - USC}{SC} \times 100$$

where:

SC = spiked concentration
MC = measured concentration
USC = unspiked sample concentration

Accuracy measurements on MS samples will be carried out at a minimum frequency of one in 20 samples per matrix analyzed. Blank spikes will also be analyzed at a minimum frequency of one in 20 samples per matrix analyzed. Surrogate recoveries for organic compounds will be determined for each sample analyzed for respective compounds. Laboratory accuracy will be evaluated against the lab's quantitative matrix spike and surrogate spike recovery performance criteria as provided with the lab's analytical data report. If the control criteria are not met, the laboratory will supply a justification of why the limits were exceeded and implement the appropriate corrective actions. Percent recoveries will be evaluated during data review and validation, and the data reviewer will comment on the effect of the deviations on the reported data.

B4.3 Representativeness

Representativeness measures how closely the measured results reflect the actual concentration or distribution of the chemical compounds in the matrix sampled. The Interim Action Plan sampling plan design, sampling techniques, and sample handling protocols (e.g., homogenizing, storage, preservation, and use of duplicates and blanks) have been developed to ensure representative samples. Sampling locations for interim action activities are described in the main body of the Interim Action Plan. The field sampling procedures are described in the SAP included as Appendix A of the Interim Action Plan.

B4.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal will be achieved through the use of standard techniques to collect samples, USEPA-approved standard methods to analyze samples, and consistent units to report analytical results. Data comparability also depends on data quality. Data of unknown quality cannot be compared.

B4.5 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid. Results will be considered valid if the precision, accuracy, and representativeness objectives are met and if RLs are sufficient for the intended uses of the data. Completeness is calculated as follows:

$$Completeness\ (\%) = \frac{V}{P} \times 100$$

where:

V = number of valid measurements
P = number of measurements taken

Valid and invalid data (i.e., data qualified with the R flag [rejected]) will be identified during data validation. The target completeness goal for this project is 95 percent.

B5 Quality Control Procedures

Field and laboratory QC procedures are outlined below.

B5.1 Field Quality Control

Beyond use of standard sampling protocols defined in the SAP, field QC procedures include maintaining the field instrumentation used. Field instruments (e.g., PID for evaluating presence of VOCs in soil samples, and the YSI meter for measuring field parameters during groundwater sampling) are maintained and calibrated regularly in accordance with manufacturer recommendations prior to use.

In addition, field QC is accomplished through the analysis of controlled samples that are introduced to the laboratory from the field. Field duplicates and trip blanks will be collected and submitted for analysis as described below.

Field Duplicates

Field duplicate samples are used to check for sampling and analysis reproducibility; however, the field duplicate sample results included variability introduced during both field sampling and laboratory preparation and analysis, and EPA data validation guidance provides no RPD control limits for field duplicate samples. Duplicates for all media will be submitted "blind" to the laboratory as discrete samples (i.e., given unique sample identifiers to keep the duplicate identity unknown to the laboratory), but will be clearly identified in the field log. Field duplicate samples will be collected at a frequency of 5 percent (1 per 20 samples – not including QA samples) of the field samples for each matrix and analytical method, but not less than one duplicate per sampling event per matrix.

Trip Blank

Trip blank samples will be used to monitor possible VOC cross contamination occurring during sample transport. Trip blank samples are prepared and supplied by the laboratory using organic-free reagent-grade water into a VOC vial prior to the collection of field samples. The trip blank sample vials are placed with and accompany the VOC and petroleum gasoline samples through the entire transporting process. Trip blank samples will be prepared and analyzed for the full suite of VOCs and petroleum gasoline (if required). **One trip blank will be collected for each soil sampling round and each groundwater sampling round where VOC analysis is conducted.**

Equipment Rinsate Blank

Equipment rinsate blanks are collected to determine the potential of cross-contamination introduced by soil sampling equipment that is used between samples. Groundwater sampling is conducted using dedicated equipment, so rinsate blanks are not needed for groundwater sampling QC. The deionized water used for soil sampling equipment decontamination is rinsed through the decontaminated sampling equipment and collected into adequate sample containers for analysis of VOCs, low-level polycyclic aromatic hydrocarbons (PAHs), and priority pollutant metals. The blank is then processed, analyzed, and reported as a regular field sample. **One rinsate blank will be conducted for each round of soil sampling.** The rinsate blank sampled will be labeled with a "RB-" prefix and the date it is collected (e.g., RB-5-29-12).

B5.2 Laboratory Quality Control

The laboratories' analytical procedures must meet requirements specified in the respective analytical methods or approved laboratory standard operating procedures (SOPs), e.g., instrument performance check, initial calibration, calibration check, blanks, surrogate spikes, internal standards, and/or labeled compound spikes. The laboratory QC procedures used for this project will consist of the following at a minimum:

- Instrument calibration and standards as defined in the laboratory standard operating procedures (SOPs);
- Laboratory method blank measurements at a minimum frequency of 5% or one per 20 samples; and
- Accuracy and precision measurements as defined above, at a minimum frequency of 5% or one per 20 samples per matrix.

The laboratory's QA officers are responsible for ensuring that the laboratory implements the internal QC and QA procedures detailed in Friedman and Bruya's Quality Assurance Manual.

B6 Corrective Actions

If routine QC audits by the laboratory result in detection of unacceptable conditions or data, actions specified in the laboratory standard operating procedures (SOPs) will be taken. Specific corrective actions are outlined in each SOP used and can include the following:

- Identifying the source of the violation;
- Reanalyzing samples if holding time criteria permit;
- Resampling and analyzing;
- Evaluating and amending sampling and analytical procedures; and/or
- Accepting but qualifying data to indicate the level of uncertainty.

If unacceptable conditions occur, the laboratory will contact Aspect's project manager to discuss the issues and determine the appropriate corrective action. Corrective actions taken by the laboratory during analysis of samples for this project will be documented by the laboratory in the case narrative associated with the affected samples.

In addition, the project data quality manager will review the laboratory data generated for this investigation to ensure that project DQOs are met. If the review indicates that non-conformances in the data have resulted from field sampling or documentation procedures or laboratory analytical or documentation procedures, the impact of those non-conformances on the overall project data usability will be assessed. Appropriate actions, including re-sampling and/or re-analysis of samples may be recommended to the project manager to achieve project objectives.

B7 Data Reduction, Quality Review, and Reporting

All data will undergo a QA/QC evaluation at the laboratory which will then be reviewed by the Aspect database manager. Initial data reduction, evaluation, and reporting at the laboratory will be carried out as described in the appropriate analytical protocols. Quality control data resulting from methods and procedures described in this document will also be reported.

B7.1 Minimum Data Reporting Requirements

The following sections describe the minimum data reporting requirements necessary to allow proper data quality review (as described in Section 7.2) and analytical data documentation.

Sample Receipt. Cooler receipt forms will be filled out for all sample shipments to document problems in sample packaging, chain of custody, and sample preservation.

Reporting. For each analytical method run, analytes for each sample will be reported as a detected concentration or as less than the specific RL. Solid data will be reported on a dry weight basis except that from gas chromatograph-mass spectrometry (GC-MS) methods (EPA Method 8260 and EPA Method 8270). The laboratories will report dilution factors for each sample as well as date of extraction (if applicable), date of analysis, extraction method, any cleanup methods performed, and confirmation results where required. The laboratory will also report any corrective actions taken if unacceptable conditions or data are detected.

Internal Quality Control Reporting. Internal quality control samples will be analyzed at the rates specified in the applicable analytical method.

- **Laboratory Method Blanks.** Analytes will be reported for each laboratory blank. Non-blank sample results shall be designated as corresponding to a particular laboratory blank in terms of analytical batch processing.
- **Surrogate Spike Samples.** Surrogate spike recoveries will be reported with organic reports where appropriate. The report shall also specify the control limits for surrogate spike results as well as the spiking concentration. Spike recoveries outside of specified control limits (as defined in the laboratory SOP) will result in the sample being rerun.
- **Laboratory Duplicate and/or Matrix Spike Duplicate Pairs.** Relative percent differences will be reported for duplicate pairs relative to analyte/matrix-specific control limits defined in the laboratory SOP.
- **Laboratory Control Samples (LCS).** LCS recoveries will be reported for organic analyses. LCS results and control limits will be reported with the corresponding sample data.

B7.2 Data Quality Verification and Validation

Reported analytical results will be qualified by the laboratory to identify QC concerns in accordance with the specifications of the analytical methods. Additional laboratory data qualifiers may be defined and reported by the laboratory to more completely explain QC concerns regarding a particular sample result. All data qualifiers will be defined in the laboratory's narrative reports associated with each case.

The project data quality manager will conduct an independent Stage III data verification and validation for all chemical data submitted by the analytical laboratories during the independent environmental assessment, following the guidance below:

- USEPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, September 2011, USEPA 540/R-11/016
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, Office of Superfund Remediation and

Technical Innovation, U.S. Environmental Protection Agency, January 2010, USEPA 540/R-10/011

- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-08-01.
- USEPA Region 10 Standard Operating Procedure for the Validation of Polychlorinated Dibenzo-p-Dioxin (PCDD) and Polychlorinated Dibenzofuran (PCDF) Data, January 1996.

The data validation will examine and verify the following parameters against the method requirements and laboratory control limits:

- Sample management and holding times;
- Instrument performance check, calibration, and calibration verification;
- Laboratory and field blank results;
- Detection and reporting limits;
- Laboratory replicate results;
- MS/MSD results;
- LCS and/or standard reference material results;
- Field duplicate results;
- Surrogate spike recovery (organic analyses only);
- Internal standard recovery (internal calibration methods only);
- Inter-element interference check (ICP analyses only);
- Serial dilution (metals only);
- Labeled compound recovery (isotope dilution methods only); and
- Ion ratios for detected compounds (high resolution GC/MS methods only).

Data qualifiers will be assigned based on outcome of the data validation. Data qualifiers are limited to and defined as follows:

- U - The analyte was analyzed for but was determined to be non-detect above the reported sample quantitation limit, or the quantitation limit was raised to the concentration found in the sample due to blank contamination.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

- UJ - The analyte was not detected above the reported quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be verified.
- DNR - Do not report from this analysis; the result for this analyte is to be reported from an alternative analysis.

In cases of multiple analyses (such as an un-diluted and a diluted analysis) performed on one sample, the optimal result will be determined and only the determined result will be reported for the sample.

The scope and findings of the data validation will be documented and discussed in the Data Validation Report. The Data Validation Report will be appended to the project report.

B8 Preventative Maintenance Procedures and Schedules

Preventative maintenance in the laboratory will be the responsibility of the laboratory personnel and analysts. This maintenance includes routine care and cleaning of instruments and inspection and monitoring of carrier gases, solvents, and glassware used in analyses. Details of the maintenance procedures are addressed in the respective laboratory SOPs.

Precision and accuracy data are examined for trends and excursions beyond control limits to determine evidence of instrument malfunction. Maintenance will be performed when an instrument begins to change as indicated by the degradation of peak resolution, shift in calibration curves, decrease in sensitivity, or failure to meet one or another of the method-specific QC criteria.

Maintenance and calibration of instruments used in the field for sampling (e.g., PID for evaluating presence of VOCs in soil samples, and the YSI meter for measuring field parameters during groundwater sampling) will be conducted regularly in accordance with manufacturer recommendations prior to use.

B9 Performance and System Audits

The Aspect project manager has responsibility for reviewing the performance of the laboratory QA program. This will be achieved through regular contact with the analytical laboratory's project manager. To ensure comparable data, all samples of a given matrix to be analyzed by each specified analytical method will be processed consistently by the same analytical laboratory.

B10 Data and Records Management

Records will be maintained documenting all activities and data related to field sampling and chemical analyses.

B10.1 Field Documentation

The Aspect project manager will ensure that the field team receives the final approved version of this QAPP, the site health and safety plan, and the SAP prior to the initiation of field activities. Field records are discussed in Appendix A, Sampling and Analysis Plan, of this Plan, and include:

- Daily Report forms.
- Boring and well completion logs.
- Field data and sample collection information forms.
- Sample tracking/chain of custody forms.
- Photo documentation (as necessary).

Field documents will be maintained in the project file.

B10.2 Analytical Data Management

Raw data received from the analytical laboratory will be reviewed, entered into a computerized database, and verified for consistency and correctness. The database will be updated based on data review and independent validation if necessary.

The following field data will be included in the database:

- Sample location coordinates.
- Sample type (i.e., groundwater or soil).
- Soil or groundwater sampling depth interval.
- Sampler's name.

Information regarding whether concentrations represent total phase (unfiltered samples) or dissolved phase (filtered samples) will be compiled and stored in the database. Data may be submitted to Ecology's Environmental Information Management (EIM) database once all data have been reviewed and validated.

B11 References for Appendix B

USEPA, 1996, USEPA Region 10 Standard Operating Procedure for the Validation of Polychlorinated Dibenzo-p-Dioxin (PCDD) and Polychlorinated Dibenzofuran (PCDF) Data, January 1996.

USEPA, 2008, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, June 2008, USEPA-540-R-08-01.

USEPA, 2010, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, January 2010, USEPA 540/R-10/011.

USEPA, 2011, Contract Laboratory Program National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review, Office of Superfund Remediation and Technical Innovation, U.S. Environmental Protection Agency, September 2011, USEPA 540/R-11/016.

