Former E.A. Nord Door Site

Source Control Evaluation Work Plan to Assess Data Gaps for Completion of RI/FS

Prepared for: JELD-WEN, Inc.

Client Ref: 108.00228.00048

November 2017

Source Control Evaluation Work Plan to Assess Data Gaps for Completion of RI/FS

Prepared for:

JELD-WEN, Inc.
Klamath Falls, Oregon

This document has been prepared by SLR International Corporation. The material and data in this report were prepared under the supervision and direction of the undersigned.

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Associate Scientist

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Managing Principal

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1. INTRODUCTION

SLR International Corporation (SLR) has prepared this Source Control Evaluation (SCE) Work Plan to Assess Data Gaps for Completion of the Remedial Investigation (RI)/Feasibility Study (FS) for the Former E.A. Nord Door facility (i.e. JELD-WEN Cleanup Site; FS ID 2757) located at 300 West Marine View Drive, Everett, Washington (Site). A site location map is included as **Figure 1**. This SCE Work Plan supplements the Washington State Department of Ecology (Ecology) approved Final Work Plan for RI/FS and Draft Cleanup Action Plan (CAP) (SLR, 2008). This SCE Work Plan has been prepared to address data gaps that have been identified by Ecology during an initial review of the October 2016 Final Draft RI/FS Report (SLR, 2016).

1.1 PURPOSE

This SCE Work Plan is intended to describe the work scope that will be performed to complete additional assessment activities focused on data gaps identified during Ecology's initial review of the RI/FS. Investigation activities at the Site are being performed to meet the objectives in the Agreed Order for RI/FS Study and Draft CAP dated January 2, 2008.

1.2 OBJECTIVES

The overall objective of the RI/FS is to identify whether hazardous substances have been released to the environment; assess the nature, extent, and distribution of these substances; identify the potential migration pathways and receptors; assess the theoretical risk to human health and the environment; and generate or use data of sufficient quality for site characterization, risk assessment, and the subsequent analysis and selection of remedial alternatives. This SCE Work Plan has been prepared to further characterization of 1) groundwater seeps, 2) the existing site stormwater drainage system, and 3) the North Truck Dock stormwater sump.

1.3 GENERAL BACKGROUND

The Final Work Plan for the RI/FS and Draft CAP was submitted to and approved by Ecology in October 2008. Under the 2008 Work Plan, three sediment samples were collected at each of the 10 outfall locations approved by Ecology. The comprehensive Sediment Management Standards (SMS) sample analytical suite was approved by Ecology. Additional rounds of sediment sampling and tissue sampling were completed following subsequent work plan addendums approved by Ecology based on the initial 2009 sediment sampling work.

As presented in the Final Draft RI/FS Report, concentrations of contaminants of potential concern (COPCs) for Site sediments were identified at 2 of the 12 sediment sample locations associated with the historical stormwater outfalls, including dioxins/furans and polychlorinated biphenyls (PCBs) in samples 3SED9-A and 3SED10-A and polynuclear aromatic hydrocarbons (PAHs) in 3SED10-A. These sediment sampling locations are presented on **Figure 2**.

The facility operated under an Ecology-issued Industrial Stormwater General Permit from 2002 until receipt of a Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit as of March 5, 2007 following the ceasing of site operations (copy of this NOT Letter is included as **Attachment 5**). While under permit coverage, the facility managed stormwater per a Stormwater Pollution Prevention Plan (SWPPP) which required best management practices (BMPs) and sampling at the stormwater outfalls. Sampling was completed for pH, zinc, oil & grease, biological oxygen demand (BOD), and turbidity. A copy of the SWPPP is provided as **Attachment 5**.

In addition, sediment sampling and tissue sampling has been completed adjacent to the uplands portion of the Site. The sampling program was overseen and approved by Ecology. This work has involved many sediment experts from Ecology who have visited the Site and walked the "finger area." More recently, Ecology identified groundwater seeps along the northern shoreline of the Site as a potential data gap for completing the RI/FS and CAP, specifically a concern that groundwater impacts identified upland on the Site may be present in the groundwater seep water.

During Ecology's initial review of the October 2016 Final Draft RI/FS report, Ecology identified the Site stormwater drainage system, sampling from the shoreline groundwater seeps, and investigation of discharges from the North Truck Dock area stormwater sump as data gaps for completing the RI/FS and CAP.

1.4 GENERAL SITE INFORMATION

Site Name: Former E.A. Nord

Site Address: 300 West Marine View Drive

City and State: Everett, WA 98201

County: Snohomish

Township/Range/Section: Section 7, Township 29N, Range 5E of the Willamette Meridian

Latitude: 48° 00' 49.5"

Longitude: 122° 12' 34.5"

Washington State Department of Ecology (Ecology) Facility Site ID Number: 2757

Ecology Region: Northwest Region

Ecology Project Manager/Coordinator: Mahbub Alam, Ecology, Toxics Cleanup Program

JELD-WEN Project Coordinator: Dwayne Arino, JELD-WEN, Inc.

JELD-WEN Project Manager: Scott Miller, SLR

2. PROJECT MANAGEMENT PLAN

The project management plan for completing the SCE consists of the work scope described in this SCE Work Plan, project communications plan, project schedule, Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP), and the project specific Health, Safety & Environmental Plan (HSEP).

2.1 PROJECT COMMUNICATIONS

The primary contacts, roles, and contact information for the work scope described in this SCE Work Plan are summarized in the following table:

ECOLOGY	SLR	JELD-WEN
Ecology Project Manager/Coordinator Mr. Mahbub Alam **Role:** Primary Site Contact, Provide regulatory oversight. Washington State Department of Ecology, Toxics Cleanup Program 300 Desmond Drive Lacey, WA 98503 Phone: 360-407-6776 Email Address: MALA461@ECY.WA.GOV	Project Manager Mr. Scott Miller **Role:** Project Manager SLR International Corporation 1800 Blankenship Road, Suite 440 West Linn, Oregon 97068 Phone: 503-723-4423 Email Address: smiller@slrconsulting.com	JELD-WEN Project Coordinator Mr. Dwayne Arino **Role:** Contact / Coordination JELD-WEN, Inc. 3250 Lakeport Blvd Klamath Falls, OR 97601 Phone: 541-883-3373 Email Address: darino@jeldwen.com

2.2 SCHEDULE

The proposed schedule for completing the SCE at the Site will be contingent upon securing access agreements with the neighboring property as well as the availability of subcontractors, weather conditions, tidal stages, and/or other factors. As was discussed during a November 21, 2017 telephone call with Ecology, there are no negative tidal stages predicted for the Everett area during daylight hours until April 2018. The Gantt Chart schedule provided as **Attachment 1** to this SCE Work Plan shows highlighted dates next to two activities: the groundwater seep survey (April 17 through 20, 2018) and groundwater seep sampling (May 14 through 18, 2018). These dates have predicted negative tide stages during daylight hours. Missing these dates for the proposed field work would significantly alter the overall schedule for the SCE.

It is anticipated that Site access and access to the neighboring property (Port of Everett) could be obtained within 60 days of Ecology's approval of this SCE Work Plan. Initial Site work consisting of the groundwater seep survey (Section 4.1.1.1), stormwater drainage system tracing (Section 4.1.2.1), and North Truck Dock stormwater sump tracing (Section 4.1.3.1) would be scheduled approximately two to

three weeks after access agreements are in place. The dates and start times for this work would be coordinated with Ecology. Significant schedule delays or modifications will be submitted by SLR to the Ecology Project Coordinator for approval.

2.3 SAMPLING AND ANALYSIS PLAN (SAP)

The SAP details the proposed sample collection methods, sampling locations, assessment and sample collection depths, sample analysis, and equipment decontamination procedures. The SAP is provided as **Attachment 2** of this SCE Work Plan.

2.4 QUALITY ASSURANCE PROJECT PLAN (QAPP)

The QAPP contains the Quality Assurance/Quality Control (QA/QC) procedures for both field and laboratory procedures. The QAPP is provided as **Attachment 3** of this SCE Work Plan.

2.5 SITE HEALTH SAFETY & ENVIRONMENTAL PLAN (HSEP)

The HSEP contains procedures, tools, and equipment that will be used during field activities to monitor and protect worker health and safety. The HSEP is provided as **Attachment 4** to this SCE Work Plan.

3. SITE DESCRIPTION AND ENVIRONMENTAL BACKGROUND

3.1 SITE LOCATION

The Site is located at the confluence of the Snohomish River to the north and Port Gardner Bay (Possession Sound) to the west (**Figure 1**). The Site consists of five adjoining parcels (29050700100400, 29050700101200, 29050700400100, 29050700401900, and 29050700402000) with a combined land area (both in-water and upland) of approximately 52.6 acres, which includes approximately 36 acres above the tidal mudflats. Copies of the Snohomish County Assessor's parcel maps of the Site were included in Appendix D of the 2008 Work Plan. The Site is bound to the north by vacant land owned by the Port of Everett; to the south by undeveloped land owned by Foss Development; to the east by West Marine View Drive and land owned by the Port of Everett, beyond which is the BNSF railway and vacant marshland (Maulsby Marsh), the western portion of which is owned by BNSF; and to the west by Port Gardner Bay.

Most of the Everett waterfront area, including the area of the Site, was originally developed around the late 1800s and early 1900s when the railroad was laying tracks along Possession Sound and the breakwater piling system was constructed to protect the navigational channels of the Snohomish River. The Site is built on fill that extends into Port Gardner Bay placed after construction of the railroad line to the east. The Site is relatively flat, with a maximum elevation of approximately 15 feet above mean sea level.

3.2 SITE HISTORY

A detailed site history was provided in the Final Draft RI/FS Report (SLR, 2016).

3.3 ENVIRONMENTAL SETTING

The environmental setting was described in detail in the Final Draft RI/FS Report (SLR, 2016).

3.4 CONCEPTUAL SITE MODEL

An initial conceptual site model (CSM) was presented in the 2008 Work Plan and a subsequent revision to the site CSM was presented in the Final Draft RI/FS Report (SLR, 2016).

3.5 PRELIMINARY CLEANUP LEVELS

Preliminary cleanup levels (PCLs) have been used to identify the COPCs for soil, sediment, and groundwater at the Site as part of the RI. Analytical results from subsequent investigations have presented Indicator Hazardous Substances (IHS) for site groundwater and sediment. The relevant IHS and applicable PCLs are presented in the SAP (**Attachment 2**).