Table B-1 - Analytical Methods, Sample Containers, Preservation, and Holding Times

Sample Matrix	Analytical Parameter	Analytical Method	Sample Container	No. Containers	Preservation Requirements	Holding Time
Soil	Gasoline Range TPH	NWTPH-Gx	Method 5035A, 40-ml vials	4	4°C ±2°C, Freeze within 48 hours to <-7°C	14 days
	Diesel & Motor Oil Range TPH	NWTPH-Dx/SW846 Method 3630 (Silica Gel Cleanup)	4 ounce jar	1	4°C ±2°C	14 days for extraction; 40 days for analysis
	VOCs	Method 8260C	Method 5035A, 40-ml vials	4	4°C ±2°C, Freeze within 48 hours to <-7°C	14 days
	Low-level PAHs	Method 8270D-SIM	4 ounce jar	1	4°C ±2°C	14 days for extraction; 40 days for analysis
	Total Metals other than Hg	Method 200.8	4 ounce jar	1	4°C ±2°C	6 months
	Total Mercury	Method 1631E	4 ounce jar	1	4°C ±2°C	28 days
	SVOCs	Method 8270D	4 ounce jar	1	4°C ±2°C	14 days for extraction; 40 days for analysis
	PCBs	Method 8082A	4 ounce jar	1	4°C ±2°C	NA
	Total Organic Carbon	ASTM D4129-05 Single Replicate	4 ounce jar	1	4°C ±2°C	14 days
	pH	Method 9045C	4 ounce jar	1	4°C ±2°C	28 days
	Dioxins/Furans	Method 8290	4 ounce jar	1	4°C ±2°C, Freeze within 14 days to <-7°C	1 year for extraction, 40 days for analysis
Ground water	Gasoline Range TPH	Method NWTPH-Gx	40-mL VOA Vials	3	4°C ±2°C, HCl pH < 2	14 days
	Diesel & Motor Oil Range TPH	NWTPH-Dx/SW846 Method 3630 (Silica Gel Cleanup)	500-mL Amber Glass	1	4°C ±2°C	7 days for extraction, 40 days for analysis
	VOCs	Method 8260C	40-mL VOA Vials	4	4°C ±2°C, 2 with HCl pH < 2, 2 without HCl	14 days for analysis
	Low-level PAHs	Method 8270D-SIM	1-L Amber Glass	1	4°C ±2°C	7 days for extraction, 40 days for analysis
	SVOCs	Method 8270D	1-L Amber Glass	1	4°C ±2°C	7 days for extraction, 40 days for analysis
	Dissolved Metals other than Hg	Method 200.8 (non-brackish),	500-mL HDPE	5 (for potential brackish water)	4°C ±2°C, HNO3 pH < 2 (after filtration)	180 days
	Dissolved Mercury	Method 1631 (non-brackish)	500-mL HDPE	5 (for potential brackish water)	4°C ±2°C, HNO3 pH < 2 (after filtration)	28 days
	Total Metals other than Hg	Method 200.8 (non-brackish)	500-mL HDPE	5 (for potential brackish water)	4°C ±2°C, HNO3 pH < 2	180 days
	Total Mercury	Method 1631 (non-brackish)	500-mL HDPE	5 (for potential brackish water)	4°C ±2°C, HNO3 pH < 2	28 days
	Dissolved Metals other than Hg (Brackish)	200.7/ 7742 (Se)	500-mL HDPE	4	4°C ±2°C, HNO3 pH < 2 (after filtration)	180 days
	Dissolved Mercury (Brackish)	7740A	500-mL HDPE	4	4°C ±2°C, HNO3 pH < 2 (after filtration)	28 days
	Total Metals other than Hg (Brackish)	200.7/ 7742 (Se)	500-mL HDPE	4	4°C ±2°C, HNO3 pH < 2	180 days
	Total Mercury (Brackish)	7740A	500-mL HDPE	4	4°C ±2°C, HNO3 pH < 2	28 days
	Ammonia	Method 350.1	500-mL HDPE	1	4°C ±2°C, H2SO4 pH < 2	28 days
	Dissolved Sulfide	Method 376.2	500-mL HDPE	1	4°C ±2°C, Zinc Acetate and NaOH pH > 9 (after filtration)	7 days
	Formaldehyde	Method 8315A	1 Liter Amber	1	4°C ±2°C	3 days
	TSS	SM2540D	500-mL HDPE	1	4°C ±2°	7 days
	TDS	SM2540C	500-mL HDPE	1	4°C ±2°	7 days

Attachment B-1

Analytical Method Detection Limits and Reporting Limits

NWTPH-Dx Analysis

MDL Results GC1 SUMMARY

SOIL mg/kg

2 grams of soil extracted into 10 mL solvent no concentration

Analyte	(StdDev*3.14) MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.	Date Calculated	Reporting Limit
Diesel	4.13	8.3	20.6	1.31	12.7	25	51	01/27/12	50
Diesel extended	5.47	10.9	27.4	1.74	15.1	25	60	01/27/12	50
Motor Oil	13.0	26.1	65.2	4.15	125.3	125	100	02/02/12	250
Heavy Oil	12.0	24.0	60.0	3.82	123.6	125	99	02/02/12	250
Stoddard solvent	1.42	2.8	7.1	0.45	16.9	25	68	02/02/12	50

WATER ug/L

Analyte	(StdDev*3.14) MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.	Date Calculated	Reporting Limit
Diesel	8.80	17.59	43.98	2.80	14.53	25.0	58	01/27/12	50
Diesel extended	9.77	19.54	48.86	3.11	18.5	25.0	74	01/27/12	250
Motor Oil	22.82	45.64	114.09	7.27	112.9	100.0	113	02/02/12	250
Heavy Oil	20.00	40.00	100.00	6.37	108.7	100	109	02/02/12	250
Stoddard solvent	1.975	3.950	9.876	0.6291	18.029	25.0	72	02/02/12	50

NWTPH-Gx/8021 Analysis
MDL Data and Calculations

SOIL **mg/kg**

Analyte	MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.
Benzene	0.00094	0.00189	0.00472	0.00030	0.007	0.01	68
Toluene	0.00044	0.00089	0.00222	0.00014	0.011	0.01	105
Ethylbenzene	0.00041	0.00082	0.00206	0.00013	0.010	0.01	97
Total Xylenes	0.00139	0.00278	0.00695	0.00044	0.031	0.03	102
MTBE	0.00372	0.00743	0.01858	0.00118	0.006	0.01	65
NW Gas	0.24168	0.48336	1.20840	0.07697	0.617	0.5	123
8015 Gas	0.22350	0.44699	1.11749	0.07118	0.588	0.5	118

WATER **ug/L**

Analyte	MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.
Benzene	0.0258	0.0516	0.1290	0.0082	0.527	0.5	105
Toluene	0.0153	0.0305	0.0763	0.0049	0.532	0.5	106
Ethylbenzene	0.0113	0.0226	0.0566	0.0036	0.505	0.5	101
Total Xylenes	0.0650	0.1300	0.3249	0.0207	1.553	1.5	104
MTBE	0.0979	0.1958	0.4896	0.0312	0.812	0.5	162
NW Gas	11.1189	22.2378	55.5945	3.5411	52.929	50.0	106
8015 Gas	8.6406	17.2813	43.2032	2.7518	52.329	50.0	105

EPA Method 8260
MDL Data and Calculations

Analysis:	8260	Standard(s) spiked:	1 ppm 8260 cal std 34-194b; 50 ppm 8260 cal std 34-194a
Matrix:	**Water**	Volume spiked:	21.5 uL (above); 43 uL (above); 4.3 uL (above)
Instrument ID:	GCMS #4	Date(s) Extracted:	4/27/2011, 05/03/11(0.5)
Reporting Units:	ug/L	Date(s) Analyzed:	4/27/2011, 05/03/11 (0.5)
		Date Calculated:	5/2/2011, 05/05/11
		Calculation Analyst:	YA

	(StdDev*3.14)	(2*MDL)	(5*MDL)	Std		Spike	%
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
Ethanol	62.4	125	312	19.9	292.456	250.0	117
Dichlorodifluoromethane	0.385	0.770	1.924	0.1225	1.363	1.0	136
Chloromethane	0.157	0.313	0.783	0.0499	1.041	1.0	104
Vinyl chloride	0.071	0.143	0.356	0.0227	0.453	0.5	91
Bromomethane	0.851	1.702	4.254	0.2710	1.339	1.0	134
Chloroethane	0.222	0.444	1.109	0.0706	1.100	1.0	110
Trichlorofluoromethane	0.186	0.372	0.930	0.0592	0.993	1.0	99
2-Propanol	2.1	4.2	10.5	0.67	26.073	25.0	104
Acetone	1.096	2.192	5.480	0.349	6.737	5.0	135
1,1-Dichloroethene	0.183	0.366	0.916	0.0583	1.161	1.0	116
Hexane	0.194	0.388	0.970	0.0618	1.150	1.0	115
Methylene chloride	0.945	1.89	4.73	0.301	2.680	5.0	54
t-Butyl alcohol (TBA)	2.90	5.81	14.5	0.92	51.193	50.0	102
Methyl t-butyl ether (MTBE	0.244	0.487	1.219	0.0776	1.101	1.0	110
trans-1,2-Dichloroethene	0.402	0.804	2.009	0.1280	1.156	1.0	116
Diisopropyl ether (DIPE)	0.262	0.525	1.312	0.0836	1.128	1.0	113
1,1-Dichloroethane	0.123	0.246	0.616	0.0392	1.051	1.0	105
Ethyl t-butyl ether (ETBE)	0.151	0.302	0.755	0.0481	1.079	1.0	108
2,2-Dichloropropane	0.471	0.943	2.357	0.1502	1.178	1.0	118
cis-1,2-Dichloroethene	0.190	0.379	0.949	0.0604	1.115	1.0	112
Chloroform	0.084	0.167	0.418	0.0266	1.086	1.0	109
2-Butanone (MEK)	1.171	2.342	5.856	0.3730	5.100	5.0	102
t-Amyl methyl ether (TAME)	0.110	0.219	0.548	0.0349	1.073	1.0	107
1,2-Dichloroethane (EDC)	0.108	0.215	0.538	0.0343	1.119	1.0	112
1,1,1-Trichloroethane	0.116	0.232	0.580	0.0370	1.039	1.0	104
1,1-Dichloropropene	0.080	0.159	0.398	0.0253	1.143	1.0	114
Carbon Tetrachloride	0.148	0.296	0.741	0.0472	1.114	1.0	111
Benzene	0.080	0.160	0.401	0.0256	0.510	0.5	102
Trichloroethene	0.116	0.232	0.580	0.0369	1.097	1.0	110
1,2-Dichloropropane	0.130	0.260	0.65	0.0415	1.132	1.0	113
Bromodichloromethane	0.096	0.192	0.48	0.0305	1.027	1.0	103

EPA Method 8260

MDL Data and Calculations

Analyte	(StdDev*3.14) MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.
Dibromomethane	0.155	0.310	0.775	0.0494	0.941	1.0	94
4-Methyl-2-pentanone	0.293	0.586	1.46	0.0933	5.144	5.0	103
cis-1,3-Dichloropropene	0.133	0.267	0.666	0.0424	1.034	1.0	103
Toluene	0.070	0.141	0.351	0.0224	1.120	1.0	112
trans-1,3-Dichloropropene	0.114	0.228	0.57	0.0363	1.014	1.0	101
1,1,2-Trichloroethane	0.113	0.226	0.57	0.0360	1.129	1.0	113
2-Hexanone	0.332	0.664	1.66	0.1057	5.026	5.0	101
1,3-Dichloropropane	0.060	0.120	0.30	0.0192	1.101	1.0	110
Tetrachloroethene	0.115	0.231	0.577	0.0367	1.110	1.0	111
Dibromochloromethane	0.058	0.115	0.29	0.0183	1.084	1.0	108
1,2-Dibromoethane (EDB)	0.156	0.311	0.78	0.0496	1.101	1.0	110
Chlorobenzene	0.054	0.107	0.27	0.0171	1.108	1.0	111
Ethylbenzene	0.039	0.078	0.196	0.0125	1.129	1.0	113
1,1,1,2-Tetrachloroethane	0.128	0.255	0.64	0.0406	1.082	1.0	108
m,p-Xylene	0.127	0.253	0.63	0.0403	2.217	2.0	111
o-Xylene	0.067	0.134	0.34	0.0214	1.102	1.0	110
Styrene	0.063	0.127	0.32	0.0202	1.090	1.0	109
Isopropylbenzene	0.042	0.085	0.21	0.0135	1.098	1.0	110
Bromoform	0.091	0.182	0.45	0.0289	1.016	1.0	102
n-Propylbenzene	0.066	0.132	0.329	0.0210	1.164	1.0	116
Bromobenzene	0.041	0.082	0.20	0.0130	1.158	1.0	116
1,3,5-Trimethylbenzene	0.094	0.188	0.47	0.0299	1.084	1.0	108
1,1,2,2-Tetrachloroethane	0.114	0.228	0.57	0.0363	1.078	1.0	108
1,2,3-Trichloropropane	0.131	0.262	0.66	0.0418	1.112	1.0	111
2-Chlorotoluene	0.082	0.165	0.41	0.0262	1.132	1.0	113
4-Chlorotoluene	0.065	0.130	0.32	0.0206	1.108	1.0	111
tert-Butylbenzene	0.097	0.195	0.49	0.0310	1.110	1.0	111
1,2,4-Trimethylbenzene	0.081	0.162	0.40	0.0257	1.073	1.0	107
sec-Butylbenzene	0.052	0.104	0.26	0.0165	1.096	1.0	110
p-Isopropyltoluene	0.048	0.095	0.24	0.0152	1.090	1.0	109
1,3-Dichlorobenzene	0.102	0.204	0.51	0.0325	1.109	1.0	111
1,4-Dichlorobenzene	0.091	0.182	0.46	0.0290	1.121	1.0	112
1,2-Dichlorobenzene	0.078	0.156	0.39	0.0249	1.097	1.0	110
1,2-Dibromo-3-chloropropane	0.549	1.097	2.74	0.1747	1.089	1.0	109
1,2,4-Trichlorobenzene	0.180	0.360	0.899	0.0573	0.896	1.0	90
Hexachlorobutadiene	0.181	0.362	0.90	0.0576	1.142	1.0	114
Naphthalene	0.196	0.392	0.98	0.0625	0.910	1.0	91
1,2,3-Trichlorobenzene	0.251	0.502	1.25	0.0799	0.972	1.0	97
2-Chloroethyl vinyl ether	0.069	0.137	0.34	0.0219	1.117	1.0	112

EPA Method 8260
MDL Data and Calculations

MDL Data and Calculations

Analyst fill in all below (attach extraction worksheet(s))

Analysis:	8260	Standard(s) spiked:	50/250/2500 ug/mL 8260 Cal std 35-133a
Matrix:	**Soil**	Volume spiked:	8.6uL (above); 43uL (above)
Instrument ID:	GCMS #4	Date(s) Extracted:	05/17/11, 05/18/11
Reporting Units:	mg/kg	Date(s) Analyzed:	05/17/11, 05/18/11
		Date Calculated:	05/17/11, 05/18/11
		Calculation Analyst:	JS

	(StdDev*3.14)	(2*MDL)	(5*MDL)	Std		Spike	%
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
Ethanol	3.343872	6.687744	16.71936	1.064927	12.58541	12.5	100.6833
Dichlorodifluoromethane	0.009416	0.018833	0.047082	0.002999	0.029764	0.05	59.52857
Chloromethane	0.00615	0.012301	0.030752	0.001959	0.043779	0.05	87.55714
Vinyl chloride	0.006422	0.012843	0.032108	0.002045	0.020829	0.025	83.31429
Bromomethane	0.023008	0.046016	0.11504	0.007327	0.053807	0.05	107.6143
Chloroethane	0.012675	0.025351	0.063377	0.004037	0.030607	0.05	61.21429
Trichlorofluoromethane	0.004604	0.009208	0.023021	0.001466	0.02225	0.05	44.5
Acetone	0.067854	0.135709	0.339272	0.02161	0.27435	0.25	109.74
1,1-Dichloroethene	0.012881	0.025762	0.064406	0.004102	0.054764	0.05	109.5286
Hexane	0.012795	0.025591	0.063977	0.004075	0.056164	0.05	112.3286
Methylene chloride	0.052764	0.105528	0.26382	0.016804	0.264571	0.25	105.8286
t-Butyl alcohol (TBA)	0.182336	0.364672	0.91168	0.058069	2.315929	2.5	92.63714
Methyl t-butyl ether (MTBE	0.002824	0.005647	0.014119	0.000899	0.025107	0.025	100.4286
trans-1,2-Dichloroethene	0.005015	0.010029	0.025073	0.001597	0.026657	0.025	106.6286
Diisopropyl ether (DIPE)	0.005611	0.011223	0.028057	0.001787	0.024043	0.025	96.17143
1,1-Dichloroethane	0.011745	0.02349	0.058725	0.00374	0.0445	0.05	89
Ethyl t-butyl ether (ETBE)	0.003813	0.007626	0.019065	0.001214	0.024107	0.025	96.42857
2,2-Dichloropropane	0.013395	0.026789	0.066973	0.004266	0.053057	0.05	106.1143
cis-1,2-Dichloroethene	0.006004	0.012008	0.03002	0.001912	0.045643	0.05	91.28571
Chloroform	0.003685	0.007369	0.018423	0.001173	0.045693	0.05	91.38571
2-Butanone (MEK)	0.039347	0.078694	0.196735	0.012531	0.236086	0.25	94.43429
t-Amyl methyl ether (TAME)	0.004828	0.009656	0.024139	0.001538	0.023264	0.025	93.05714
1,2-Dichloroethane (EDC)	0.004872	0.009743	0.024358	0.001551	0.023543	0.025	94.17143
1,1,1-Trichloroethane	0.005103	0.010206	0.025515	0.001625	0.022607	0.025	90.42857
1,1-Dichloropropene	0.001791	0.003582	0.008955	0.00057	0.023543	0.025	94.17143
Carbon Tetrachloride	0.005076	0.010153	0.025382	0.001617	0.022707	0.025	90.82857
Benzene	0.001097	0.002194	0.005484	0.000349	0.023307	0.025	93.22857
Trichloroethene	0.006286	0.012573	0.031432	0.002002	0.024564	0.025	98.25714
1,2-Dichloropropane	0.005515	0.01103	0.027575	0.001756	0.023314	0.025	93.25714

EPA Method 8260

MDL Data and Calculations

Analyte	(StdDev*3.14) MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.
Bromodichloromethane	0.003593	0.007185	0.017963	0.001144	0.021971	0.025	87.88571
Dibromomethane	0.004	0.008001	0.020002	0.001274	0.023836	0.025	95.34286
4-Methyl-2-pentanone	0.022774	0.045548	0.113869	0.007253	0.236221	0.25	94.48857
cis-1,3-Dichloropropene	0.001796	0.003591	0.008978	0.000572	0.022457	0.025	89.82857
Toluene	0.00209	0.004181	0.010452	0.000666	0.026179	0.025	104.7143
trans-1,3-Dichloropropene	0.001931	0.003862	0.009655	0.000615	0.021829	0.025	87.31429
1,1,2-Trichloroethane	0.003102	0.006205	0.015512	0.000988	0.023757	0.025	95.02857
2-Hexanone	0.012187	0.024374	0.060935	0.003881	0.220686	0.25	88.27429
1,3-Dichloropropane	0.002087	0.004174	0.010434	0.000665	0.0229	0.025	91.6
Tetrachloroethene	0.00433	0.00866	0.02165	0.001379	0.024479	0.025	97.91429
Dibromochloromethane	0.003655	0.00731	0.018274	0.001164	0.020836	0.025	83.34286
1,2-Dibromoethane (EDB)	0.002497	0.004994	0.012485	0.000795	0.023429	0.025	93.71429
Chlorobenzene	0.002856	0.005713	0.014282	0.00091	0.0239	0.025	95.6
Ethylbenzene	0.003116	0.006232	0.015581	0.000992	0.023621	0.025	94.48571
1,1,1,2-Tetrachloroethane	0.003226	0.006453	0.016131	0.001027	0.022279	0.025	89.11429
m,p-Xylene	0.004449	0.008899	0.022247	0.001417	0.047943	0.05	95.88571
o-Xylene	0.002326	0.004653	0.011632	0.000741	0.023764	0.025	95.05714
Styrene	0.001811	0.003621	0.009053	0.000577	0.02285	0.025	91.4
Isopropylbenzene	0.001802	0.003605	0.009012	0.000574	0.024093	0.025	96.37143
Bromoform	0.004043	0.008085	0.020213	0.001287	0.02085	0.025	83.4
n-Propylbenzene	0.003459	0.006917	0.017293	0.001101	0.023429	0.025	93.71429
Bromobenzene	0.005618	0.011237	0.028092	0.001789	0.02365	0.025	94.6
1,3,5-Trimethylbenzene	0.00388	0.007759	0.019399	0.001236	0.02365	0.025	94.6
1,1,2,2-Tetrachloroethane	0.003177	0.006354	0.015885	0.001012	0.022007	0.025	88.02857
1,2,3-Trichloropropane	0.002674	0.005349	0.013371	0.000852	0.022357	0.025	89.42857
2-Chlorotoluene	0.003529	0.007058	0.017645	0.001124	0.023614	0.025	94.45714
4-Chlorotoluene	0.003502	0.007005	0.017511	0.001115	0.023621	0.025	94.48571
tert-Butylbenzene	0.00278	0.00556	0.013901	0.000885	0.024286	0.025	97.14286
1,2,4-Trimethylbenzene	0.001918	0.003836	0.00959	0.000611	0.024464	0.025	97.85714
sec-Butylbenzene	0.003348	0.006695	0.016738	0.001066	0.024621	0.025	98.48571
p-Isopropyltoluene	0.002512	0.005024	0.012559	0.0008	0.024779	0.025	99.11429
1,3-Dichlorobenzene	0.00502	0.01004	0.025099	0.001599	0.024729	0.025	98.91429
1,4-Dichlorobenzene	0.005105	0.01021	0.025525	0.001626	0.025271	0.025	101.0857
1,2-Dichlorobenzene	0.003215	0.00643	0.016074	0.001024	0.023671	0.025	94.68571
1,2-Dibromo-3-chloropropane	0.01213	0.024261	0.060652	0.003863	0.022171	0.025	88.68571
1,2,4-Trichlorobenzene	0.005535	0.01107	0.027676	0.001763	0.02345	0.025	93.8
Hexachlorobutadiene	0.009489	0.018979	0.047446	0.003022	0.025093	0.025	100.3714
Naphthalene	0.004059	0.008118	0.020296	0.001293	0.020757	0.025	83.02857
1,2,3-Trichlorobenzene	0.008228	0.016456	0.04114	0.00262	0.022021	0.025	88.08571

EPA Method 8270
MDL Data and Calculations

Analysis:	8270 BNAs	Standard(s) spiked:	20/100/200 ug/ml BNA mdl stock 34-172; 2000 ug/ml Benzoic Acid stock 31-169
Matrix:	**Water**	Volume spiked:	50 uL (above); 40 uL (above)
Instrument ID:	GCMS #8	Date(s) Extracted:	04/12/11
Reporting Units:	ug/L	Date(s) Analyzed:	04/12/11
		Date Calculated:	04/22/11
		Calculation Analyst:	YA

	(StdDev*3.14)	(2*MDL)	(5*MDL)	**Std**		**Spike**	**%**
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
N-Nitrosodimethylamine	0.135	0.271	0.677	0.0431	0.613	1.0	61
Phenol	0.420	0.841	2.102	0.1339	2.137	5.0	43
Bis(2-chloroethyl) ether	0.198	0.397	0.992	0.0632	1.017	1.0	102
2-Chlorophenol	0.941	1.882	4.704	0.2996	4.819	5.0	96
1,3-Dichlorobenzene	0.182	0.364	0.910	0.0580	1.054	1.0	105
1,4-Dichlorobenzene	0.170	0.341	0.852	0.0543	1.059	1.0	106
1,2-Dichlorobenzene	0.217	0.435	1.087	0.0692	1.063	1.0	106
Benzyl alcohol	0.249	0.498	1.246	0.0793	0.704	1.0	70
Bis(2-chloroisopropyl) ether	0.257	0.514	1.284	0.0818	1.063	1.0	106
2-Methylphenol	0.787	1.574	3.936	0.2507	4.171	5.0	83
Hexachloroethane	0.217	0.433	1.083	0.0690	0.957	1.0	96
N-Nitroso-di-n-propylamine	0.296	0.591	1.478	0.0941	0.927	1.0	93
3-Methylphenol +4 -Methylphenol	1.603	3.205	8.013	0.5104	7.154	10.0	72
Nitrobenzene	0.225	0.450	1.124	0.0716	1.206	1.0	121
Isophorone	0.253	0.507	1.267	0.0807	0.959	1.0	96
2-Nitrophenol	1.223	2.446	6.114	0.3894	4.926	5.0	99
2,4-Dimethylphenol	0.560	1.120	2.800	0.1783	4.114	5.0	82
Benzoic acid	18.908	37.816	94.539	6.0216	25.164	90.0	28
Bis(2-chloroethoxy)methane	0.246	0.493	1.232	0.0785	1.074	1.0	107
2,4-Dichlorophenol	1.151	2.302	5.754	0.3665	4.903	5.0	98
1,2,4-Trichlorobenzene	0.183	0.366	0.915	0.0583	1.014	1.0	101
Naphthalene	0.168	0.336	0.841	0.0535	1.080	1.0	108
Hexachlorobutadiene	0.198	0.396	0.991	0.0631	1.079	1.0	108
4-Chloroaniline	0.092	0.185	0.462	0.0294	0.620	1.0	62
4-Chloro-3-methylphenol	1.229	2.458	6.146	0.3915	4.477	5.0	90
2-Methylnaphthalene	0.195	0.390	0.975	0.0621	0.997	1.0	100
Hexachlorocyclopentadiene	0.166	0.331	0.828	0.0527	0.599	1.0	60
2,4,6-Trichlorophenol	1.237	2.473	6.183	0.3938	4.734	5.0	95
2,4,5-Trichlorophenol	1.232	2.464	6.160	0.3924	4.474	5.0	89
2-Nitroaniline	0.354	0.707	1.768	0.1126	0.759	1.0	76

EPA Method 8270

MDL Data and Calculations

	(StdDev*3.14)	(2*MDL)	(5*MDL)	Std		Spike	%
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
Dimethyl phthalate	0.265	0.530	1.325	0.0844	1.077	1.0	108
Acenaphthylene	0.259	0.517	1.293	0.0823	1.111	1.0	111
2,6-Dinitrotoluene	0.321	0.643	1.607	0.1024	0.821	1.0	82
3-Nitroaniline	0.192	0.385	0.962	0.0613	0.473	1.0	47
Acenaphthene	0.213	0.426	1.064	0.0678	1.114	1.0	111
2,4-Dinitrophenol	1.867	3.733	9.333	0.5944	1.892	5.0	38
Dibenzofuran	0.230	0.460	1.150	0.0732	1.106	1.0	111
2,4-Dinitrotoluene	0.365	0.731	1.826	0.1163	0.960	1.0	96
4-Nitrophenol	0.536	1.071	2.678	0.1706	0.955	5.0	19
Diethyl phthalate	0.270	0.540	1.350	0.0860	1.137	1.0	114
Fluorene	0.246	0.491	1.228	0.0782	1.141	1.0	114
4-Chlorophenyl phenyl ether	0.218	0.437	1.091	0.0695	1.150	1.0	115
1,2-Diphenylhydrazine	0.247	0.494	1.234	0.0786	0.959	1.0	96
2-Chloronaphthalene	0.183	0.367	0.917	0.0584	1.101	1.0	110
N-Nitrosodiphenylamine	0.181	0.362	0.906	0.0577	0.874	1.0	87
4-Nitroaniline	0.364	0.727	1.818	0.1158	0.604	1.0	60
4,6-Dinitro-2-methylphenol	1.704	3.408	8.519	0.5426	3.523	5.0	70
4-Bromophenyl phenyl ether	0.240	0.480	1.201	0.0765	1.069	1.0	107
Hexachlorobenzene	0.167	0.334	0.834	0.0531	1.093	1.0	109
Pentachlorophenol	1.301	2.603	6.507	0.4145	3.987	5.0	80
Phenanthrene	0.156	0.312	0.780	0.0497	1.160	1.0	116
Anthracene	0.192	0.384	0.961	0.0612	1.111	1.0	111
Carbazole	0.240	0.480	1.201	0.0765	0.991	1.0	99
Di-n-butyl phthalate	0.322	0.644	1.611	0.1026	1.024	1.0	102
Fluoranthene	0.276	0.553	1.382	0.0880	1.021	1.0	102
Benzidine	0.711	1.422	3.555	0.2264	0.560	10.0	6
Pyrene	0.154	0.307	0.768	0.0489	1.006	1.0	101
Benzyl butyl phthalate	0.272	0.543	1.358	0.0865	0.769	1.0	77
Benz(a)anthracene	0.165	0.330	0.824	0.0525	0.953	1.0	95
3,3'-Dichlorobenzidine	0.785	1.570	3.925	0.2500	7.416	10.0	74
Chrysene	0.158	0.317	0.792	0.0505	0.981	1.0	98
Bis(2-ethylhexyl) phthalate	0.287	0.574	1.435	0.0914	0.974	1.0	97
Di-n-octyl phthalate	0.265	0.530	1.324	0.0843	0.589	1.0	59
Benzo(a)pyrene	0.204	0.409	1.022	0.0651	0.690	1.0	69
Benzo(b)fluoranthene	0.182	0.364	0.910	0.0580	0.836	1.0	84
Benzo(k)fluoranthene	0.099	0.199	0.496	0.0316	0.900	1.0	90
Indeno(1,2,3-cd)pyrene	0.246	0.491	1.229	0.0783	0.727	1.0	73
Dibenzo(a,h)anthracene	0.325	0.650	1.626	0.1036	0.704	1.0	70
Benzo(g,h,i)perylene	0.267	0.535	1.337	0.0852	0.853	1.0	85