3.6 REGULATORY HISTORY AND PREVIOUS INVESTIGATIONS

A detailed regulatory history and summary of previous investigations was provided in the Final Draft RI/FS Report (SLR, 2016).

4. SOURCE CONTROL EVALUATION

Based on the findings of the RI, previous sampling conducted at the Site, and a series of communications with Ecology, the following additional investigation work scope was developed to address identified data gaps to complete the RI/FS for the Site. Potential pathways/area, investigation rationale, and proposed sampling activities are discussed in the following sections. The proposed sampling locations are shown on **Figure 2**. The proposed sample collection methods, assessment and sample collection depths, sample analysis, laboratory practical quantification limits (PQLs), and equipment decontamination procedures are provided in the SAP (**Attachment 2**) and QAPP (**Attachment 3**).

4.1 INVESTIGATION AREAS

This SCE Work Plan has been prepared to further characterization of groundwater seeps to Port Gardner Bay, the existing site stormwater drainage system, and the North Truck Dock stormwater sump.

4.1.1 GROUNDWATER SEEPS

Near-shore groundwater seep sampling is proposed as a source control evaluation tool. An assessment of groundwater seeps observed discharging into Port Gardner Bay on the northern, western, and southern side of the Site is proposed to identify potential impacts to surface water and sediment via groundwater seep drainage from the Site. The groundwater seep assessment will consist of visual observations and sampling of select groundwater seep locations along the shoreline of the Site.

The investigation of the groundwater seeps will be completed in two phases: a groundwater seep survey, followed by groundwater seep sampling.

4.1.1.1 Groundwater Seep Survey

The proposed groundwater seep survey consists of the following scope of work:

- Coordinate site access with the property owners to complete the proposed scope of work. The northern side of the Site (i.e. the “finger area”) is primarily Port of Everett property.

- Identify seeps that are accessible during low tide while considering observed seep flow, historical groundwater flow direction, access, and safety. Seeps along the northern, western, and southern side of the Site will be photographed and the location marked onto a scaled site plan. In addition, observed groundwater seeps will be surveyed by a Washington State licensed surveyor subcontracted for this project. Surveyed elevation data may assist in assessing the opportune sampling time to account for maximum groundwater discharge.

- Water quality parameters including specific conductance, pH, temperature, dissolved oxygen (DO), and oxidation reduction potential (ORP) will be recorded using a calibrated

multi-parameter water quality meter (YSI 556 or similar) on a grab sample from all significant seep locations where it is possible to collect grab samples safely during outgoing and incoming tidal stages and if sufficient discharge allows for the collection of measurements within a reasonable amount of time. Water quality parameters will also be recorded for the adjacent surface water during the outgoing tidal stage.

- A summary of the findings from the groundwater seep survey will be provided to Ecology along with a recommendation for the seep sampling locations and a seep sampling sequencing plan for Ecology's consideration before the groundwater seep sampling described below.

4.1.1.2 Groundwater Seep Sampling

The proposed groundwater seep sampling consists of the following scope of work:

- The proposed groundwater seep sampling event will include multiple groundwater seep sampling locations, to be determined based on the findings of the groundwater seep survey described above. At low tide, grab samples of water emitting from the selected groundwater seeps will be collected directly into a clean laboratory-provided container by directing groundwater discharge from the groundwater seeps to the containers using a V-shape aluminum sheet. This laboratory-provided container may be used to fill other laboratory-provided bottles necessary for sample submittal and laboratory analysis in order to prevent introduction of sediment or loss of sample container preservative. In addition, water quality parameters will be measured and recorded using the method described above for the groundwater seep survey.

- Groundwater seep sampling locations will be photographed following sampling and marked on a scaled site plan. Latitude/longitude information will have been collected by the surveying subcontractor during the groundwater seep survey.

- Groundwater seep samples will be submitted to the analytical laboratory for the contaminants of concern (COCs) presently identified in groundwater and sediments at the Site. These COCs are Total Petroleum Hydrocarbons – Diesel and Heavy Oil Range (TPH-Dx), carcinogenic polynuclear aromatic hydrocarbons (cPAHs), naphthalene, benzene, dioxins and furans, and PCB Congeners.

- A summary of the findings from the groundwater seep sampling will be provided to Ecology for discussion and further action. The seep survey and sampling results will be incorporated into a revision of the Final Draft RI/FS report.

4.1.2 EXISTING STORMWATER DRAINAGE SYSTEM

Door manufacturing at the Site was ceased in 2005. The Industrial Stormwater General Permit for the door manufacturing operations was terminated in March 2007 (see **Attachment 5**). Stormwater drainage plans that were previously provided to Ecology showing the location and configuration of the

Site stormwater drainage system did not match observations made by Ecology during their April 2017 visit to the Site. As a component to the SCE, an assessment of the Site stormwater drainage system configuration is proposed. This assessment will locate and identify current and/or historical outfalls, drainage system collection points, pipe locations, and the approximate drainage areas for the collection points.

The SCE Work Plan does not address cleanup of the stormwater drainage system or characterization of stormwater and storm drain solids (with the exception of the North Truck Dock stormwater sump, described below). Any potential cleanout of the stormwater drainage system or long-term stormwater monitoring would be considered as part of the upland cleanup alternatives.

4.1.2.1 Stormwater Drainage System Tracing

The proposed site stormwater drainage system configuration assessment will consist of the following scope of work:

- Coordinate site access with the property owner and current tenants to complete the proposed scope of work.
- Perform a site walk to compare stormwater system components identified on the Storm Water Site Plan from the 2005 SWPPP to identify potential access points for proposed assessment (manholes, catch basins, outfalls, roof drain downspouts, connections, etc.).
- Subcontract a private utility locating service to trace the identified stormwater system using an electro-magnetic line tracer and/or an electro-magnetic line tracer affixed with a camera. The locating service will mark identified lines on the surface with paint, and SLR will photograph and notate markings on a scaled site plan.
- In conjunction with the line tracing, the private utility locating service will use the in-pipe camera system to assess pipe material, pipe condition (cracks or breaks), piping diameter, significant debris accumulation or blockage, and to look for tees and other connections. These observations will be noted in a detailed site log and their approximate location drawn on a scaled site plan. If debris or blockage limits camera movement, areas of obstruction will be noted and access to the pipe or structure will be attempted from another access point.
- Additional locating and camera work will be focused on the North Truck Dock stormwater sump (scope of work described below) and the South Truck Dock stormwater sump.
- This scope of work assumes sufficient access to the stormwater sewer system and clearance for the tracer line and camera systems. Following this assessment, a detailed site stormwater drainage system configuration plan will be prepared.

- A summary of the findings from the stormwater drainage system tracing will be provided to Ecology for discussion and further action. Findings from the stormwater drainage system tracing will be incorporated into a revision of the Final Draft RI/FS report.

4.1.3 NORTH TRUCK DOCK STORMWATER SUMP

As part of the stormwater drainage assessment, the stormwater sump in the North Truck Dock area will be traced and mapped by the private locating service. Piping discharging into the sump will be traced and a camera system will be used for assessment, as described above, if the sump inlets can be accessed with the camera system. If water is observed discharging from the piping system into the sump at the time of the proposed field work, then samples of this water will be collected as described below.

4.1.3.1 North Truck Dock Stormwater Sump Piping Tracing

The proposed sump piping tracing will consist of the following scope of work:

- Use the existing sump pump in the sump to remove standing water.
- Subcontract a private utility locating service to trace the inlets and outlet piping using an electro-magnetic line tracer and/or an electro-magnetic line tracer affixed with a camera. The locating service will mark identified lines on the surface with paint and SLR will photograph and notate markings on a scaled site plan.
- In conjunction with the line tracing, the private utility locating service will use the in-pipe camera system to assess pipe material, pipe condition (cracks or breaks), piping diameter, significant debris accumulation or blockage, and to look for tees and other connections. These observations will be noted in a detailed site log and their approximate location drawn on a scaled site plan. If debris or blockage limits camera movement, areas of obstruction will be noted and access to the pipe or structure will be attempted from another access point.

4.1.3.2 North Truck Dock Stormwater Sump Sampling

The proposed sump sampling will consist of the following scope of work:

- Collect water samples from the pipe(s) with observed discharge into the sump. Water samples will be collected directly into clean laboratory-provided containers as the water enters the sump. Standing water in the sump will not be collected. Water quality parameters will also be collected using a multi-parameter water quality meter (as described above for seep sampling) following procedures in the SAP (**Attachment 2**).
- After standing water is removed by using the existing sump pump, one grab sample of sump solids will be collected, if present in sufficient quantity. This sample will be collected with a decontaminated stainless steel spoon into a stainless steel bowl for compositing prior to placement in laboratory-provided containers.

- During a storm event[1], a grab water sample will be collected from the discharge pipe related to the North Truck Dock stormwater sump. This assumes that the discharge point is located during the sump tracing activities and can be safely accessed for sampling. If the discharge point is inaccessible, an aboveground section of the discharge pipe may be altered to add a sampling tap to collect samples from as near the discharge point as possible. The stormwater discharge will be collected directly into laboratory-provided containers. Water quality parameters will also be collected using a multi-parameter water quality meter (as described above for seep sampling) following procedures in the SAP (**Attachment 2**).

- A grab soil sample will be collected near the location of the discharge pipe related to the North Truck Dock stormwater sump (if located during the sump tracing activities). If safely accessible, this soil sample will be collected from soil immediately below or downstream of the discharge pipe, preferably within an observed flow channel. The soil sample will be collected with a decontaminated stainless steel spoon into a stainless steel bowl for compositing prior to placement in laboratory-provided containers.

- Water samples will be submitted to the analytical laboratories for the COCs presently identified in groundwater and sediments at the Site. These COCs are TPH-Dx, cPAHs, naphthalene, benzene, dioxins/furans, and PCB Congeners.

- Sediment and soil samples will be submitted to the analytical laboratories for the COCs presently identified in groundwater and sediments at the Site. These COCs are TPH-Dx, cPAHs, naphthalene, benzene, dioxins/furans, and PCB Congeners. In addition, samples for conventional parameters including grain size, total solids, total organic carbon (TOC), total volatile solids, and ammonia will be submitted, pending sufficient sample volume. If sufficient volume of sample material is unavailable, the analytical suite will be completed per the following order: dioxins/furans, PCB Congeners, cPAHs, naphthalene/benzene, TPH-Dx, and conventional parameters.

- A summary of the findings from the North Truck Dock stormwater sump sampling will be provided to Ecology for discussion and further action. Findings from the North Truck Dock stormwater sump piping tracing and sampling results will be incorporated into a revision of the Final Draft RI/FS.

[1]Stormwater sampling to be conducted per applicable portions of Section S4(B) of the Washington National Pollutant Discharge Elimination Permit (NPDES) Industrial Stormwater General Permit (Effective Date of January 2, 2015).

4.2 SAMPLING METHODS AND DATA QUALITY OBJECTIVES

The proposed number of sampling locations, sampling depths, types of samples, and types of laboratory analysis have been selected to meet the objective of the RI/FS and are presented in the SAP (**Attachment 2**).

The data quality objectives (DQOs) for the RI/FS are designed to ensure that data of sufficient quality and quantity will be available to identify if hazardous compounds are present at the Site, evaluate risks posed by the presence of hazardous compounds, and identify if hazardous compounds may pose unacceptable risk to current and future human and ecological receptors via direct contact or migration. The DQOs are used to obtain appropriate quantification limits and to meet the requirements of Washington Administrative Code (WAC) 173 340 820, Model Toxics Control Act (MTCA). The DQOs are presented in the QAPP along with QA/QC procedures for both field and laboratory procedures (**Attachment 3**).

4.3 DATA SUMMARY REPORT

Upon completion of the scope of work presented in this SCE Work Plan and discussions of the findings with Ecology, the Final Draft RI/FS will be revised to document the findings from the field work described in this Work Plan. The purpose of this report will be to further address identified data gaps that may warrant further investigation. If no additional data gaps are identified, preparation of the Final RI/FS and CAP will proceed as outlined in the 2008 Work Plan. If additional data gaps are identified by Ecology, SLR and JELD-WEN will work with Ecology to develop a scope of work for additional assessment.

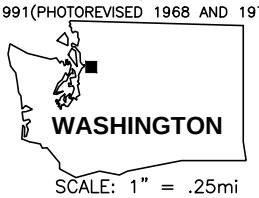
5. REFERENCES

SLR International Corporation (SLR). 2016. Final Draft Remedial Investigation/Feasibility Study. October.

SLR. 2008. Final Work Plan for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan. October.

FIGURES

SOURCE: USGS 7.5 MINUTE QUADRANGLE MARYSVILLE, WA; 1991(PHOTOREVISED 1968 AND 1973)



SCALE: 1" = .25mi

0 .25 .5 .75mi

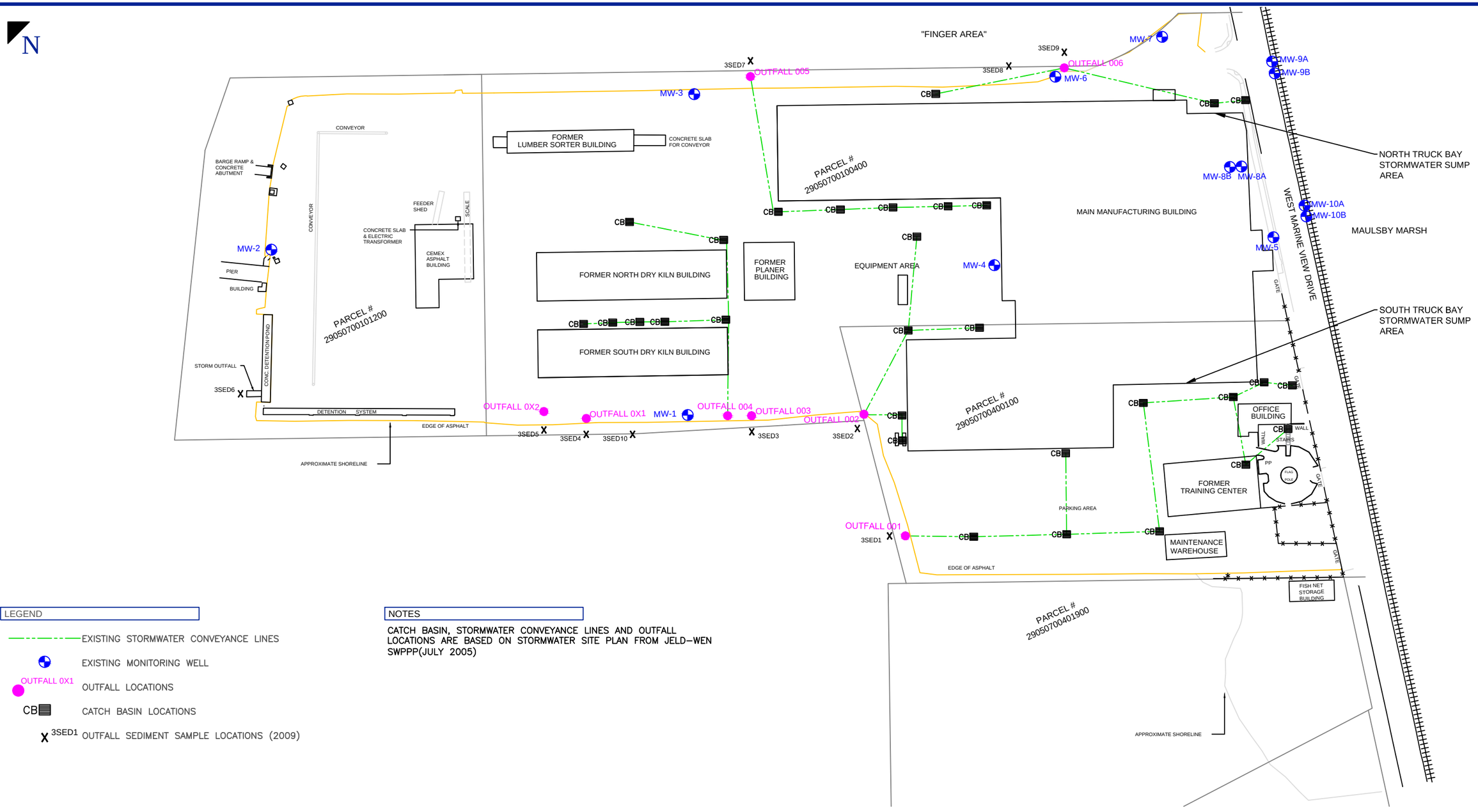
SLR

FORMER E.A. NORD
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report
SOURCE CONTROL EVALUATION WORK PLAN

Drawing
SITE LOCATION MAP

Date OCTOBER 2017	Scale AS SHOWN	Fig. No. 1
File Name SITE LOCATION MAP -1	Project No. 108.00228.00048	



LEGEND

- EXISTING STORMWATER CONVEYANCE LINES
- EXISTING MONITORING WELL
- OUTFALL 0X1 — OUTFALL LOCATIONS
- CB — CATCH BASIN LOCATIONS
- X 3SED1 — OUTFALL SEDIMENT SAMPLE LOCATIONS (2009)

NOTES

CATCH BASIN, STORMWATER CONVEYANCE LINES AND OUTFALL LOCATIONS ARE BASED ON STORMWATER SITE PLAN FROM JELD–WEN SWPPP(JULY 2005)

0 175 350 525'

SLR

FORMER E.A. NORD SITE
300 WEST MARINE VIEW DRIVE
EVERETT, WASHINGTON

Report: SOURCE CONTROL EVALUATION WORK PLAN

Drawing: SITE PLAN

Date: NOVEMBER 2017
File Name: SW_SITE PLAN_NORD
Scale: AS SHOWN
Project No.: 108.00228.00048
Fig. No.: 2

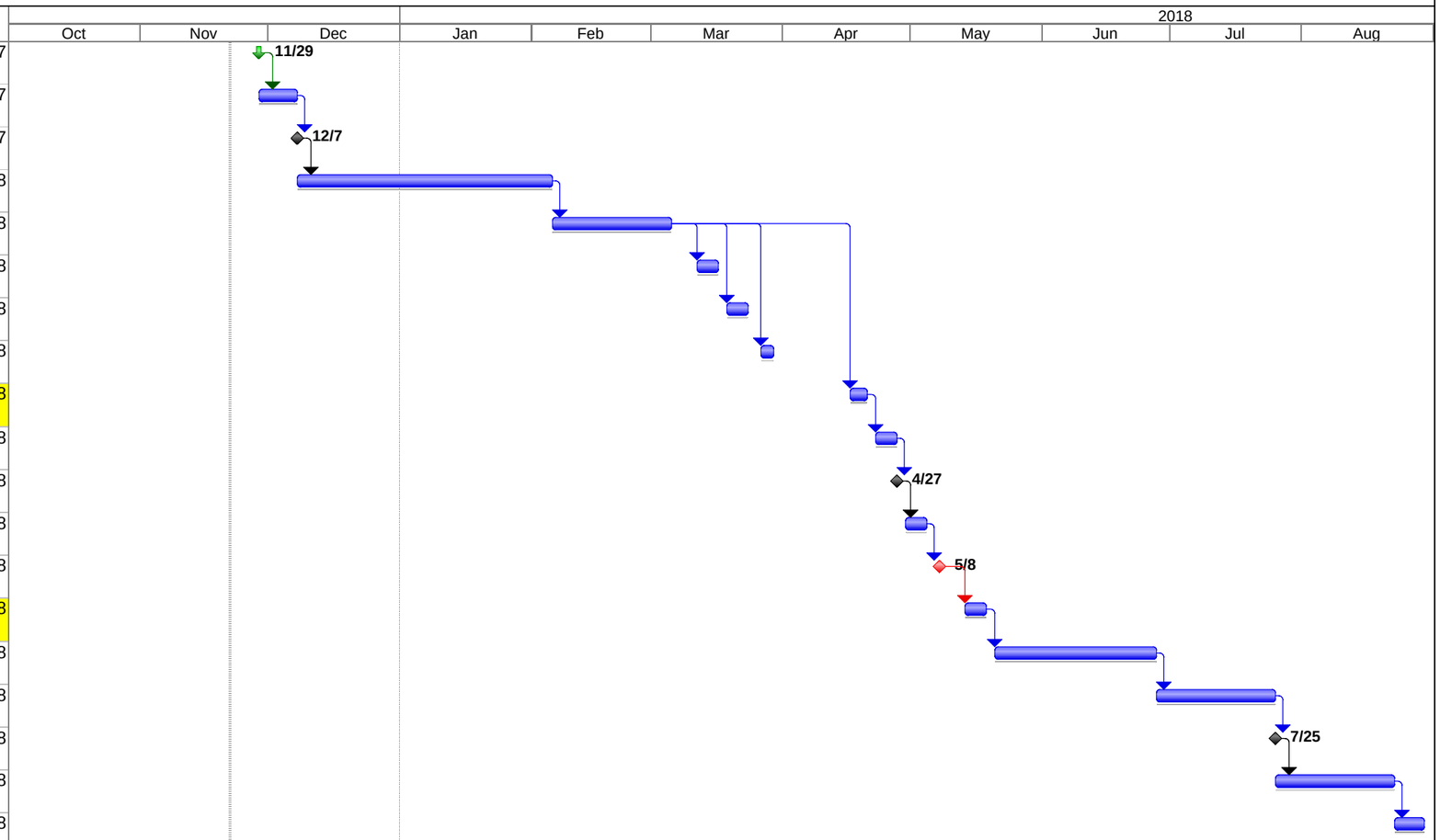
ATTACHMENT 1

PROJECT SCHEDULE

Former E.A. Nord Door Site (JELD-WEN Cleanup Site; FS ID 2757)