EPA Method 8270
MDL Data and Calculations

MDL Data and Calculations

Analyst fill in all below
(attach extraction worksheet(s))

Analysis:	8270 BNA	Standard(s) spiked:	20/100/200 ug/ml BNA mdl stock 34-172; 2,000 ug/ml 4-chloroaniline, m and p-nitroaniline
Matrix:	**Soil**	Volume spiked:	50 uL (above); 100 uL (above)
Instrument ID:	GCMS #6	Date(s) Extracted:	40589
Reporting Units:	mg/kg	Date(s) Analyzed:	02/22/11, 02/23/11, 02/28/11, 03/08/11
		Date Calculated:	40645
		Calculation Analyst:	YA

Analyte	(StdDev*3. MDL	(2*MDL) PQL	(5*MDL) PQL	Std Dev	Mean	Spike Level	% Rec.
N-Nitrosodimethylamine	0.020324	0.040648	0.10162	0.006473	0.034917	0.033	105.8104
Phenol	0.026984	0.053969	0.134921	0.008594	0.153846	0.167	92.12335
Bis(2-chloroethyl) ether	0.011728	0.023456	0.058641	0.003735	0.036345	0.033	110.1351
2-Chlorophenol	0.023294	0.046588	0.116469	0.007418	0.149327	0.167	89.41719
1,3-Dichlorobenzene	0.009803	0.019607	0.049017	0.003122	0.032396	0.033	98.17013
1,4-Dichlorobenzene	0.012778	0.025555	0.063888	0.004069	0.038628	0.033	117.0545
1,2-Dichlorobenzene	0.007911	0.015821	0.039554	0.002519	0.043195	0.033	130.8935
Benzyl alcohol	0.016129	0.032259	0.080647	0.005137	0.021455	0.033	65.01429
Bis(2-chloroisopropyl) ether	0.009583	0.019167	0.047916	0.003052	0.037629	0.033	114.0273
2-Methylphenol	0.044369	0.088738	0.221845	0.01413	0.1616	0.167	96.76655
Hexachloroethane	0.010739	0.021477	0.053693	0.00342	0.033585	0.033	101.774
N-Nitroso-di-n-propylamine	0.009933	0.019865	0.049664	0.003163	0.034061	0.033	103.2156
3-Methylphenol +4 -Methylphenol	0.086255	0.17251	0.431276	0.02747	0.326768	0.334	97.83477
Nitrobenzene	0.01409	0.028179	0.070448	0.004487	0.043528	0.033	131.9026
Isophorone	0.006303	0.012605	0.031513	0.002007	0.032967	0.033	99.9
2-Nitrophenol	0.033804	0.067607	0.169018	0.010765	0.139908	0.167	83.77699
2,4-Dimethylphenol	0.020093	0.040187	0.100467	0.006399	0.127729	0.167	76.4846
Benzoic acid	0.326987	0.653974	1.634936	0.104136	0.255221	0.333	76.64286
Bis(2-chloroethoxy)methane	0.007741	0.015482	0.038705	0.002465	0.033585	0.033	101.774
2,4-Dichlorophenol	0.034664	0.069327	0.173318	0.011039	0.150516	0.167	90.12934
1,2,4-Trichlorobenzene	0.005117	0.010235	0.025587	0.00163	0.034489	0.033	104.513
Naphthalene	0.00816	0.01632	0.040801	0.002599	0.036868	0.033	111.7208
Hexachlorobutadiene	0.006494	0.012988	0.03247	0.002068	0.034394	0.033	104.2247
4-Chloroaniline	1.044026	2.088052	5.22013	0.332492	3.064694	6.7	45.7417
4-Chloro-3-methylphenol	0.043242	0.086484	0.216211	0.013771	0.143999	0.167	86.22678
2-Methylnaphthalene	0.006356	0.012712	0.031781	0.002024	0.031778	0.033	96.2961
Hexachlorocyclopentadiene	0.014487	0.028973	0.072434	0.004614	0.02312	0.033	70.05974
2,4,6-Trichlorophenol	0.027111	0.054223	0.135557	0.008634	0.146663	0.167	87.82198
2,4,5-Trichlorophenol	0.029299	0.058597	0.146493	0.009331	0.1518	0.167	90.89846
2-Nitroaniline	0.015218	0.030435	0.076088	0.004846	0.02802	0.033	84.90779
Dimethyl phthalate	0.004471	0.008943	0.022356	0.001424	0.030826	0.033	93.41299

EPA Method 8270

MDL Data and Calculations

Acenaphthylene	0.006002	0.012005	0.030011	0.001912	0.033157	0.033	100.4766
2,6-Dinitrotoluene	0.008616	0.017233	0.043082	0.002744	0.022739	0.033	68.90649
3-Nitroaniline	1.024383	2.048765	5.121913	0.326237	4.135337	6.7	61.72144
Acenaphthene	0.005223	0.010446	0.026116	0.001663	0.033776	0.033	102.3506
2,4-Dinitrophenol	0.131486	0.262972	0.65743	0.041875	0.06202	0.167	37.13772
Dibenzofuran	0.006841	0.013683	0.034207	0.002179	0.034347	0.333	10.31429
2,4-Dinitrotoluene	0.010181	0.020362	0.050906	0.003242	0.030588	0.033	92.69221
4-Nitrophenol	0.438203	0.876406	2.191016	0.139555	0.388992	0.033	1178.762
Diethyl phthalate	0.005366	0.010731	0.026829	0.001709	0.033966	0.333	10.2
Fluorene	0.006286	0.012572	0.031431	0.002002	0.032253	0.033	97.73766
4-Chlorophenyl phenyl ether	0.006127	0.012254	0.030634	0.001951	0.033966	0.033	102.9273
1,2-Diphenylhydrazine	0.010978	0.021957	0.054892	0.003496	0.029542	0.033	89.52078
2-Chloronaphthalene	0.006178	0.012355	0.030888	0.001967	0.034061	0.033	103.2156
N-Nitrosodiphenylamine	0.004213	0.008427	0.021067	0.001342	0.025879	0.033	78.42078
4-Nitroaniline	0.738269	1.476538	3.691344	0.235117	6.285232	6.7	93.80944
4,6-Dinitro-2-methylphenol	0.082177	0.164354	0.410884	0.026171	0.096173	0.167	57.58845
4-Bromophenyl phenyl ether	0.005772	0.011545	0.028862	0.001838	0.030018	0.033	90.96234
Hexachlorobenzene	0.007007	0.014014	0.035034	0.002231	0.031397	0.033	95.14286
Pentachlorophenol	0.145384	0.290767	0.726918	0.046301	0.135674	0.167	81.24175
Phenanthrene	0.006028	0.012057	0.030141	0.00192	0.033728	0.033	102.2065
Anthracene	0.007011	0.014021	0.035053	0.002233	0.031445	0.033	95.28701
Carbazole	0.008093	0.016186	0.040465	0.002577	0.030065	0.033	91.10649
Di-n-butyl phthalate	0.007033	0.014066	0.035164	0.00224	0.032206	0.033	97.59351
Fluoranthene	0.007478	0.014955	0.037388	0.002381	0.031254	0.033	94.71039
Benzidine	ND	ND	ND	ND	ND	0.333	ND
Pyrene	0.003852	0.007704	0.01926	0.001227	0.029066	0.033	88.07922
Benzyl butyl phthalate	0.007516	0.015032	0.037579	0.002394	0.025308	0.033	76.69091
Benz(a)anthracene	0.00477	0.00954	0.023849	0.001519	0.030255	0.333	9.085714
3,3'-Dichlorobenzidine	0.099194	0.198388	0.495969	0.03159	0.137291	0.333	41.22857
Chrysene	0.005691	0.011381	0.028453	0.001812	0.030779	0.033	93.26883
Bis(2-ethylhexyl) phthalate	0.01265	0.0253	0.063251	0.004029	0.031115	0.033	94.28701
Di-n-octyl phthalate	0.010765	0.021531	0.053827	0.003428	0.025974	0.033	78.70909
Benzo(a)pyrene	0.007904	0.015808	0.039521	0.002517	0.023595	0.033	71.5013
Benzo(b)fluoranthene	0.006413	0.012826	0.032066	0.002042	0.027116	0.033	82.16883
Benzo(k)fluoranthene	0.012456	0.024912	0.062279	0.003967	0.034394	0.033	104.2247
Indeno(1,2,3-cd)pyrene	0.010133	0.020265	0.050663	0.003227	0.026545	0.033	80.43896
Dibenzo(a,h)anthracene	0.009951	0.019902	0.049755	0.003169	0.02821	0.033	85.48442
Benzo(g,h,i)perylene	0.011452	0.022904	0.05726	0.003647	0.028781	0.033	87.21429

EPA Method 8270-SIM
MDL Data and Calculations

WATER ug/L

	(StdDev*3.14)	(2*MDL)	(5*MDL)	Std		Spike	%
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
Naphthalene	0.00222	0.00444	0.01110	0.000707	0.03139	0.030	105
2-Methylnaphthalene	0.00184	0.00368	0.00921	0.000587	0.02695	0.030	90
1-Methylnaphthalene	0.00336	0.00673	0.01681	0.001071	0.02674	0.030	89
Acenaphthylene	0.00639	0.01278	0.03194	0.002035	0.02368	0.030	79
Acenaphthene	0.00307	0.00615	0.01537	0.000979	0.02783	0.030	93
Fluorene	0.01485	0.02970	0.07424	0.004729	0.02754	0.030	92
Phenanthrene	0.00283	0.00565	0.01414	0.000900	0.02874	0.030	96
Anthracene	0.00594	0.01188	0.02971	0.001893	0.02611	0.030	87
Fluoranthene	0.00339	0.00679	0.01696	0.001081	0.02318	0.030	77
Pyrene	0.00363	0.00727	0.01817	0.001157	0.02271	0.030	76
Benz(a)anthracene	0.00379	0.00758	0.01894	0.001207	0.03256	0.030	109
Chrysene	0.00244	0.00489	0.01221	0.000778	0.02479	0.030	83
Benzo(b)fluoranthene	0.00379	0.00759	0.01896	0.001208	0.01850	0.030	62
Benzo(k)fluoranthene	0.00515	0.01029	0.02573	0.001639	0.01991	0.030	66
Benzo(a)pyrene	0.00404	0.00808	0.02021	0.001287	0.01584	0.030	53
Indeno(1,2,3-cd)pyrene	0.00625	0.01250	0.03125	0.001990	0.01485	0.030	50
Dibenz(a,h)anthracene	0.00720	0.01440	0.03600	0.002293	0.01686	0.030	56
Benzo(g,h,i)perylene	0.00733	0.01467	0.03667	0.002335	0.02136	0.030	71

SOIL mg/kg

	(StdDev*3.14)	**(2*MDL)**	**(5*MDL)**	**Std**		**Spike**	**%**
Analyte	**MDL**	**PQL**	**PQL**	**Dev**	**Mean**	**Level**	**Rec.**
Naphthalene	0.00021	0.000419	0.001048	6.68E-05	0.000963	0.001	96.25603
2-Methylnaphthalene	0.000433	0.000866	0.002165	0.000138	0.00094	0.001	93.98687
1-Methylnaphthalene	0.000244	0.000487	0.001218	7.76E-05	0.000863	0.001	86.3469
Acenaphthylene	0.000501	0.001003	0.002507	0.00016	0.000906	0.001	90.62833
Acenaphthene	0.000229	0.000457	0.001143	7.28E-05	0.000922	0.001	92.18391
Fluorene	0.00058	0.00116	0.002901	0.000185	0.001017	0.001	101.6982
Phenanthrene	0.000482	0.000964	0.00241	0.000153	0.00106	0.001	106.0034
Anthracene	0.000358	0.000717	0.001791	0.000114	0.0009	0.001	90.02417
Fluoranthene	0.000277	0.000554	0.001385	8.82E-05	0.000799	0.001	79.91524
Pyrene	0.000268	0.000536	0.00134	8.54E-05	0.000766	0.001	76.59951
Benz(a)anthracene	0.000187	0.000373	0.000933	5.94E-05	0.001091	0.001	109.1336
Chrysene	0.000171	0.000343	0.000857	5.46E-05	0.000837	0.001	83.74474
Benzo(b)fluoranthene	0.000282	0.000565	0.001411	8.99E-05	0.000717	0.001	71.68063
Benzo(k)fluoranthene	0.000282	0.000565	0.001412	8.99E-05	0.000746	0.001	74.64433
Benzo(a)pyrene	0.000257	0.000513	0.001283	8.17E-05	0.000548	0.001	54.84034
Indeno(1,2,3-cd)pyrene	0.000129	0.000258	0.000646	4.11E-05	0.000557	0.001	55.69187
Dibenz(a,h)anthracene	0.000228	0.000456	0.00114	7.26E-05	0.000637	0.001	63.65533
Benzo(g,h,i)perylene	0.000177	0.000354	0.000885	5.64E-05	0.000798	0.001	79.76777

Method 200.8 Soil
Method Detection Limit (MDL) Study

Location: g:\fbi\mdls\icp_ms\icpmsmdl2011.xls
Date Analyzed: 02/25/11
Analyst: AP
Units: mg/Kg (ppm)
Spike Level: 0.5 mg/Kg (ppm) Samples were diluted 1000x for analysis
Parts per Million

Analyte	Ion	MDL (3.14*STD)	PQL (2*MDL)	PQL (5*MDL)	mdl1	mdl2	mdl3	mdl4	mdl5	mdl6	mdl7	STD
Antimony	Sb 121	0.0270	0.054	0.135	0.500	0.506	0.514	0.518	0.503	0.495	0.515	0.009
	Sb 123	**0.0326**	0.065	0.163	0.525	0.527	0.539	0.530	0.509	0.518	0.513	0.010
Arsenic	**As 75**	**0.4615**	0.923	2.308	0.238	0.297	0.407	0.360	0.385	0.084	0.553	0.147
Berylium	**Be 9**	**0.0556**	0.111	0.278	0.716	0.716	0.708	0.709	0.696	0.666	0.711	0.018
Cadmium	Cd 106	0.1396	0.279	0.698	0.066	0.102	0.000	0.012	0.118	0.035	0.037	0.044
	Cd 108	0.0841	0.168	0.420	0.397	0.464	0.414	0.405	0.377	0.412	0.401	0.027
	Cd 111	**0.0289**	0.058	0.145	0.378	0.381	0.382	0.385	0.362	0.377	0.363	0.009
	Cd 114	0.0585	0.117	0.293	0.366	0.390	0.411	0.412	0.369	0.377	0.391	0.019
Chromium	**Cr 52**	**0.2075**	0.415	1.038	0.799	0.853	0.999	0.873	0.820	0.832	0.836	0.066
	Cr 53	8.2615	16.523	41.307	13.347	18.170	20.173	20.215	19.914	19.415	21.251	2.631
Copper	**Cu 63**	**0.0684**	0.137	0.342	0.438	0.461	0.487	0.479	0.445	0.437	0.483	0.022
	Cu 65	0.0837	0.167	0.419	0.428	0.428	0.460	0.457	0.485	0.436	0.494	0.027
Lead	**Pb 208**	**0.0359**	0.072	0.179	0.495	0.487	0.481	0.479	0.502	0.468	0.493	0.011
Nickel	**Ni 60**	**0.0876**	0.175	0.438	0.485	0.509	0.561	0.511	0.521	0.485	0.541	0.028
	Ni 62	0.0622	0.124	0.311	0.479	0.521	0.526	0.529	0.528	0.491	0.512	0.020
Selenium	Se 77	2.2147	4.429	11.073	13.852	14.834	14.930	15.896	14.210	15.187	15.476	0.705
	Se 82	**0.1695**	0.339	0.848	0.464	0.508	0.571	0.468	0.432	0.468	0.567	0.054
Silver	**Ag 107**	**0.0535**	0.107	0.267	0.559	0.566	0.548	0.557	0.521	0.551	0.526	0.017
	Ag 109	0.0224	0.045	0.112	0.525	0.515	0.514	0.524	0.508	0.510	0.508	0.007
Thallium	Tl 203	0.0141	0.028	0.071	0.426	0.432	0.431	0.426	0.437	0.431	0.424	0.005
	Tl 205	**0.0268**	0.054	0.134	0.471	0.463	0.455	0.459	0.469	0.467	0.447	0.009
Zinc	**Zn 66**	**0.1278**	0.256	0.639	0.109	0.111	0.111	0.093	0.157	0.119	0.211	0.041
	Zn 67	2.6211	5.242	13.105	0.968	2.048	2.718	2.975	3.210	2.966	3.343	0.835
	Zn 68	0.2016	0.403	1.008	0.039	0.037	0.051	0.085	0.177	0.087	0.192	0.064

Method 200.8 Water
Method Detection Limit (MDL) Study

Location: g:\fbi\MDLs\icp_ms\icpmsmdl2011.xls
Date Analyzed: 01/21/11 Linear range analyzed 03/09/11
Analyst: AP
Units: ug/L (ppb)
Spike Level: 0.5 ug/L (ppb)

Parts per Billion

Analyte	Ion	MDL (3.14*STD)	PQL (2*MDL)	PQL (5*MDL)	mdl1	mdl2	mdl3	mdl4	mdl5	mdl6	mdl7	STD	Linear range mg/L
Antimony	Sb 121	0.0452	0.090	0.226	0.549	0.550	0.561	0.530	0.549	0.559	0.577	0.014	10
	Sb 123	**0.0351**	0.070	0.176	0.557	0.540	0.560	0.540	0.536	0.535	0.558	0.011	10
Arsenic	**As 75**	**0.1560**	0.312	0.780	0.348	0.354	0.435	0.351	0.364	0.457	0.446	0.050	10
Berylium	**Be 9**	**0.0571**	0.114	0.286	0.547	0.572	0.527	0.539	0.527	0.543	0.569	0.018	0.5
Cadmium	Cd 106	0.1717	0.343	0.858	0.880	0.962	0.907	0.861	1.010	0.982	0.923	0.055	10
	Cd 108	0.0928	0.186	0.464	1.052	1.024	1.045	1.027	1.044	1.103	1.086	0.030	10
	Cd 111	**0.0505**	0.101	0.253	0.552	0.539	0.581	0.540	0.532	0.541	0.548	0.016	10
	Cd 114	0.0624	0.125	0.312	0.517	0.534	0.545	0.510	0.523	0.540	0.569	0.020	10
Chromium	**Cr 52**	**0.2007**	0.401	1.003	0.756	0.579	0.612	0.586	0.572	0.590	0.612	0.064	10
	Cr 53	0.3248	0.650	1.624	0.432	0.275	0.251	0.191	0.157	0.121	0.183	0.103	10
Copper	**Cu 63**	**0.1495**	0.299	0.748	0.693	0.725	0.625	0.596	0.604	0.626	0.653	0.048	1
	Cu 65	0.1499	0.300	0.749	0.685	0.710	0.601	0.589	0.592	0.626	0.654	0.048	10
Lead	**Pb 208**	**0.0685**	0.137	0.343	0.550	0.565	0.546	0.524	0.510	0.507	0.544	0.022	10
Nickel	**Ni 60**	**0.0710**	0.142	0.355	0.601	0.599	0.551	0.551	0.557	0.571	0.593	0.023	10
	Ni 62	0.0681	0.136	0.340	0.588	0.577	0.543	0.572	0.552	0.525	0.554	0.022	1
Selenium	Se 77	0.5053	1.011	2.526	1.207	1.369	1.016	1.266	1.227	1.096	0.897	0.161	10
	Se 82	**0.2209**	0.442	1.104	0.406	0.479	0.455	0.352	0.301	0.414	0.304	0.070	10
Silver	**Ag 107**	**0.0432**	0.086	0.216	0.556	0.536	0.576	0.553	0.544	0.564	0.567	0.014	2
	Ag 109	0.0357	0.071	0.178	0.566	0.550	0.569	0.561	0.556	0.571	0.585	0.011	5
Thallium	Tl 203	0.0368	0.074	0.184	0.549	0.553	0.552	0.538	0.547	0.548	0.576	0.012	10
	Tl 205	**0.0422**	0.084	0.211	0.539	0.529	0.529	0.525	0.531	0.506	0.550	0.013	10
Zinc	**Zn 66**	**0.3316**	0.663	1.658	0.830	0.819	0.593	0.671	0.561	0.623	0.673	0.106	10
	Zn 67	0.3103	0.621	1.552	0.643	0.661	0.556	0.519	0.385	0.450	0.563	0.099	10
	Zn 68	0.3185	0.637	1.592	0.792	0.812	0.578	0.676	0.554	0.603	0.686	0.101	10

MDL for Hg in Soil (EPA 1631)

	MDL (StdDev*3.14)	PQL (2*MDL)	PQL (5*MDL)		MDL #1	MDL#2	MDL#3	MDL#4	MDL#5	MDL#6	MDL#7	Std Dev
Hg mg/kg (ppm	0.001821	0.003641	0.00910		0.0157	0.0155	0.0145	0.0146	0.0156	0.0143	0.0152	0.000580

Spike: 25 uL of 1 ppm made from 10 ppm I2-07A
Init digestion: 2g to 50 mL
Final dilution: 100 ul to 50 ml (12,500x dilution)
Analyst: AP
Date Digested: 01/26/12
Date Analyzed: 01/31/12

Location : SWCOMP Off:\FBI\MDLs\Hg.xls
Sequence HG 01-31-12

MDL for Hg in Water (EPA 1631)

	MDL (StdDev*3.14)	PQL (2*MDL)	PQL (5*MDL)		MDL #1	MDL#2	MDL#3	MDL#4	MDL#5	MDL#6	MDL#7	Std Dev
Hg ug/L (ppb)	0.000323	0.000647	0.001616		0.00148	0.00147	0.00141	0.00136	0.00169	0.00147	0.00148	0.000103

Spike: 5.0 uL of 10 ppb I2-07C
Initial Vol: 50mL
Final Vol: 50 ml
Analyst: AP
Date Digested: 01/13/12
Date Analysed: 01/20/12

Location : SWCOMP Off:\FBI\MDLs\Hg.xls
Sequence HG 01-20-12

Metals in Brackish Water (CAS Kelso, subcontracted)

ICPMS for Waters						
Element	**Method**	**Matrix**	**Digestion**	**MRL**	**MDL**	**Units**
Antimony	200.8 / 6020	Water	CLP (ILM04.0)	**0.05**	**0.02**	ug/L
Arsenic	200.8 / 6020	Water	CLP (ILM04.0)	**0.5**	**0.1**	ug/L
Beryllium	200.8 / 6020	Water	CLP (ILM04.0)	**0.02**	**0.006**	ug/L
Cadmium	200.8 / 6020	Water	CLP (ILM04.0)	**0.02**	**0.005**	ug/L
Chromium	200.8 / 6020	Water	CLP (ILM04.0)	**0.2**	**0.04**	ug/L
Copper	200.8 / 6020	Water	CLP (ILM04.0)	**0.1**	**0.02**	ug/L
Lead	200.8 / 6020	Water	CLP (ILM04.0)	**0.02**	**0.005**	ug/L
Nickel	200.8 / 6020	Water	CLP (ILM04.0)	**0.2**	**0.03**	ug/L
Selenium	200.8 / 6020	Water	CLP (ILM04.0)	**1.0**	**0.3**	ug/L
Silver	200.8 / 6020	Water	CLP (ILM04.0)	**0.02**	**0.004**	ug/L
Thallium	200.8 / 6020	Water	CLP (ILM04.0)	**0.02**	**0.005**	ug/L
Zinc	200.8 / 6020	Water	CLP (ILM04.0)	**0.5**	**0.2**	ug/L
ICP for Waters						
Element	**Method**	**Matrix**	**Digestion**	**MRL**	**MDL**	**Units**
Antimony	200.7 / 6010	Water	CLP (ILM04.0)	**10**	**3.0**	ug/L
Arsenic	200.7 / 6010	Water	CLP (ILM04.0)	**10**	**4.0**	ug/L
Beryllium	200.7 / 6010	Water	CLP (ILM04.0)	**0.2**	**0.09**	ug/L
Cadmium	200.7 / 6010	Water	CLP (ILM04.0)	**0.5**	**0.3**	ug/L
Chromium	200.7 / 6010	Water	CLP (ILM04.0)	**2.0**	**0.4**	ug/L
Copper	200.7 / 6010	Water	CLP (ILM04.0)	**2.0**	**0.8**	ug/L
Lead	200.7 / 6010	Water	CLP (ILM04.0)	**10**	**4.0**	ug/L
Nickel	200.7 / 6010	Water	CLP (ILM04.0)	**2.0**	**0.7**	ug/L
Selenium	200.7 / 6010	Water	CLP (ILM04.0)	**20**	**5.0**	ug/L
Silver	200.7 / 6010	Water	CLP (ILM04.0)	**2.0**	**0.7**	ug/L
Thallium	200.7 / 6010	Water	CLP (ILM04.0)	**10**	**2.0**	ug/L
Zinc	200.7 / 6010	Water	CLP (ILM04.0)	**2.0**	**0.7**	ug/L
Mercury in Water						
Element	**Method**	**Matrix**		**MRL**	**MDL**	**Units**
Mercury	7470A	Water		0.2	0.02	ug/L
Mercury	1631E	Water		**1.0**	**0.06**	ng/L

Priority Pollutant Metal by ICP / ICP-MS / AA in Seawater				
		MRL	**MDL**	**Units**
Antimony	20x dil./ICP-MS	1.0	0.4	ug/L
Arsenic	Red. Ppt./ICP-MS	0.5	0.04	ug/L
Beryllium	Red. Ppt./ICP-MS	0.02	0.0007	ug/L
Cadmium	Red. Ppt./ICP-MS	0.02	0.002	ug/L
Chromium	Red. Ppt./ICP-MS	0.2	0.03	ug/L
Copper	Red. Ppt./ICP-MS	0.1	0.004	ug/L
Lead	Red. Ppt./ICP-MS	0.02	0.009	ug/L
Nickel	Red. Ppt./ICP-MS	0.2	0.04	ug/L
Silver	Red. Ppt./ICP-MS	0.02	0.004	ug/L
Thallium	Red. Ppt./ICP-MS	0.02	0.004	ug/L
Zinc	Red. Ppt./ICP-MS	0.5	0.06	ug/L
Selenium	BRAAS (7742)	1.0	0.05	ug/L
Mercury	CVAAS (7740A)	0.2	0.02	ug/L
	P&T AFS (1631)	0.001	0.00006	ug/L