Everett, Washington

ID	Task Name	Start	Finish
1	Submittal of Final SCE Work Plan to Ecology	Wed 11/29/17	Wed 11/29/17
2	Ecology Review of Final SCE Work Plan	Wed 11/29/17	Thu 12/7/17
3	Ecology Approval of Final SCE Work Plan	Thu 12/7/17	Thu 12/7/17
4	Obtain access agreement for SCE Field Work	Fri 12/8/17	Mon 2/5/18
5	Scheduling and coordinating field activities	Tue 2/6/18	Mon 3/5/18
6	Stormwater drainage system tracing (Section 4.1.2.1)	Mon 3/12/18	Fri 3/16/18
7	North Truck Dock sump tracing (Section 4.1.3.1)	Mon 3/19/18	Fri 3/23/18
8	North Truck Dock stormwater sampling (Section 4.1.3.2)	Tue 3/27/18	Thu 3/29/18
9	**Groundwater seep survey (Section 4.1.1.1)**	Tue 4/17/18	Fri 4/20/18
10	Seep survey summary document preparation	Mon 4/23/18	Fri 4/27/18
11	Seep survey summary submittal to Ecology	Fri 4/27/18	Fri 4/27/18
12	Conference call or meeting with Ecology	Mon 4/30/18	Fri 5/4/18
13	Ecology approval of the seep sampling locations	Tue 5/8/18	Tue 5/8/18
14	**Groundwater seep sampling (Section 4.1.1.2)**	Mon 5/14/18	Fri 5/18/18
15	Sample analytical testing	Mon 5/21/18	Wed 6/27/18
16	Analytical QA/QC and Summary of Findings Document	Thu 6/28/18	Wed 7/25/18
17	Submittal of Summary of Findings Document to Ecology	Wed 7/25/18	Wed 7/25/18
18	Ecology review of the Summary of Findings Document	Thu 7/26/18	Wed 8/22/18
19	Conference call or meeting with Ecology - next steps	Thu 8/23/18	Wed 8/29/18



ATTACHMENT 2

SAMPLING AND ANALYSIS PLAN (SAP)

Former E.A. Nord Door Site

Source Control Evaluation Work Plan
Attachment 2: Sampling and Analysis Plan

Prepared for: JELD-WEN, Inc.

Client Ref: 108.00228.00048

November 2017

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Tables

Appendices

1. INTRODUCTION

SLR International Corporation (SLR) has prepared the following Sampling and Analysis Plan (SAP) to accompany the Source Control Evaluation (SCE) Work Plan to Assess Data Gaps for Completion of Remedial Investigation/Feasibility Study (RI/FS).

1.1 BACKGROUND

A detailed background section is presented in the SCE Work Plan.

1.2 OBJECTIVES

The proposed sampling activities included in this SAP are summarized below and are presented in detail in Section 2.0.

- Near-shore groundwater seep sampling in the tidally influenced area to the north, west, and south of the Site
- Sampling from the North Truck Dock area stormwater sump and piped discharge area

2. SOURCE CONTROL EVALUATION ACTIVITIES

This section presents the work scope and approach for the proposed additional SCE sampling activities.

2.1 SAMPLING LOCATIONS, TYPES, FREQUENCY, AND ANALYSES

2.1.1 NEAR-SHORE GROUNDWATER SEEP SAMPLING

Near-shore groundwater seep sampling is proposed as a source control evaluation tool. An assessment of groundwater seeps to the inlet on the northern, western, and southern side of the Site is proposed to identify potential impacts to surface water and sediment via groundwater seep drainage from the Site. Part of the groundwater seep assessment will consist of sampling select seep locations along the tidally influenced shoreline. Photographs of the "finger area" shoreline from Ecology's April 2017 site visit are provided in **Appendix A**.

The proposed sampling activities associated with the groundwater seep investigation include the following:

Water Quality Parameters – Groundwater Seeps

Upon identifying groundwater seeps per the groundwater seep survey (as detailed in the SCE Work Plan), water quality parameters consisting of specific conductance, pH, temperature, dissolved oxygen (DO), and oxidation reduction potential (ORP) will be recorded using a calibrated multi-parameter meter (YSI 556 model or similar) from a grab sample from a major observed seep during outgoing and incoming tidal stages if sufficient discharge allows for the collection of measurements within a reasonable amount of time. The grab sample of groundwater emitting from the selected seep will be collected directly into a decontaminated container via a V-shape aluminum sheet. The probe of the multi-parameter water quality meter will be inserted into the container, and the measurements will be recorded after approximately 30 seconds.

Water Quality Parameters – Surface Water

Water quality parameters will also be recorded for the adjacent surface water during the outgoing tidal stage. Surface water will be scooped with a decontaminated container and the probe of the multi-parameter water quality meter will be inserted into the container and the measurements will be recorded upon approximate stabilization (i.e. readings do not significantly change over 30-second interval). Alternately, considering safety issues, the probe of the multi-parameter water quality meter may be inserted in-situ to the surface water and measurements will be recorded after approximately 30 seconds.

Groundwater Seep Sampling

Following completion of the groundwater seep survey and consultation with Ecology, the groundwater seep sampling event will be completed. At low tide, grab samples of groundwater emitting from the

selected seeps will be collected directly into a clean laboratory-provided container via a V-shape aluminum sheet. This laboratory-provided container may be used to fill other laboratory-provided bottles necessary for sample submittal and laboratory analysis in order to prevent introduction of sediment or loss of sample container preservative. In addition, water quality parameters will be measured and recorded, as described above.

Groundwater seep samples will be submitted to the analytical laboratories for the contaminants of concerns (COCs) presently identified in groundwater and sediments at the Site. These COCs are Total Petroleum Hydrocarbons – Diesel and Heavy Oil Range (TPH-Dx), carcinogenic polynuclear aromatic hydrocarbons (cPAHs), naphthalene, benzene, dioxins and furans, and polychlorinated biphenyls (PCB) Congeners. The laboratory practical quantitation limits (PQLs) and the most recent Preliminary Cleanup Levels (PCLs) are provided on **Table 1** of this SAP and the appropriate laboratory containers, preservation, and holding times are presented in **Table 3** of this SAP. A Method Detection Limit Study performed by the laboratory is included in **Appendix C**.

2.1.2 NORTH TRUCK DOCK STORMWATER SUMP ASSESSMENT

As part of the stormwater drainage assessment, the stormwater sump in the North Truck Dock area will be traced and mapped by a private utility locating service. Piping discharging into the sump will be traced and a camera system will be used for assessment as described in the SCE Work Plan. Photographs of the North Truck Dock stormwater sump from Ecology's April 2017 site visit are provided in **Appendix B**. If water is observed discharging from the piping system into the sump at the time of the proposed sampling, then samples of this water will be collected as described below.

The proposed sampling activities associated with the North Truck Dock stormwater sump investigation include the following:

Stormwater Sump Solids Sampling

Using the existing sump pump, standing water will be removed from the basin. One grab sample of catch basin solids will be collected, if present in sufficient quantity. This sample will be collected with a decontaminated stainless steel spoon into a stainless steel bowl for compositing prior to placement in laboratory-provided containers.

The sump solids sample will be submitted to the analytical laboratory for the COCs presently identified in groundwater and sediments at the Site. These COCs are TPH-Dx, cPAHs, naphthalene, benzene, dioxins and furans, and PCB Congeners. In addition, conventional parameters including grain size, total solids, total organic carbon (TOC), total volatile solids, and ammonia will be submitted to the analytical laboratory, pending sufficient sample volume. If sufficient volume of sample material is unavailable, the analytical suite will be completed per the following order: dioxins and furans, PCB Congeners, cPAHs, naphthalene/benzene, TPH-Dx, and conventional parameters. The laboratory PQLs and the most recent PCLs are provided on **Table 2** of this SAP and the appropriate laboratory containers, preservation, and holding times are presented in **Table 3** of this SAP. A Method Detection Limit Study performed by the laboratory is included in **Appendix C**.

Stormwater Sump Inlet Sampling

Water samples from the pipe(s) with observed discharge into the sump will also be collected. Using the existing sump pump, standing water will be removed from the basin. Water samples will be collected directly into clean laboratory-provided containers as the water enters the sump. Standing water in the sump will not be collected. Water quality parameters will also be collected using a hand-held multi-parameter meter, as described above.

Water samples will be submitted to the analytical laboratories for the same analytical suite as the groundwater seep samples, described above.

Stormwater Discharge Sampling

During a storm event, a grab water sample will be collected from the discharge pipe to the "finger area" pending identification of a discharge pipe directly related to the North Truck Bay stormwater sump during the line tracing activities described in the SCE Work Plan. If accessible, the stormwater discharge will be collected directly into laboratory-provided containers. Water quality parameters will also be collected using a hand-held multi-parameter meter, as described above.

The stormwater sample will be submitted to the analytical laboratories for the same analytical suite as the groundwater seep samples, described above.