EPA Method 8082 PCBs

units : mg/kg

	MDL (Stddev*3.´	PQL (2*MDL)	PQL (5*MDL)	MDL#1	MDL#2	MDL#3	MDL#4	MDL#5	MDL#6	MDL#7	Std Dev
AR 1016	0.017059	0.034119	0.085297	0.08053	0.08467	0.09533	0.08617	0.08747	0.08097	0.09187	0.005433
AR 1260	0.017369	0.034737	0.086843	0.08297	0.08853	0.097	0.0888	0.08967	0.08353	0.0964	0.005531

Spike Level = 25 ulof 100 ppm Ar 1016/1260 #34-159

EPA Method 8290 Dioxins/Furans

DATA QUALITY OBJECTIVES FOR CAS/HOUSTON (subcontracted)

ANALYTE	CAS No.	MATRIX	EDL	MRL	DOD LOD	DOD LOQ	UNITS	Accuracy (LCS %Rec.)	Matrix Spike (%Rec.)	Precision (% RPD)	DOD QSM (LCS %Rec.)	DOD QSM (% RPD)	Precision (DUP % RPD)
2378-TCDD	1746-01-6	Solid	0.0588	1	0.3	1	ng/Kg	50-150	50-150	20	50-150	20	25
12378-PeCDD	40321-76-4	Solid	0.0482	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123478-HxCDD	57653-85-7	Solid	0.0466	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123678-HxCDD	39227-28-6	Solid	0.0425	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123789-HxCDD	19408-74-3	Solid	0.0447	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
1234678-HpCDD	35822-46-9	Solid	0.0479	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
OCDD	3268-87-9	Solid	0.0695	5	1.5	5	ng/Kg	50-150	50-150	20	50-150	20	25
2378-TCDF	51207-31-9	Solid	0.0562	1	0.3	1	ng/Kg	50-150	50-150	20	50-150	20	25
12378-PeCDF	57117-41-6	Solid	0.0396	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
23478-PeCDF	57117-31-4	Solid	0.0388	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123478-HxCDF	57117-44-9	Solid	0.0340	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123678-HxCDF	72918-21-9	Solid	0.0335	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
123789-HxCDF	70648-26-9	Solid	0.0418	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
234678-HxCDF	60851-34-5	Solid	0.0367	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
1234678-HpCDF	67562-39-4	Solid	0.0377	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
1234789-HpCDF	55673-89-7	Solid	0.0500	2.5	0.75	2.5	ng/Kg	50-150	50-150	20	50-150	20	25
OCDF	39001-02-0	Solid	0.0644	5	1.5	5	ng/Kg	50-150	50-150	20	50-150	20	25
Total TCDD	41903-57-5	Solid	NA	1	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total PeCDD	36088-22-9	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total HxCDD	34465-46-8	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total HpCDD	37871-00-4	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total TCDF	30402-14-3	Solid	NA	1	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total PeCDF	30402-15-4	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total HxCDF	55684-94-1	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
Total HpCDF	38998-75-3	Solid	NA	2.5	NA	NA	ng/Kg	NA	NA	NA	NA	NA	NA
13C-2378-TCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-12378-PeCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-123678-HxCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-1234678-HpCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-OCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-2378-TCDF		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-12378-PeCDF		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-123478-HxCDF		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-1234678-HpCDF		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
37Cl-2378-TCDD		Solid	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA

EPA Method 8290 Dioxins/Furans

DATA QUALITY OBJECTIVES FOR CAS/HOUSTON (subcontracted)

ANALYTE	CAS No.	MATRIX	EDL	MRL	DOD LOD	DOD LOQ	UNITS	Accuracy (LCS %Rec.)	Matrix Spike (%Rec.)	Precision (% RPD)	DOD QSM (LCS %Rec.)	DOD QSM (% RPD)	Precision (DUP % RPD)
2378-TCDD	1746-01-6	Aqueous	0.566	10	3	10	pg/L	50-150	50-150	20	50-150	20	25
12378-PeCDD	40321-76-4	Aqueous	0.877	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123478-HxCDD	57653-85-7	Aqueous	0.740	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123678-HxCDD	39227-28-6	Aqueous	0.669	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123789-HxCDD	19408-74-3	Aqueous	0.714	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
1234678-HpCDD	35822-46-9	Aqueous	0.772	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
OCDD	3268-87-9	Aqueous	1.168	50	15	50	pg/L	50-150	50-150	20	50-150	20	25
2378-TCDF	51207-31-9	Aqueous	0.656	10	3	10	pg/L	50-150	50-150	20	50-150	20	25
12378-PeCDF	57117-41-6	Aqueous	0.635	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
23478-PeCDF	57117-31-4	Aqueous	0.623	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123478-HxCDF	57117-44-9	Aqueous	0.568	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123678-HxCDF	72918-21-9	Aqueous	0.551	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
123789-HxCDF	70648-26-9	Aqueous	0.707	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
234678-HxCDF	60851-34-5	Aqueous	0.611	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
1234678-HpCDF	67562-39-4	Aqueous	0.764	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
1234789-HpCDF	55673-89-7	Aqueous	1.032	25	7.5	25	pg/L	50-150	50-150	20	50-150	20	25
OCDF	39001-02-0	Aqueous	1.202	50	15	50	pg/L	50-150	50-150	20	50-150	20	25
Total TCDD	41903-57-5	Aqueous	NA	10	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total PeCDD	36088-22-9	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total HxCDD	34465-46-8	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total HpCDD	37871-00-4	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total TCDF	30402-14-3	Aqueous	NA	10	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total PeCDF	30402-15-4	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total HxCDF	55684-94-1	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
Total HpCDF	38998-75-3	Aqueous	NA	25	NA	NA	pg/L	NA	NA	NA	NA	NA	NA
13C-2378-TCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-12378-PeCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-123678-HxCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-1234678-HpCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-OCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-2378-TCDF		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-12378-PeCDF		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-123478-HxCDF		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
13C-1234678-HpCDF		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA
37Cl-2378-TCDD		Aqueous	NA	NA	NA	NA	Percent	40-135	40-135	NA	40-135	NA	NA

Selected Conventionals Parameters (Aquatic Research Inc., subcontracted)

Analyte	Method	MDL	MRL	Units
Sulfide	EPA 376.1	0.02	0.05	mg/L
Ammonia	EPA 350.1	0.005	0.01	mg/L
TSS	SM2540D	0.2	0.5	mg/L
TDS	SM2540C	1	5	mg/L
TOC	EPA 415.1	0.005	0.01	%

EXHIBIT D

ECOLOGY POLICY 840 – DATA SUBMITTAL REQUIREMENTS

Resource Contact: Policy and Technical Support Staff *Effective:* *August 1, 2005*
References: *WAC 173-340-840(5)* *Revised:* *September 9, 2005*
http://www.ecy.wa.gov/eim/
http://www.ecy.wa.gov/programs/tcp/smu/sedqualfirst.htm
http://www.ecy.wa.gov/biblio/0309043.html
Replaces: *Procedure 840*

Policy 840: Data Submittal Requirements

Purpose: Contaminated site investigations and cleanups generate a large volume of environmental monitoring data that need to be properly managed to facilitate regulatory decisions and access to this data by site owners, consultants, and the general public. The purpose of this policy is to describe the requirements for submitting environmental monitoring data generated/collected during the investigation and cleanup of contaminated sites under the Model Toxics Control Act (MTCA) and the Sediment Management Standards.

Application: This policy applies to Ecology staff, potentially liable parties, prospective purchasers, state and local agencies, and Ecology contractors that investigate or manage the cleanup of contaminated sites.

1. Unless Otherwise Specified by Ecology, all Environmental Monitoring Data Generated during Contaminated Site Investigations and Cleanups shall be Required to be Submitted to Ecology in both a Written and Electronic Format.

Environmental monitoring data include biological, chemical, physical, and radiological data generated during site investigations and cleanups under the Model Toxics Control Act Cleanup Regulation (WAC 173-340) and the Sediment Management Standards (WAC 173-204).

Data generated/collected during site investigations and cleanups conducted under an order, agreed order or consent decree, permit, grant, loan, contract, interagency agreement, memorandum of understanding or during an independent remedial action, are considered environmental monitoring data under this policy.

Data generated/collected for non site-specific studies, site hazard assessments that result in no further action and initial site investigations are not considered environmental monitoring data under this policy.

2. Orders, Agreed Orders, Consent Decrees, or Permits Issued After the Effective Date of this Policy Shall Include a Condition that Site-Specific Data be Submitted in Compliance with this Policy.

Reports on such work that do not include documentation that the data have been submitted in compliance with this policy shall be deemed incomplete and a notice of such provided to the

submitter. These reports generally should not be reviewed until that information is provided. The assistant attorney general assigned to the site should be consulted in these situations.

3. Reports on Independent Remedial Actions Submitted for Review After October 1, 2005, Under Ecology's Voluntary Cleanup Program Shall Not be Reviewed Until the Data Have Been Submitted in Compliance with this Policy.

Such reports shall be deemed incomplete, and a notice to this effect provided to the submitter.

4. Grants, Contracts, Interagency Agreements or Memoranda of Understanding Issued After the Effective Date of this Policy Shall Include a Condition that Site-Specific Data be Submitted in Compliance with this Policy.

Reports on such work shall not be accepted as complete until the data have been submitted in compliance with this policy. If a payment or transfer of funds is involved in the transaction, the relevant payment or transfer shall be withheld until this requirement has been met.

Example language to include in these documents is attached in Appendix A.

5. Data Generated During Upland Investigations and Cleanups Shall be Submitted Electronically Using Ecology's Environmental Information Management System (EIM).

EIM is Ecology's main database for environmental monitoring data. Proper submission of data through this system meets the requirement of submitting such data in an electronic format. Electronic data shall be submitted to Ecology simultaneously with the accompanying printed report.

Additional information on EIM, including instructions for data submittal, can be found on Ecology's EIM web site at http://www.ecy.wa.gov/eim/. TCP's EIM Coordinator also is available for technical assistance to site managers and consultants using EIM.

6. Data Submitted Electronically Using EIM Shall be Checked by the Toxics Cleanup Program's EIM Coordinator Prior to Loading the Data into EIM.

Normally, notice that data have been submitted through EIM will come to TCP's EIM Coordinator. Upon receipt of such a notice the EIM Coordinator should notify the site manager. Similarly, if the Ecology site manager receives a notice of an EIM submittal, they should notify TCP's EIM Coordinator. Upon receipt of the data, TCP's EIM Coordinator reviews the submittal for quality control and officially loads the data into the system.

7. Data Generated During Sediment Investigations and Cleanups shall be Submitted Electronically Using Ecology's Sediment Quality Information System (SEDQUAL).

SEDQUAL is Ecology's data management system for sediment-related data. Proper submission of data through this system meets the requirement of submitting such data in an electronic format. Electronic data shall be submitted to Ecology simultaneously with the accompanying printed report.

8. Sediment Sampling Data Shall be Submitted to Ecology Using the SEDQUAL Data Entry Templates.

At a minimum, the following SEDQUAL data entry templates must be completed:

1. **Reference & Bibliography:** Describes lab reports and publications that relate to the data being entered;
2. **Survey:** Sample number;
3. **Station:** Specifies geographic location of the sediment sample. Sample latitude/longitude coordinates must be entered using the North American Datum of 1983 in U.S. Survey feet (NAD 83, U.S. feet);
4. **Sample:** Describes sample characteristics such as depth; and
5. **Sediment Chemistry:** Reports chemical concentration data in dry weight units.

The following additional templates must also be completed where these measurements/observations have been made:

1. **Bioassay:** Bioassay test results;
2. **Bioassay Control:** Bioassay control test results;
3. **Benthic Infauna:** Species abundance & diversity;
4. **Tissue:** Describes the organism collected;
5. **Bioaccumulation:** Reports tissue chemical concentrations; and
6. **Histopathology:** Reports tissue pathology such as tumors or lesions.

9. Electronic Data Formats Shall be Verified to be Compatible with SEDQUAL Prior to Submittal.

Because SEDQUAL uses ASCII protocol and comma delimited text files, data format verification shall be conducted prior to submittal to Ecology. Data shall be verified by downloading the SEDQUAL database, importing the data into the database, correcting errors, and then exporting the corrected templates.

For additional information on sediment sampling and analysis plan requirements, see Ecology publication 03-09-043 "Sediment Sampling and Analysis Plan Appendix", April, 2003. A copy of this document can be obtained from Ecology's publication office or downloaded from the following web site: http://www.ecy.wa.gov/biblio/0309043.html
Additional information on SEDQUAL can be found at:
http://www.ecy.wa.gov/programs/tcp/smu/sedqualfirst.htm. TCP's SEDQUAL Coordinator is also available for technical assistance to site managers and consultants using SEDQUAL.

10. Sediment Sampling Data Shall Also be Submitted to Ecology in a Printed Report.

Printed reports shall present the data in both dry weight and total organic carbon normalized units in data tables that compare the results to applicable state regulatory criteria.

11. Data Submitted Electronically Using SEDQUAL Shall be Checked by the Toxics Cleanup Program's SEDQUAL Coordinator Prior to Loading the Data into SEDQUAL.

Normally, SEDQUAL data submittals will come to TCP's SEDQUAL Coordinator. Upon receipt of a submittal, the Coordinator should notify the site manager. Similarly, if the Ecology site manager receives a SEDQUAL submittal, they should notify TCP's SEDQUAL Coordinator. Upon receipt of the data, TCP's SEDQUAL Coordinator reviews the submittal for quality control and officially loads the data into the system.