Stormwater Discharge Soil Sampling

A grab soil sample will be collected near the location of the discharge adjacent to the Baywood property. Pending access due to safety concerns, this soil sample will be collected from soil immediately downstream of the discharge pipe, preferably within an observed flow channel. The soil sample will be collected with a decontaminated stainless steel spoon into a stainless steel bowl for compositing prior to placement in laboratory-provided containers.

The soil sample will be submitted to the analytical laboratories for the same analytical suite as the stormwater sump solids sample, described above.

3. SAMPLING METHODS AND PROCEDURES

This section generally describes the methods and procedures for fieldwork associated with the proposed sampling.

3.1 SOIL/SOLIDS SAMPLING

Samples collected of solids in the stormwater sump or of soil adjacent to the stormwater sump discharge will be collected using the following general procedures:

- All sampling equipment and reusable materials that will contact the sample will be decontaminated on-site in accordance with procedures identified in Section 3.5. The field staff will use new clean disposable neoprene, nitrile, or vinyl gloves for handling each sample.

- Samples collected for chemical analysis will be composited from each location in a decontaminated stainless steel bowl and transferred directly from the bowl into laboratory-provided sample containers with a decontaminated stainless steel spoon. The soil placed in the containers will be handled carefully to minimize disturbance of the soil. Each container will be filled as full as possible to minimize headspace. The appropriate laboratory containers, preservation, and holding times are presented in **Table 3** of this SAP.

- The sample container labels will be filled out and attached to the appropriate containers as described in Section 3.6.

- After filling the sample jars, the remaining sample will be logged on a Field Sampling Data Form (as described in the QAPP) and the sample container(s) will be placed on ice in a cooler and handled as described in Section 3.6. The sample coolers will be sent to the laboratory within 36 hours of sampling.

- Samples will be identified by the sample location from where they are collected. For example, solids collected from the North Truck Dock sump will be labeled “North Truck Dock Sump Solids.”

3.2 GROUNDWATER SEEP SAMPLING PROCEDURES

Groundwater seep sampling from the observed groundwater seeps on the south side of the “finger area” will be collected using the following general procedures:

- Depth to water will be measured at adjacent groundwater monitoring wells MW-6 and MW-7 before sampling. The water level will be measured by using an electric well probe or oil-water interface probe to the nearest 0.01 foot from a surveyed notch marked on the well casing. Water depths will be recorded on a Field Sampling Data Form and will include date, time, and sampler's initials. If floating product is present, the thickness will be measured with an oil-water interface probe or a bailer. Groundwater samples will not be collected from the wells as part of this scope of work.

- Field parameters will be measured from a representative groundwater seep during the initial groundwater seep survey as well as during the groundwater seep sampling event. Groundwater observed discharging from the seeps will be collected directly into a clean laboratory-provided container via a V-shape aluminum sheet. A sufficient volume to submerge the probe of a multi-parameter water quality meter (YSI 556 or similar) will initially be collected. The multi-parameter meter will be calibrated per manufacturer's instructions before measurements are taken. Field parameters will be recorded after approximately 30 seconds. The following field parameter measurements will be recorded:
    - Temperature (°C)
    - pH (units)
    - Specific conductance (µS/cm)
    - Dissolved oxygen (mg/L)
    - ORP (mV)

- Water quality parameters will also be collected from the adjacent surface water. Pending safety and access issues, surface water will either be retrieved using an extendable pole equipped with an empty container or the probe of the water quality meter will be directly inserted in the surface water. The recording of the field parameters will be completed as described above.

- Groundwater seep samples will be collected from the seeps into a clean container using the V-shape aluminum sheet. This container may also be used to transfer sample volume to laboratory-provided containers to avoid solids or biological interference, or loss of preservative. The appropriate laboratory containers, preservation, and holding times are presented in **Table 3** of this SAP.

- The sample container labels will be filled out and attached to the appropriate containers as described in Section 3.6.

- Groundwater seep samples will be identified per the numerical order established during the groundwater seep survey (as described in SCE Work Plan) and will be determined based on number of observed seeps. For example, the first groundwater seep sample will be named "Seep-1".

- Samples will be labeled, handled, and shipped using the procedures described in Section 3.6. Sample custody will be maintained until delivery to the analytical laboratory. All sampling field activity and data will be recorded on a Field Sampling Data Form.

- All reusable sampling equipment will be decontaminated using the procedures described in Section 3.5. The sampler(s) will wear new disposable neoprene, nitrile, or vinyl gloves at each sampling location.

- Any sample residuals will be handled as described in Section 3.4.

3.3 STORMWATER SAMPLING PROCEDURES

Stormwater sampling from the inlets to the North Truck Dock Sump and the discharge from the North Truck Dock Sump will be collected using the following general procedures:

- The sump pump will be activated to remove any standing water in the sump (for inlet sampling only).

- Field parameters will be measured with a calibrated multi-parameter water quality meter as described above for the groundwater seep sampling.

- Stormwater samples will be collected directly from the inlet/discharge pipe(s) into laboratory-provided containers. If safety or access issues prevent directly sampling from the discharge pipe, one large container may be used to transfer sample volume to laboratory-provided containers to avoid solids or biological interference or loss of preservative. The appropriate laboratory containers, preservation, and holding times are presented in **Table 3** of this SAP.

- The sample container labels will be filled out and attached to the appropriate containers as described in Section 3.6.

- Stormwater inlet samples will be identified as a stormwater sample, per the location of the inlet piping, and also by the position of the inlet if applicable (i.e. "SW Inlet – East - Upper). The stormwater discharge sample will be labeled as such ("SW Discharge").

- Samples will be labeled, handled, and shipped using the procedures described in Section 3.6. Sample custody will be maintained until delivery to the analytical laboratory. All sampling field activity and data will be recorded on a Field Sampling Data Form.

- All reusable sampling equipment will be decontaminated using the procedures described in Section 3.5. The sampler(s) will wear new disposable neoprene, nitrile, or vinyl gloves at each sampling location.

- Any sample residuals will be handled as described in Section 3.4.

3.4 RESIDUALS MANAGEMENT - HANDLING PROCEDURES

All residual soil, water, product, and used decontamination solutions will be handled appropriately. Residual soil and water will be returned to their source area (i.e. extra stormwater sump solids will be returned to the stormwater sump). Used disposable clothing and equipment will be handled as solid waste. Appropriate personal protective clothing will be worn during residuals transfers because of potential skin contact and splash hazards. Water generated from decontamination will be transferred to the existing water purge drums at the Site and pertinent information will be added to the existing label.

JELD-WEN will be responsible for the proper disposal of all wastes. SLR will coordinate with JELD-WEN for appropriate disposal procedures.

3.5 DECONTAMINATION PROCEDURES

A decontamination area will be established for cleaning of sampling materials. Sampling equipment that will contact samples will be decontaminated prior to initial use, between sampling locations, and between different sampling depths at the same location. Soil sampling equipment will be decontaminated by the following procedure:

- Tap water rinse
- Alcohol rinse
- Tap water rinse
- Non-phosphatic detergent and tap water wash
- Tap water rinse
- Second alcohol rinse (if equipment visibly stained with product)
- Tap water rinse
- Distilled water rinse

Decontamination of personnel involved in sampling activities will be accomplished as described in the HSEP (**Attachment 4** of the SCE Work Plan).

3.6 SAMPLE LABELING, SHIPPING, AND CHAIN-OF-CUSTODY

Sample container labels will be completed immediately before or immediately after sample collection. Container labels will include the following information:

- Project name
- Sample number (including sample depth, if applicable)
- Name of collector
- Date and time of collection

Soil and water samples will be shipped to the selected analytical laboratories as follows:

- Sample containers will be transported in a sealed, iced cooler.
- In each shipping container, glass bottles will be separated by a shock-absorbing and absorbent material to prevent breakage and leakage.
- Ice or "blue ice," sealed in separate plastic bags, will be placed into each shipping container with the samples or loose ice will be added to one large plastic bag directly with the sample containers. This large bag would then be sealed with a zip-tie.
- All sample shipments will be accompanied by a Chain-of-Custody Form. The completed form will be sealed in a plastic bag and taped to the inside lid of the shipping container.

- Signed and dated chain-of-custody seals will be placed on all shipping containers, unless samples will be picked up at the Site by the laboratory.

- The analytical laboratory's name and address and SLR's name and office (return) address will be placed on each shipping container prior to shipping.

Once a sample is collected, it will remain in the custody of the sampler or other SLR personnel until shipment to the laboratory. Upon transfer of sample containers to subsequent custodians, a Chain-of-Custody/Analysis Request Form will be signed by the persons transferring custody of the sample container. A signed and dated chain-of-custody seal will be placed on each shipping container prior to shipping.

Upon receipt of samples at the laboratory, the shipping container seal will be broken, and the condition of the samples will be recorded by the receiver. Chain-of-custody records and login information will be included in the analytical report prepared by the laboratory.

3.7 FIELD QUALITY CONTROL METHODS

3.7.1 FIELD EQUIPMENT/RINSATE BLANKS

As described in the QAPP, a field/equipment rinsate blank will be used to determine whether the equipment used for collection and/or compositing the samples contain chemicals of concern that may be introduced to the sample matrix. Deionized water will be poured over the sampling equipment (i.e., bowl and spoon) and then transferred to sample containers before the sampling equipment is used. One field/equipment rinsate blank will be collected for every 10 environmental samples and analyzed for the COCs identified in this SAP.

3.7.2 BLIND DUPLICATE

As described in the QAPP, the analytical results between a sample/blind duplicate will be used to assess variance of the total method, including sampling and analysis. The blind duplicate sample will be assigned a fictitious identification; the correct sample identification number will be recorded by the sampler. One blind duplicate will be collected for every 10 environmental samples and analyzed for the COCs identified in this SAP. The samples to be chosen as duplicate locations will be determined in the field and will be dependent upon available sample volume and sample collection time.

4. REFERENCES

SLR International Corporation (SLR). 2016. Final Draft Remedial Investigation/Feasibility Study. October.

TABLES

Table 1
Water PQLs and PCLs
Former E.A. Nord Door Facility
Everett, Washington

Analyte	Analytical Method	Laboratory PQL (µg/L)	Selected PCL [C] (µg/L)
Total Petroleum Hydrocarbons [A]			
Diesel Range	NWTPH-Dx	100	500
Residual Range	NWTPH-Dx	250	500
Volatile Organic Compounds (VOCs) [A]			
Benzene	8260B	1.0	2.4
Naphthalene	8260B	5.0	8.9
Carcinogenic Polycyclic Aromatic Compounds (cPAHs) [A]			
benzo[a]anthracene	8310LL	0.01	TEQ
benzo[a]pyrene	8310LL	0.01	TEQ
benzo[b]fluoranthene	8310LL	0.01	TEQ
benzo[k]fluoranthene	8310LL	0.01	TEQ
chrysene	8310LL	0.01	TEQ
dibenzo[a,h]anthracene	8310LL	0.005	TEQ
indeno[1,2,3-cd]pyrene	8310LL	0.01	TEQ
TEQ for cPAHs [D]	TEF	0.015	0.015
Polychlorinated Biphenyls (PCBs)			
PCB Congeners	1668C	0.0001 [F]	0.000007 [E]
Dioxins/Furans [B]			
2,3,7,8-Tetra TCDD TEQ [D]	1613B	0.000072 [F]	6.30E-05

Notes:

A - Practical Quantitation Limit (PQL) from Environmental Sciences Corp (ESC)

B - Reporting Limit from SGS Laboratory

C - Groundwater Preliminary Cleanup Levels (PCLs) per the October 2016 Final Draft RI/FS Report (Table 11)

D - PCL calculated for TEQ using TEF weighting. PAH TEF table from the June 6, 2017 to Ecology titled Former E.A. Nord - additional documents and/or supplemental information

E - Most stringent Surface Water ARAR (Human Health), suggested for use as PCL by Ecology

F - PQL based on RL. Method Detection Limit Study included in Attachment 1

Table 2
Soil PQLs and PCLs
Former E.A. Nord Door Facility
Everett, Washington

Analyte	Analytical Method	Laboratory PQL (mg/kg)	Selected PCL [C] (mg/kg)
Total Petroleum Hydrocarbons [A]			
Diesel Range	NWTPH-Dx	4	2,000
Oil Range	NWTPH-Dx	10	2,000
Volatile Organic Compounds (VOCs) [A]			
Benzene	8260B	0.001	0.014
Naphthalene	8260B	0.005	0.02
Carcinogenic Polycyclic Aromatic Compounds (cPAHs) [A]			
benzo[a]anthracene	8310LL	0.006	TEQ
benzo[a]pyrene	8310LL	0.006	TEQ
benzo[b]fluoranthene	8310LL	0.006	TEQ
benzo[k]fluoranthene	8310LL	0.006	TEQ
chrysene	8310LL	0.006	TEQ
dibenzo[a,h]anthracene	8310LL	0.006	TEQ
indeno[1,2,3-cd]pyrene	8310LL	0.006	TEQ
TEQ for cPAHs [D]	TEF	0.009	0.095
Polychlorinated Biphenyls (PCBs)[B]			
PCBs Congeners	1668C	0.000001 [F]	0.5 [E]
Dioxins/Furans [B]			
2,3,7,8-Tetra TCDD TEQ [D]	1613B	0.00000625 [F]	0.00000625 [F]

Notes:

A - Practical Quantitation Limit (PQL) from Environmental Sciences Corp (ESC)

B - Reporting Limit from SGS Laboratory

C - Soil Preliminary Cleanup Levels (PCLs) per the October 2016 Final Draft RI/FS Report (Table 2)

D - PCL calculated for TEQ using TEF weighting. PAH TEF table from the June 6, 2017 to Ecology titled Former E.A. Nord - additional documents and/or supplemental information

E - Total PCB Congener PCL for sediment per October 2016 Final Draft RI/FS

F - PQL based on RL. Method Detection Limit Study included in Attachment 1

Table 3
Laboratory Containers, Preservatives and Holding Times
Former E.A. Nord Door Facility
Everett, Washington

Lab Test Method	Analytical Description	Sample Container & Preservation	Holding Time
Soil Samples			
NWTPH-Dx	TPH-Dx	8 oz glass jar	14 days
8270SIM	cPAHs		14 days
2540G	Total Solids		14 days
8260B	Benzene and Naphthalene	5035 terracore kit including: (3) 40-mL vials with sodium bisulfate perservative, (1) 40-mL vial with methanol preservative	14 days
1613B	Dioxins and Furans	4-oz glass jar	1 year
1668C	PCB Congeners		1 year
ASTM D 422	Grain size	1-gallon bucket	NA
9060	TOC	4-oz glass jar	28 days
160.4	TVS		7 days
350.1	Ammonia		28 days
Water Samples			
NWTPH-Dx	TPH-Dx	100mL HCl-preserved VOAs (2)	14 days
8310LL	cPAHs	1L unpreserved glass amber (2)	7 days
8260B	Benzene and Naphthalene	40mL HCl-preserved VOAs (3)	14 days
1613B	Dioxins and Furans	1L unpreserved glass amber (2)	1 year
1668C	PCB Congeners	1L unpreserved glass amber (2)	1 year

APPENDIX A

PHOTOGRAPHS OF FINGER AREA SEEPS (ECOLOGY, APRIL 2017)

Photo 1: Tidally influenced "Finger Area" – looking approximately easterly (Ecology Photograph)

Photo 2: "Finger Area" – looking approximately west-northwesterly (Ecology Photograph)

APPENDIX B

PHOTOGRAPHS OF NORTH TRUCK DOCK AREA SUMP (ECOLOGY, APRIL 2017)

Photo 1: Northern Site entrance looking southerly toward north truck dock (Ecology Photograph)

Photo 2: North truck dock area sump (Ecology Photograph)

APPENDIX C

METHOD DETECTION LIMIT STUDY

Method Detection Limit Study

SGS Environmental Services

Method:	1668A	Prep Analyst:	BAH
Prep Method:	3520 Modified	MS Analyst:	SCF
Date Analyzed:	3/13/16	Matrix:	Water
Instrument ID:	MM4	Sample Weight/Volume:	1 L
Analytical Column:	SPB-Ocytl	Spike Amount:	10
Detector:	Autospec Ultima	Report Conc. units:	pg/L
		SGS Project No.:	V1386

Contaminant	**Test Conc. pg/g**	**MDL Replicates**								**X**	**SD**	**Calc. MDL**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**			
PCB-77 33'44'-TeCB	10.0		9.58	12.10	12.40	12.00	11.10	13.10	11.80	11.71	1.229	3.859
PCB-81 344'5-TeCB	10.0		11.10	10.90	11.10	12.10	10.40	12.00	11.60	11.27	0.659	2.070
PCB-105 233'44'-PeCB	10.0		11.30	12.50	12.60	18.10	10.50	11.80	11.30	12.80	2.711	8.514
PCB-114 2344'5-PeCB	10.0		11.60	11.90	11.80	13.00	11.30	11.50	12.00	11.85	0.602	1.892
PCB-118 23'44'5-PeCB	10.0		11.80	12.70	13.90	20.00	12.50	12.90	13.50	13.97	3.033	9.523
PCB-123 23'44'5'-PeCB	10.0		11.20	12.20	11.10	11.30	11.50	11.20	11.20	11.42	0.407	1.278
PCB-126 33'44'5-PeCB	10.0		8.79	12.40	11.30	11.30	11.70	10.80	11.80	11.05	1.228	3.856
PCB-156/157 ...-HxCB	20.0		23.80	22.70	23.10	21.60	21.80	23.50	23.10	22.75	0.896	2.814
PCB-167 23'44'55'-HxCB	10.0		12.00	11.70	12.20	11.80	12.70	13.30	10.80	12.28	0.611	1.919
PCB-169 33'44'55'-HxCB	10.0		10.00	13.10	13.30	10.70	11.10	12.60	11.90	11.80	1.380	4.333
PCB-189 233'44'55'-HpCB	10.0		9.30	11.20	11.30	11.50	11.10	10.80	9.58	10.87	0.802	2.517
PCB-209 DeCB	10.0		10.2	17.1	12.4	13.9	12.1	9.9	11.50	12.6	2.66	8.347
PCB-1 2-MoCB	10.0		10.90	9.73	9.45	11.60	11.30	11.30	11.40	10.71	0.902	2.834
PCB-2 3-MoCB	10.0		9.56	11.00	11.50	9.45	15.20	10.60	22.50	11.22	2.109	6.622
PCB-3 4-MoCB	10.0		11.60	11.80	13.90	11.00	14.60	13.00	20.10	12.65	1.417	4.448
PCB-4 22'-DiCB	10.0		12.80	12.60	9.98	12.10	10.50	11.50	10.60	11.58	1.143	3.589
PCB-10 26-DiCB	10.0		9.77	9.05	10.30	9.38	8.87	7.50	9.47	9.15	0.956	3.002
PCB-9 25-DiCB	10.0		7.64	5.21	6.38	6.79	5.62	6.24	5.70	6.31	0.860	2.699
PCB-7 24-DiCB	10.0		6.44	5.30	6.69	5.53	6.15	6.67	5.79	6.13	0.592	1.858
PCB-6 23'-DiCB	10.0		6.84	5.61	8.54	7.92	7.07	7.95	7.80	7.32	1.045	3.282
PCB-5 23-DiCB	10.0		7.10	6.24	7.98	7.30	7.76	7.55	7.50	7.32	0.616	1.934
PCB-8 24'-DiCB	10.0		8.54	7.31	8.55	8.58	7.90	7.78	8.31	8.11	0.528	1.657
PCB-14 35-DiCB	10.0		8.73	6.22	8.46	6.84	7.62	7.31	7.14	7.53	0.954	2.997
PCB-11 33'-DiCB	10.0		20.00	18.80	22.40	22.40	23.40	21.1	19.50	21.35	1.720	5.401
PCB-13/12 34'/34-DiCB	10.0		20.1	19.1	23.2	20.0	19.4	20.3	19.10	20.4	1.468	4.609
PCB-15 44'-DiCB	10.0		12.00	11.30	10.70	11.30	11.40	12.00	11.80	11.45	0.493	1.548
PCB-19 22'6-TrCB	10.0		13.60	11.50	11.70	11.40	9.93	11.10	10.40	11.54	1.190	3.735
PCB-30/18 246/22'5-TrCB	20.0		20.40	19.20	20.90	21.20	19.10	19.90	18.90	20.12	0.870	2.733
PCB-17 22'4-TrCB	10.0		9.99	12.30	12.10	11.60	11.40	12.20	12.40	11.60	0.8640	2.713
PCB-27 23'6-TrCB	10.0		11.10	12.90	11.80	11.80	11.30	12.80	11.40	11.95	0.750	2.356