Approved

James J. Pendowski, Program Manager
Toxics Cleanup Program

Policy Disclaimer: This policy is intended solely for the guidance of Ecology staff. It is not intended, and cannot be relied on, to create rights, substantive or procedural, enforceable by any party in litigation with the state of Washington. Ecology may act at variance with this policy depending on site-specific circumstances, or modify or withdraw this policy at any time.

APPENDIX A: MODEL GRANT AND PERMIT CONDITION

The following condition is to be inserted in permits, grants, loans, contracts, interagency agreements, memorandum of understandings where site-specific environmental monitoring data is expected to be generated:

All sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840: Data Submittal Requirements. Electronic submittal of data is not required for site hazard assessments that result in no further action and initial site investigations. (FOR GRANTS & CONTRACTS ADD: Failure to properly submit sampling data will result in Ecology withholding payment and could jeopardize future grant funding.)

EXHIBIT E
PUBLIC PARTICIPATION PLAN

Site Cleanup:

KIMBERLY-CLARK WORLDWIDE SITE

2600 Federal Avenue
Everett, Washington

DRAFT PUBLIC PARTICIPATION PLAN

Prepared by:
Washington State Department of Ecology

DEPARTMENT OF
ECOLOGY
State of Washington

August 2012

This plan is for you!

This Public Participation Plan (Plan) is prepared for the Kimberly-Clark Worldwide Site cleanup as part of the requirements of the Model Toxics Control Act (MTCA). The Plan provides information about MTCA cleanup actions and requirements for public involvement, and identifies how the Washington State Department of Ecology (Ecology) and Kimberly-Clark will support public involvement throughout the cleanup. The Plan is intended to encourage coordinated and effective public involvement tailored to the community's needs at the Kimberly-Clark Worldwide Site.

For additional copies of this document, please contact:

Washington State Department of Ecology
Andrew Kallus, Site Manager
Toxics Cleanup Program
PO Box 47600
Olympia, WA 98504-7600
(360) 407-7259
Email: Andrew.kallus@ecy.wa.gov

If you need this publication in an alternate format, please call the Toxics Cleanup Program at (360) 407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can

Table of Contents

1.0: Introduction and Overview of the Public Participation Plan

This Public Participation Plan (Plan) explains how you can become involved in improving the health of your community. It describes public participation opportunities that will be conducted during cleanup of a site on the Everett waterfront – the Kimberly-Clark Worldwide Site (Site). The Site is located at 2600 Federal Avenue in Everett, Washington. These opportunities are part of a cooperative agreement between the Washington State Department of Ecology (Ecology) and Kimberly-Clark Worldwide, Inc. (K-C). The current agreement, called an Agreed Order, is a legal document in which Ecology and K-C agree to decide on cleanup actions for the Site.

Cleanup actions, and the public participation process that helps guide them, are established in Washington's Model Toxics Control Act (MTCA)[1]. Under MTCA, Ecology is responsible for providing timely information and meaningful chances for the public to learn about and comment on important cleanup decisions before they are made. The goals of the public participation process are:

- To promote understanding of the cleanup process so that the public has the necessary information to participate.
- To encourage involvement through a variety of public participation opportunities.

This Plan provides a framework for open dialogue about the cleanup among community members, Ecology, K-C, and other interested parties. It outlines basic MTCA requirements for community involvement activities that will help ensure that this exchange of information takes place during the investigation and cleanup. These requirements include:

- Notifying the public about available reports and studies about the site.
- Notifying the public about review and comment opportunities during specific phases of the cleanup investigation.
- Providing appropriate public participation opportunities, such as fact sheets, to learn about cleanup documents, and if community interest exists, holding meetings to solicit input and identify community concerns.
- Considering public comments received during public comment periods.

[1] The Model Toxics Control Act (MTCA) is the hazardous waste cleanup law for the State of Washington. The full text of the law can be found in Revised Code of Washington (RCW), Chapter 70.105D. The legal requirements and criteria for public notice and participation during MTCA cleanup investigations can be found in Washington Administrative Code (WAC), Section 173-340-600.

In addition to these basic requirements, the Plan may include additional site-specific activities to meet the needs of your community. Based upon the type of the proposed cleanup action, the level of public concern, and the risks posed by the site, Ecology may decide that more public involvement opportunities are appropriate.

These opportunities form the basis for the public participation process. The intent of this Plan is to:

- Provide complete and current information to all interested parties.
- Let you know when there are opportunities to provide input.
- Provide opportunities to listen to and address community concerns.

Part of the Puget Sound Initiative

The Site is one of several sites in the Everett area and is part of a larger cleanup effort called the Puget Sound Initiative (PSI). Governor Chris Gregoire and the Washington State Legislature authorized the PSI as a regional approach to protect and restore Puget Sound. The PSI includes cleaning up 50-60 contaminated sites within one-half mile of the Sound. These sites are grouped in several bays around the Sound for "baywide" cleanup efforts. As other sites in the Everett baywide area move forward into investigation and cleanup, information about them will be provided to the community as well as to interested people and groups.

Roles and Responsibilities

Ecology will lead public involvement activities, with support from K-C. Ecology maintains overall responsibility and approval authority for the activities outlined in this plan. Ecology and K-C are responsible for cleanup at the Site. Ecology will oversee all cleanup activities and ensure that contamination on the Site is cleaned up to concentrations that are established in state regulations and that protect human health and the environment. Ecology also has provided public participation grant funding to an environmental nonprofit organization, People for Puget Sound, which focuses those resources on helping community members participate in the cleanup process.

Organization of this Public Participation Plan

The sections that follow in this Plan provide:

- Section 2: Background information about the Site.
- Section 3: An overview of the local community that this plan is intended to engage.
- Section 4: Public involvement opportunities in this cleanup.

This Plan addresses current conditions at the Site, but it is intended to be a dynamic working document that will be reviewed at each phase of the cleanup, and updated as needed. Ecology and K-C urge the public to become involved in the cleanup process.

2.0: Site Background

Site Description and Location

The Site is located at 2600 Federal Avenue in Everett, Snohomish County, Washington, and is generally located adjacent to East Waterway on the west side of West Marine View Drive between Everett Avenue and 21st Street (*see* Figure 1). It is rectangular in shape and is generally bounded by the Port of Everett (Port) and several private industrial properties to the south, Burlington Northern Santa Fe Railroad to the east, the Navy to the north, and East Waterway to the west. The surface of the majority of the property is currently flat and paved and contains buildings and other infrastructure related to pulp and paper manufacturing (*see* Figure 2). All manufacturing operations at the facility ceased in April 2012 and the Site is currently being prepared for a future use through a demolition process permitted by the City of Everett. Demolition activities at the Site will result in the removal of some or all of the structures associated with the former mill.

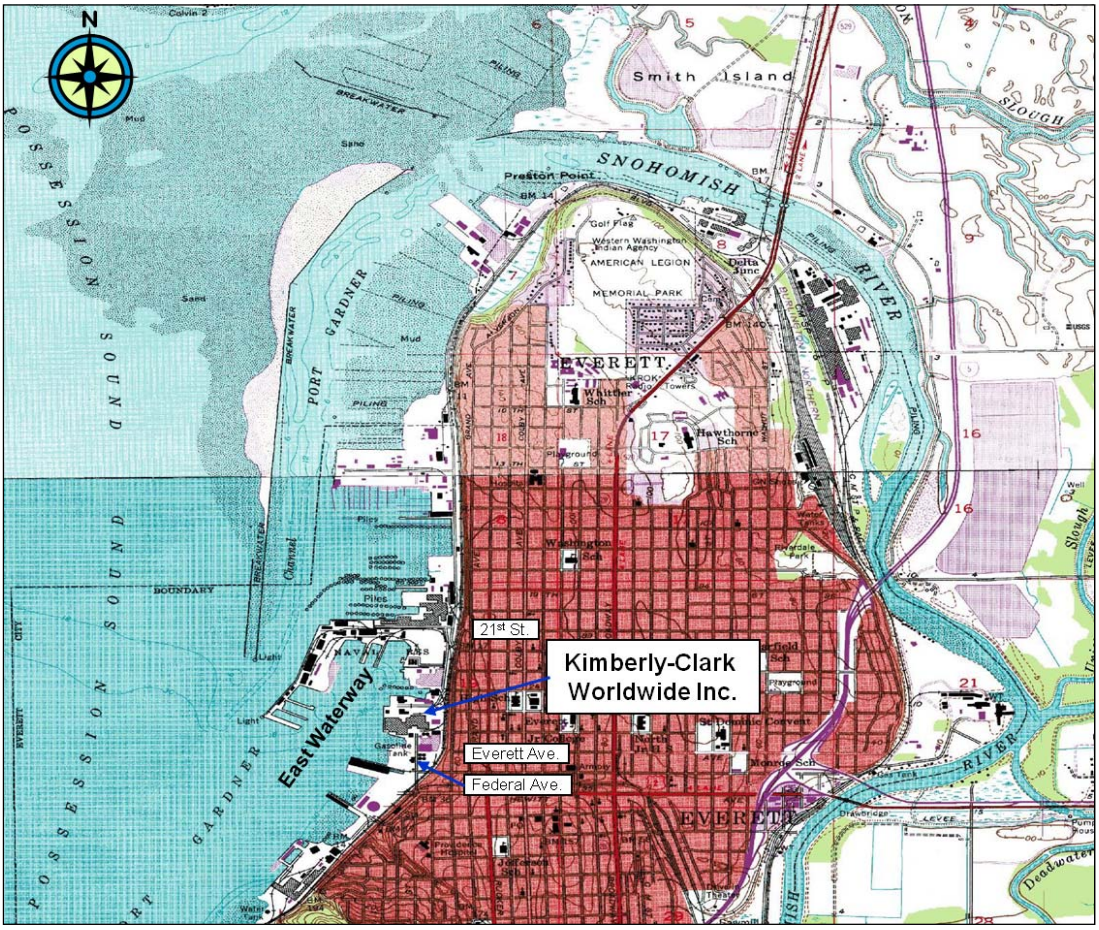


Figure 1: The Kimberly-Clark Worldwide Site is shown in the above map, located at 2600 Federal Avenue, in Everett, WA.

Figure 2: An aerial view of the Kimberly-Clark Worldwide Site. Photo Source: Port of Everett, 2012.

The City of Everett's zoning map[2] indicates that the Site is zoned M-2, for heavy manufacturing. Zoning to the east includes residential single-family homes. Zoning to the west includes aquatic and heavy manufacturing. The Site is not located within the Everett Smelter area of historic arsenic contamination (*see* footnote 2). The Site is designated as Urban Deep Water Port under the Everett Shoreline Master Program[3]. In addition, due to the mill closure and potential conversion of this large waterfront industrial area to vacant land, the City of Everett is currently undertaking a planning process for the property and its immediate vicinity. The planning process, called the "Central Waterfront Planning Area", covers about 92-acres and will consider a range of land use alternatives[4]. As such, future uses for the property are being discussed by the City with its citizens, another opportunity to participate in this waterfront area of Everett.

[2] Link to City of Everett maps including zoning and Everett Smelter information: http://www.everettwa.org/default.aspx?ID=885 (Accessed July 27, 2012).
[3] Link to the City of Everett Shoreline Master Program (*see* Section 4, Environmental Designations and Management Policies): http://www.everettwa.org/default.aspx?ID=869 (Accessed July 27, 2012).
[4] Link to the City of Everett Waterfront Planning Area website: http://www.ci.everett.wa.us/default.aspx?ID=2048 (Accessed July 27, 2012).

General Site History and Contaminants

The area comprising the Site was first developed in the late 1800s/early 1900s and was primarily used for pulp and paper manufacturing from 1931 to 2012. Past uses also included bulk petroleum storage operations by several oil companies and sawmilling. While in operation, the pulp and paper mill produced bleached sulfite pulp and various tissue products including paper towels, bath tissue, napkins, and industrial wipers which are a heavier type of paper towel. Historical sampling in the Site uplands has identified mostly petroleum and metals contamination in soil and groundwater. Samples collected in the marine sediments were found to contain wood waste, as well as contaminants including metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), and dioxins/furans.

The Cleanup Process

As part of the Agreed Order, K-C will conduct a Remedial Investigation and Feasibility Study (RI/FS) and develop a Draft Cleanup Action Plan for the Site upland area. The in-water area will be addressed under a separate Agreed Order. Washington State's cleanup process and key chances for you to provide input are outlined in Figure 3 on page 14. The general cleanup process for this Agreed Order includes the following steps for the upland area:

- Remedial Investigation (RI) – investigates the site for types, locations, and amounts of contaminants.
- Feasibility Study (FS) – identifies cleanup options for those contaminants.
- Cleanup Action Plan (CAP) – selects the preferred cleanup option and explains how cleanup will be conducted.

Each of these steps is generally documented in reports and plans that will be available for public review. Public comment periods of at least 30 calendar days are usually conducted for the following documents:

- Draft RI report
- Draft FS report
- Draft CAP

These cleanup steps and documents are described in greater detail in the following subsections.

Interim Actions

An interim action partially addresses the cleanup of a site, and may be performed if:

- It is technically necessary to reduce a significant threat to human health or the environment.
- It corrects a problem that may become substantially worse or cost substantially more to fix if delayed.
- It is needed to complete another cleanup activity, such as design of a cleanup plan.

Due to contamination identified in soil and groundwater, interim actions are anticipated on the Site upland area as buildings and other infrastructure are demolished under permits issued by the City of Everett. Conducting interim actions during the demolition of the mill offers the opportunity to address known environmental conditions efficiently and cost-effectively. An Interim Action Plan that contains the approach and procedures for managing potentially contaminated soil or groundwater discovered during the demolition of the facility is provided in **Exhibit C** of this Agreed Order.

Remedial Investigation/Feasibility Study Report

Ecology and K-C have agreed to conduct an RI/FS on the Site upland area. An RI/FS will be performed for the in-water area under a separate Agreed Order. The RI determines which contaminants are on the Site, where they are located, and whether there is a significant threat to human health or the environment. The RI report provides baseline data about environmental conditions that will be used to develop cleanup options. The FS report then identifies and evaluates cleanup options, in preparation for the next step in the process.