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-24 236-TrCB	10.0		10.20	11.90	11.20	11.80	10.60	12.80	11.20	11.42	0.947	2.975
PCB-16 22'3-TrCB	10.0		14.20	16.20	15.60	13.60	12.70	13.20	15.50	14.25	1.382	4.341
PCB-32 24'6-TrCB	10.0		12.20	13.90	11.40	12.40	11.00	12.30	12.10	12.20	1.002	3.146
PCB-34 23'5'-TrCB	10.0		8.18	7.68	7.68	8.11	7.53	7.62	7.76	7.80	0.274	0.859
PCB-23 235-TrCB	10.0		7.45	7.72	8.66	7.82	7.52	7.57	6.77	7.79	0.45	1.404
PCB-26/29 23'5/245-TrCB	20.0		16.30	16.20	18.40	16.90	15.60	15.00	15.30	16.40	1.175	3.689
PCB-25 23'4-TrCB	10.0		8.25	9.03	9.16	8.06	7.81	8.44	8.13	8.46	0.54	1.686
PCB-31 24'5-TrCB	10.0		10.60	9.55	10.30	9.75	9.28	9.51	8.35	9.83	0.511	1.603
PCB-28/20 244'/233'-TrCB	20.0		18.90	19.80	20.70	19.10	18.10	19.10	19.10	19.28	0.882	2.769
PCB-21/33 234/23'4'-TrCB	20.0		18.00	19.00	20.60	19.70	17.60	20.00	18.10	19.15	1.17	3.682
PCB-22 234'-TrCB	10.0		9.13	10.70	11.10	9.52	9.28	9.63	9.92	9.89	0.809	2.541
PCB-36 33'5-TrCB	10.0		9.4	9.5	11.5	9.2	9.0	9.4	8.52	9.7	0.92	2.886
PCB-39 34'5-TrCB	10.0		10.5	8.9	9.7	9.6	8.5	10.0	9.69	9.5	0.74	2.324
PCB-38 345-TrCB	10.0		10.10	9.87	9.93	9.51	8.64	9.60	9.94	9.61	0.522	1.638
PCB-35 33'4-TrCB	10.0		10.20	10.10	10.60	10.70	9.33	10.10	10.20	10.17	0.486	1.527
PCB-37 344'-TrCB	10.0		11.20	11.40	12.50	11.60	10.30	11.60	11.50	11.43	0.712	2.235
PCB-54 22'66'-TeCB	10.0		11.40	12.90	10.90	11.80	9.35	11.60	10.30	11.33	1.172	3.680
PCB-50/53 22'46/22'56'-TeCB	20.0		15.20	16.20	15.60	17.90	15.60	15.30	15.90	15.97	1.009	3.169
PCB-45 22'36-TeCB	10.0		7.95	8.93	9.70	11.70	9.10	8.72	6.89	9.35	1.284	4.031
PCB-51 22'46'-TeCB	10.0		8.73	9.72	7.89	7.12	6.65	9.03	6.71	8.19	1.179	3.701
PCB-46 22'36'-TeCB	10.0		7.39	9.79	9.13	10.70	8.43	9.50	8.36	9.16	1.145	3.594
PCB-52 22'55'-TeCB	10.0		11.60	11.00	13.30	12.30	11.90	12.90	11.70	12.17	0.848	2.662
PCB-73 23'5'6-TeCB	10.0		9.08	8.51	10.10	8.47	8.87	9.42	8.77	9.08	0.616	1.934
PCB-43 22'35-TeCB	10.0		8.1	9.1	7.2	8.8	10.8	9.8	7.98	9.0	1.25	3.937
PCB-69/49 23'46/22'45'-TeCB	20.0		19.60	19.10	20.60	21.50	19.70	21.00	16.80	20.25	0.927	2.910
PCB-48 22'45-TeCB	10.0		9.06	9.86	9.48	9.98	9.64	9.98	10.20	9.67	0.357	1.121
PCB-44/47/65 ...-TeCB	30.0		32.00	30.30	32.20	33.10	29.00	32.10	29.50	31.45	1.506	4.728
PCB-59/62/75 ...-TeCB	30.0		27.70	26.70	26.80	29.20	25.30	27.10	27.00	27.13	1.285	4.034
PCB-42 22'34'-TeCB	10.0		10.20	9.92	9.91	11.40	10.70	10.00	10.50	10.36	0.591	1.857
PCB-41 22'34-TeCB	10.0		9.75	8.77	9.09	9.80	9.43	10.60	9.65	9.57	0.638	2.004
PCB-71/40 23'4'6/22'33'-TeCB	20.0		16.70	20.50	19.60	22.70	20.50	21.40	20.90	20.23	2.024	6.354
PCB-64 234'6-TeCB	10.0		9.90	9.63	9.60	12.00	10.40	11.00	10.60	10.42	0.938	2.946
PCB-72 23'55'-TeCB	10.0		5.80	7.79	8.06	7.31	6.40	8.05	8.87	7.24	0.940	2.951
PCB-68 23'45'-TeCB	10.0		7.24	6.82	8.43	8.36	8.07	7.44	8.42	7.73	0.656	2.061
PCB-57 233'5-TeCB	10.0		7.11	8.23	8.14	7.68	8.31	7.92	7.42	7.90	0.449	1.409
PCB-58 233'5'-TeCB	10.0		6.39	9.49	9.20	8.83	8.64	8.84	8.00	8.57	1.108	3.480
PCB-67 23'45-TeCB	10.0		6.03	9.03	8.75	8.59	8.22	9.57	8.07	8.37	1.230	3.863
PCB-63 234'5-TeCB	10.0		5.65	7.99	8.72	8.27	7.31	7.95	7.78	7.65	1.082	3.397
PCB-61/70/74/76 ...-TeCB	40.0		36.50	41.60	43.10	40.10	39.00	41.30	39.30	40.27	2.311	7.255
PCB-66 23'44'-TeCB	10.0		8.09	10.40	11.20	11.50	8.32	9.68	8.11	9.87	1.436	4.510
PCB-55 233'4-TeCB	10.0		7.50	9.17	10.20	9.95	7.85	10.60	9.14	9.21	1.283	4.030

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-56 233'4'-TeCB	10.0		9.48	10.10	10.90	10.00	9.45	11.00	10.20	10.16	0.671	2.106
PCB-60 2344'-TeCB	10.0		9.44	9.90	10.80	10.30	8.43	9.66	9.47	9.76	0.809	2.541
PCB-80 33'55'-TeCB	10.0		8.06	8.49	9.87	9.65	8.76	9.66	9.03	9.08	0.745	2.340
PCB-79 33'45'-TeCB	10.0		9.79	9.62	10.30	9.88	9.83	9.34	10.30	9.79	0.317	0.994
PCB-78 33'45-TeCB	10.0		8.4	9.8	9.0	9.0	9.8	9.3	9.41	9.2	0.530	1.666
PCB-104 22'466'-PeCB	10.0		11.30	11.60	11.90	12.30	11.10	12.70	10.50	11.82	0.608	1.909
PCB-96 22'366'-PeCB	10.0		9.34	9.71	10.20	10.80	9.70	8.98	11.00	9.79	0.642	2.016
PCB-103 22'45'6-PeCB	10.0		8.28	8.92	7.60	9.59	7.62	8.72	8.83	8.46	0.779	2.446
PCB-94 22'356'-PeCB	10.0		9.1	8.9	8.1	8.9	7.7	9.0	7.45	8.6	0.558	1.753
PCB-95 22'35'6-PeCB	10.0		14.7	12.7	12.8	13.5	12.0	10.5	11.50	12.7	1.413	4.436
PCB-100/93 22'44'6/22'356-PeC	20.0		18.1	17.8	17.8	15.6	16.8	18.4	17.70	17.4	1.040	3.266
PCB-102 22'456'-PeCB	10.0		8.59	9.21	9.61	9.73	10.70	10.40	10.60	9.71	0.771	2.420
PCB-98 22'34'6'-PeCB	10.0		9.69	9.93	9.05	10.90	8.58	9.77	6.54	9.65	0.795	2.497
PCB-88 22'346-PeCB	10.0		8.76	8.85	9.18	11.00	8.04	9.88	6.86	9.29	1.032	3.239
PCB-91 22'34'6-PeCB	10.0		9.37	10.60	9.99	10.20	11.80	9.53	9.10	10.25	0.882	2.769
PCB-84 22'33'6-PeCB	10.0		9.87	11.40	10.90	12.20	9.66	12.10	9.84	11.02	1.085	3.408
PCB-89 22'346'-PeCB	10.0		8.80	9.63	9.10	10.80	8.76	10.30	7.79	9.57	0.839	2.634
PCB-121 23'45'6-PeCB	10.0		9.32	8.63	8.46	9.35	8.99	9.35	8.21	9.02	0.394	1.236
PCB-92 22'355'-PeCB	10.0		11.40	9.96	9.06	10.30	9.71	9.59	9.23	10.00	0.798	2.507
PCB-113/90/101 ...-PeCB	30.0		35.10	32.60	34.00	34.80	31.70	31.80	30.40	33.33	1.502	4.715
PCB-83 22'33'5-PeCB	10.0		11.40	10.40	10.30	11.50	10.30	11.40	9.14	10.88	0.605	1.899
PCB-99 22'44'5-PeCB	10.0		11.60	12.90	12.00	12.80	11.00	10.50	8.53	11.80	0.961	3.018
PCB-112 233'56-PeCB	10.0		9.67	10.10	8.91	11.00	8.25	9.29	8.99	9.54	0.958	3.007
PCB-108/119/86/97/125...-PeC	60.0		63.10	61.80	56.90	63.90	58.80	55.90	58.70	60.07	3.343	10.498
PCB-117 234'56-PeCB	10.0		8.16	9.71	8.64	9.13	9.01	8.96	9.61	8.94	0.516	1.621
PCB-116/85 23456/22'344'-PeC	20.0		21.10	21.50	18.30	21.00	20.30	19.90	19.30	20.35	1.159	3.639
PCB-110 233'4'6-PeCB	10.0		13.50	13.00	12.90	20.30	16.50	15.90	10.50	15.35	2.866	9.000
PCB-115 2344'6-PeCB	10.0		10.90	11.10	9.07	7.67	7.12	7.26	12.60	8.85	1.801	5.657
PCB-82 22'33'4-PeCB	10.0		10.50	9.19	11.20	11.60	8.35	9.61	9.99	10.08	1.245	3.908
PCB-111 233'55'-PeCB	10.0		9.75	8.66	9.71	9.07	8.43	9.73	8.73	9.23	0.590	1.853
PCB-120 23'455'-PeCB	10.0		8.57	9.52	9.21	9.69	8.64	8.64	9.03	9.05	0.494	1.553
PCB-107/124 ...-PeCB	20.0		17.90	18.80	19.60	19.00	17.30	20.40	20.00	18.83	1.122	3.523
PCB-109 233'46-PeCB	10.0		9.88	9.59	10.60	10.20	9.06	9.56	9.60	9.82	0.539	1.693
PCB-106 233'45-PeCB	10.0		9.09	10.60	10.50	10.20	9.13	10.50	10.10	10.00	0.70	2.214
PCB-122 233'4'5'-PeCB	10.0		8.54	9.60	10.30	11.10	8.43	8.71	9.39	9.45	1.085	3.406
PCB-127 33'455'-PeCB	10.0		8.94	9.90	8.64	8.74	8.50	9.93	9.67	9.11	0.641	2.013
PCB-155 22'44'66'-HxCB	10.0		10.10	10.40	11.00	11.30	9.08	11.10	8.90	10.50	0.829	2.603
PCB-152 22'3566'-HxCB	10.0		9.36	11.00	10.50	10.70	8.61	9.63	10.20	9.97	0.918	2.882
PCB-150 22'34'66'-HxCB	10.0		8.77	11.90	8.79	10.10	9.06	10.10	9.56	9.79	1.201	3.773
PCB-136 22'33'66'-HxCB	10.0		11.5	11.9	11.8	10.50	11.20	12.00	8.92	11.48	0.5636	1.770
PCB-145 22'3466'-HxCB	10.0		9.26	11.00	9.40	9.99	7.08	10.20	9.65	9.49	1.334	4.190