The RI and FS processes typically include several phases:

- Scoping
- Site characterization
- Development and screening of cleanup alternatives
- Treatability investigations (if necessary to support decisions)
- Detailed analysis

The RI and FS reports are expected to be combined into a draft Kimberly-Clark Worldwide Site RI/FS Report for the upland area. The draft report will be made available for public review and comment. Comments will be considered as the draft CAP is prepared.

Cleanup Action Plan

Ecology and K-C have agreed to develop a draft CAP for the Site upland area. A draft CAP will be developed for the in-water area under a separate Agreed Order. The draft CAP explains the cleanup standards that will be applied at the Site, selects the preferred cleanup alternative(s), and outlines the work to be performed during the actual site

remediation. The draft CAP may also evaluate the completeness and effectiveness of any interim actions that were performed on the Site. The draft CAP will be available for public review and comment.

3.0: Community Profile

Community Profile

Everett is Snohomish County's largest city and the sixth largest city in the state of Washington. The current population of Everett is approximately 103,000[5], situated within 47.7 square miles. Located on Port Gardner Bay, Everett hosts the west coast's second largest marina; U.S. Navy Homeport Naval Station Everett; and The Boeing Company's assembly plant. The city's current labor workforce is more than 80,000, employed predominantly in technology, aerospace, and service-based industries[6].

Key Community Concerns

An important part of this Plan is to identify key community concerns for the cleanup site. Many factors are likely to raise community questions, such as the amount of contamination, how the contamination will be cleaned up, or future use of the Site. Community concerns often change over time, as new information is learned and questions are answered. Identifying site-specific community concerns at each stage of the cleanup process is helpful to ensure that they are adequately addressed. On-going key community concerns will be identified for the Site through public comments and other opportunities, as detailed in Section 4.

[5] US Census Bureau, State & County QuickFacts. http://quickfacts.census.gov/qfd/states/53/5322640.html (Accessed July 31, 2012)
[6] City of Everett. http://www.everettwa.org/default.aspx?ID=314 (Accessed July 31, 2012)

4.0: Public Participation Opportunities

Ecology and K-C invite you to share your comments and participate in the cleanup in your community. As we work to meet our goals, we will evaluate whether this public participation process is successful. This section describes the public participation opportunities for the Site.

Measuring Success

We want this public participation process to succeed. Success can be measured, at least in part, in the following ways:

- Number of written comments submitted that reflect understanding of the cleanup process and the site.
- Direct, in-person feedback about the site cleanup or public participation processes, if public meetings are held.
- Periodic updates to this plan to reflect community concerns and responses.

If we are successful, this process will increase:

- Community awareness about plans for cleanup and opportunities for public involvement.
- Public participation throughout the cleanup.
- Community understanding regarding how their input will be considered in the decision-making process.

Activities and Information Sources

Ecology Contacts

Ecology is the lead contact for questions about the cleanup in your community. The Ecology staff person identified in this section is familiar with the cleanup process and activities at the Site. For more information about public involvement or the technical aspects of the cleanup, please contact:

Andrew Kallus, Site Manager
WA State Dept. of Ecology
Toxics Cleanup Program
PO Box 47600
Olympia, WA 98504-7600
Phone: (360) 407-7259

E-mail: Andrew.kallus@ecy.wa.gov

Ecology's Webpage

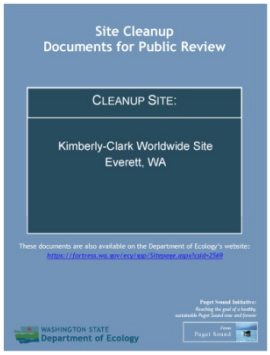
Ecology has created a webpage to provide convenient access to information. Documents such as the Agreed Order, RI/FS reports, and cleanup plans are posted as they are issued during the investigation and cleanup process. Visitors to the webpage can find out about public comment periods and meetings; download, print, and read information; and submit comments via email. The webpage also provides links to detailed information about the MTCA cleanup process. The Kimberly-Clark Worldwide Site webpage is available at the following address:

https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2569

Information Centers/Document Repositories

The most comprehensive source of information about the Site is the information center, or document repository. Two repositories provide access to the complete list of site-related documents. All Site investigation and cleanup activity reports will be kept in print at those two locations and will be available for your review. They can also be requested on compact disk (CD). Document repositories are updated before public comment periods to include the relevant documents for review. Documents remain at the repositories throughout the investigation and cleanup. For the Site, the document repositories and their hours are:

- **Everett Public Library**
  2720 Hoyt Avenue
  Phone: (425) 257-8010
  Hours: Mon. – Wed. 10 am – 9 pm,
  Thurs. – Sat. 10 am – 6 pm,
  Sun. 1 – 5 pm
- **WA Department of Ecology Headquarters**
  300 Desmond Dr.
  Lacey, WA 98503
  By appointment. Please contact Carol Dorn at (360) 407-7224 or Carol.Dorn@ecy.gov.



Look for document covers much like the illustration on the right.

Public Comment Periods

Public comment periods provide opportunities for you to review and comment on major documents, such as the Agreed Order, draft Public Participation Plan, draft RI and FS reports, and the draft CAP. The typical public comment period is 30 calendar days.

Notice of Public Comment Periods

Notices for each public comment period will be provided by local newspaper and by mail. These notices indicate the timeframe and subject of the comment period, and explain how you can submit your comments. For the Site, newspaper notices will be posted in The Daily Herald and Snohomish County Tribune.

Notices are also sent by regular mail to the local community and interested parties. The community typically includes all residential and business addresses within one-quarter mile of the site, as well as potentially interested parties such as public health entities, environmental groups, and business associations. For the Site, the mailing area will be increased in size.

Fact Sheets

One common format for public comment notification is the fact sheet. Like the newspaper notice, fact sheets explain the timeframe and purpose of the comment period, but also provide background and a summary of the document under review. Two fact sheets have been prepared for the Site. The fact sheets explain the documents that have been released for public comment. Future fact sheets will be prepared at key milestones in the cleanup process.

MTCA Site Register

Ecology produces an electronic newsletter called the MTCA Site Register. This semi-monthly publication provides updates of the cleanup activities occurring throughout the state, including public meeting dates, public comment periods, and cleanup-related reports. Individuals who would like to receive the MTCA Site Register can sign up three ways:

- Call (360) 407-6848
- Send an email request to spre461@ecy.wa.gov
- Register on-line at http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html

Mailing Lists

Ecology maintains both e-mail and regular mail distribution lists throughout the cleanup process. The lists are created from carrier route delineations for addresses within one-quarter mile of the Site; potentially interested parties; public meeting sign-in sheets; and requests made in person or by regular mail or e-mail. For the Site, the mailing area will be increased in size. You may request to be on a mailing list by contacting the Ecology staff person listed earlier in this section.

Optional Public Meetings

A public meeting will be held during a comment period if requested by ten or more people, or if Ecology decides it would be useful. Public meetings provide additional opportunity to learn about the investigation or cleanup, and to enhance informed comment. If you are interested in a public meeting about the Site, please contact the Ecology staff listed earlier in this section.

Submitting Comments

You may submit comments by regular mail or e-mail during public comment periods to the Ecology Project Manager listed earlier in this section.

Response to Comments

Ecology will review all comments submitted during public comment periods, and will modify documents as necessary. You will receive notice by regular mail or e-mail that Ecology has received your comments, along with a general explanation about how the comments were addressed, and where the revised document can be found.

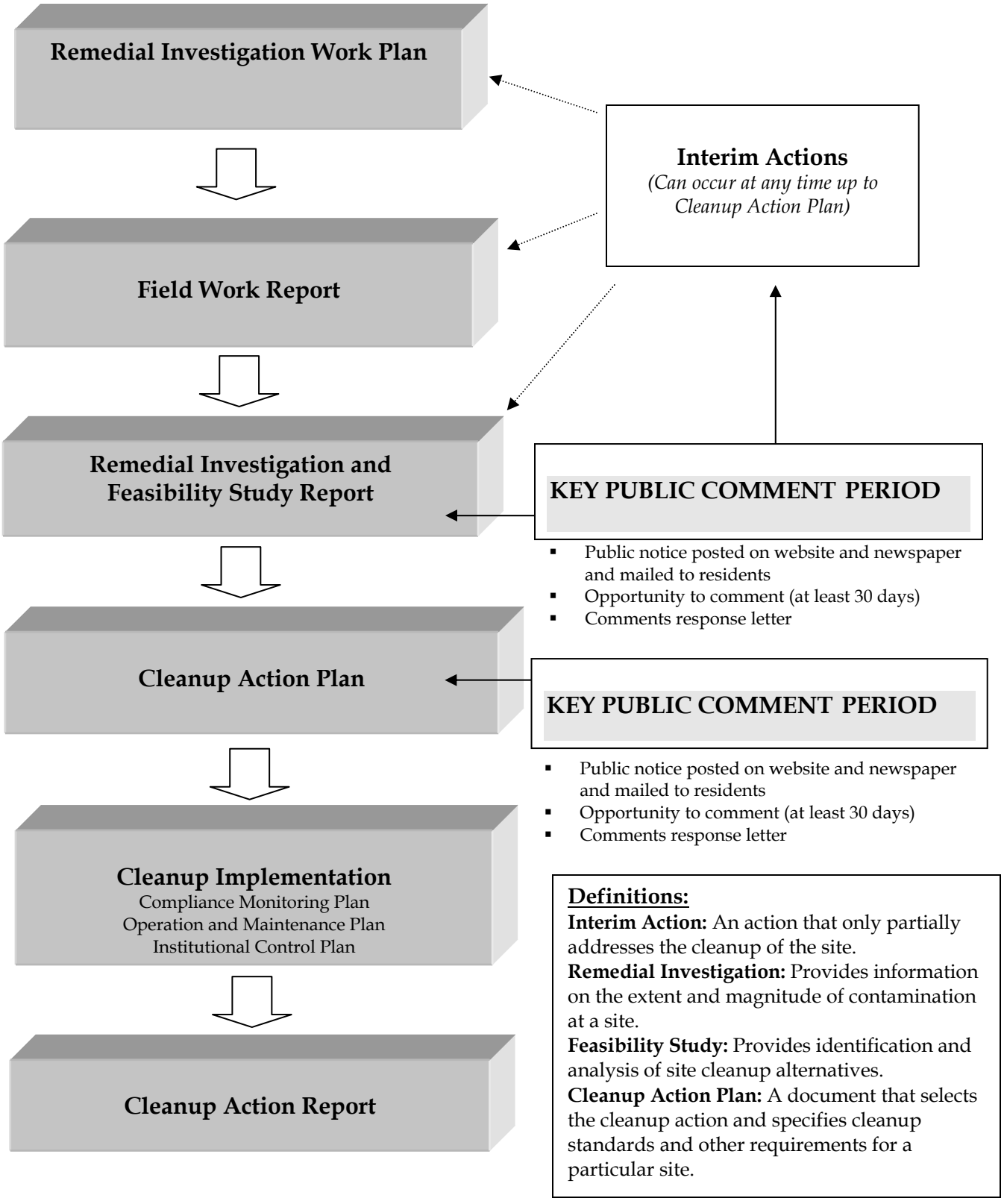
Other

Ecology and K-C are committed to the public participation process and will consider additional means for delivering information and receiving comments, including combining public comment periods for other actions (such as those associated with the State Environmental Policy Act).

Public Participation Grants

You are eligible to apply for a Public Participation Grant from Ecology to provide additional public participation activities. Those additional activities will not reduce the scope of the activities defined by this Plan. Activities conducted under this Plan would coordinate with the additional activities defined under the grant.

Figure 3: Washington State Cleanup Process



Glossary

Cleanup: The implementation of a cleanup action or interim action.

Cleanup Action: Any remedial action except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with MTCA cleanup requirements, including but not limited to: complying with cleanup standards, utilizing permanent solutions to the maximum extent practicable, and including adequate monitoring to ensure the effectiveness of the cleanup action.

Cleanup Action Plan: A document that selects the cleanup action and specifies cleanup standards and other requirements for a particular site. The cleanup action plan, which follows the remedial investigation/feasibility study report, is subject to a public comment period. After completion of a comment period on the cleanup action plan, Ecology finalizes the cleanup action plan.

Cleanup Level: The concentration (or amount) of a hazardous substance in soil, water, air, or sediment that protects human health and the environment under specified exposure conditions. Cleanup levels are part of a uniform standard established in state regulations, such as MTCA.

Cleanup Process: The process for identifying, investigating, and cleaning up hazardous waste sites.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

Feasibility Study: Provides identification and analysis of site cleanup alternatives and is usually completed within a year. The entire Remedial Investigation/Feasibility Study (RI/FS) process takes about two years and is followed by the cleanup action plan. Remedial action evaluating sufficient site information to enable the selection of a cleanup action plan.

Hazardous Site List: A list of ranked sites that require further remedial action. These sites are published in the Site Register.

Interim Action: Any remedial action that partially addresses the cleanup of a site. It is an action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance at a facility; an action that corrects a problem that may become substantially worse or cost substantially more to address if the action is delayed; an action needed to provide for completion of a site hazard assessment, state remedial investigation/feasibility study, or design of a cleanup action.

Model Toxics Control Act: Refers to RCW 70.105D. Voters approved it in November 1988. The implementing regulation is WAC 173-340 and was amended in 2001.

Public Notice: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and the opportunity for interested persons to comment.

Public Participation Plan: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

Release: Any intentional or unintentional entry of any hazardous substance into the environment, including, but not limited to, the abandonment or disposal of containers of hazardous substances.

Remedial Action: Any action to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment, including any investigative and monitoring activities of any release or threatened release of a hazardous substance, and any health assessments or health effects studies conducted in order to determine the risk or potential risk to human health.

Remedial Investigation: Any remedial action that provides information on the extent and magnitude of contamination at a site. This usually takes 12 to 18 months and is followed by the feasibility study. The purpose of the Remedial Investigation/Feasibility Study is to collect and develop sufficient site information to enable the selection of a cleanup action.