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-148 22'34'56'-HxCB	10.0		8.04	9.68	10.40	7.69	7.86	8.62	9.78	8.72	1.097	3.444
PCB-151/135 ...-HxCB	20.0		17.90	21.50	19.80	20.40	17.20	16.50	18.90	18.88	1.973	6.196
PCB-154 22'44'56'-HxCB	10.0		7.76	9.20	8.69	9.31	7.91	7.23	8.58	8.35	0.843	2.648
PCB-144 22'345'6-HxCB	10.0		8.3	8.13	9.4	9.0	7.84	7.4	8.41	8.3	0.755	2.372
PCB-147/149 ...-HxCB	20.0		21.30	21.60	20.70	27.20	19.50	19.50	21.90	21.63	2.866	9.000
PCB-134 22'33'56-HxCB	10.0		6.75	8.89	10.90	12.30	7.91	8.22	9.20	9.16	2.060	6.468
PCB-143 22'3456'-HxCB	10.0		8.27	10.50	7.80	7.53	7.33	9.20	9.52	8.44	1.210	3.799
PCB-139/140 ...-HxCB	20.0		14.70	19.60	19.30	19.30	16.50	18.20	17.50	17.93	1.954	6.136
PCB-131 22'33'46-HxCB	10.0		8.2	9.5	9.0	10.0	8.2	9.5	7.87	9.1	0.735	2.308
PCB-142 22'3456-HxCB	10.0		6.89	8.38	9.45	10.10	8.91	8.62	8.73	8.73	1.091	3.425
PCB-132 22'33'46'-HxCB	10.0		8.67	11.30	10.10	14.30	9.20	9.57	10.50	10.52	2.056	6.457
PCB-133 22'33'55'-HxCB	10.0		8.98	9.11	8.53	10.50	7.62	8.00	9.71	8.79	1.012	3.178
PCB-165 233'55'6-HxCB	10.0		8.54	9.23	9.09	8.97	7.18	8.26	10.10	8.55	0.760	2.388
PCB-146 22'34'55'-HxCB	10.0		8.69	10.10	8.68	11.00	9.38	10.00	8.83	9.64	0.904	2.837
PCB-161 233'45'6-HxCB	10.0		8.74	9.18	9.63	8.31	9.29	8.72	8.43	8.98	0.476	1.495
PCB-153/168 ...-HxCB	20.0		20.10	22.10	23.40	27.50	22.20	22.40	21.50	22.95	2.474	7.770
PCB-141 22'3455'-HxCB	10.0		8.53	10.70	9.63	11.50	9.14	9.49	10.60	9.83	1.083	3.402
PCB-130 22'33'45'-HxCB	10.0		8.01	10.10	10.10	8.48	7.68	9.83	9.54	9.03	1.104	3.467
PCB-137 22'344'5-HxCB	10.0		7.82	9.34	9.33	7.55	8.50	8.86	8.64	8.57	0.757	2.376
PCB-164 233'4'5'6-HxCB	10.0		10.30	11.00	9.15	9.04	8.81	7.80	9.86	9.35	1.136	3.568
PCB-163/138/129 ...-HxCB	30.0		33.50	33.60	28.70	44.30	29.70	31.10	28.40	33.48	5.655	17.756
PCB-160 233'456-HxCB	10.0		7.74	11.00	9.87	7.90	8.16	8.88	9.38	8.93	1.284	4.031
PCB-158 233'44'6-HxCB	10.0		9.92	10.60	9.46	9.88	7.44	9.43	9.56	9.46	1.074	3.373
PCB-128/166 ...-HxCB	20.0		18.60	19.50	19.40	23.70	20.50	21.30	17.40	20.50	1.828	5.739
PCB-159 233'455'-HxCB	10.0		9.28	9.96	10.60	9.44	9.97	11.60	8.23	10.14	0.853	2.677
PCB-162 233'4'55'-HxCB	10.0		8.10	10.20	9.59	10.20	9.02	10.80	9.30	9.65	0.973	3.054
PCB-188 22'34'566'-HpCB	10.0		9.12	10.80	11.20	10.50	9.22	12.60	11.30	10.57	1.30	4.094
PCB-179 22'33'566'-HpCB	10.0		10.10	9.56	9.68	12.20	9.51	10.20	11.80	10.21	1.02	3.192
PCB-184 22'344'66'-HpCB	10.0		9.98	9.93	9.66	10.10	8.96	11.60	9.84	10.04	0.868	2.724
PCB-176 22'33'466'-HpCB	10.0		11.10	10.00	10.40	10.70	10.90	12.60	11.30	10.95	0.896	2.814
PCB-186 22'34566'-HpCB	10.0		9.57	10.60	10.10	7.50	9.75	9.21	9.94	9.46	1.069	3.355
PCB-178 22'33'55'6-HpCB	10.0		11.50	8.62	9.50	9.34	8.85	9.76	10.30	9.60	1.023	3.213
PCB-175 22'33'45'6-HpCB	10.0		10.60	9.55	8.20	11.20	9.11	11.30	8.46	9.99	1.243	3.903
PCB-187 22'34'55'6-HpCB	10.0		13.10	11.00	10.00	14.10	11.80	11.70	9.39	11.95	1.465	4.601
PCB-182 22'344'56'-HpCB	10.0		10.60	9.39	9.46	10.40	10.40	9.43	7.74	9.95	0.575	1.805
PCB-183 22'344'5'6-HpCB	10.0		10.50	9.75	10.10	12.30	10.20	10.40	8.73	10.54	0.900	2.827
PCB-185 22'3455'6-HpCB	10.0		10.70	10.40	10.10	8.43	8.81	9.51	9.42	9.66	0.903	2.837
PCB-174 22'33'456'-HpCB	10.0		13.40	11.60	10.80	13.10	10.10	10.90	10.80	11.65	1.331	4.179
PCB-177 22'33'45'6'-HpCB	10.0		11.10	10.50	9.68	12.30	10.60	11.10	7.90	10.88	0.869	2.729
PCB-181 22'344'56-HpCB	10.0		8.02	9.31	9.10	9.58	7.67	9.39	8.56	8.85	0.797	2.504
PCB-171/173 ...-HpCB	20.0		18.40	20.30	19.40	21.70	18.20	20.10	19.10	19.68	1.308	4.106

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-172 22'33'455'-HpCB	10.0		9.9	9.3	10.7	12.5	10.2	10.4	8.13	10.5	1.096	3.440
PCB-192 233'455'6-HpCB	10.0		8.8	8.5	8.4	11.0	10.2	10.4	8.23	9.5	1.135	3.563
PCB-180/193 ...-HpCB	20.0		23.60	21.90	18.30	27.80	19.50	22.90	19.70	22.33	3.355	10.536
PCB-191 233'44'5'6-HpCB	10.0		9.44	10.10	10.10	11.20	8.76	10.10	7.62	9.95	0.813	2.553
PCB-170 22'33'44'5-HpCB	10.0		11.30	10.60	11.20	12.60	9.92	11.10	9.60	11.12	0.888	2.787
PCB-190 233'44'56-HpCB	10.0		8.53	10.50	12.20	10.50	9.07	9.73	8.01	10.09	1.296	4.068
PCB-202 22'33'55'66'-OcCB	10.0		10.80	9.91	10.00	10.10	9.09	10.20	8.80	10.02	0.552	1.734
PCB-201 22'33'45'66'-OcCB	10.0		9.19	9.71	9.23	10.90	10.80	10.90	10.90	10.12	0.837	2.629
PCB-204 22'344'566'-OcCB	10.0		9.59	10.40	9.65	10.60	7.33	10.20	9.69	9.63	1.196	3.755
PCB-197 22'33'44'66'-OcCB	10.0		10.00	11.30	10.10	9.44	9.35	10.30	8.35	10.08	0.705	2.214
PCB-200 22'33'4566'-OcCB	10.0		9.87	8.77	9.49	9.10	9.39	11.60	8.06	9.70	1.000	3.141
PCB-198/199 ...-OcCB	20.0		21.40	20.00	19.10	22.00	15.70	21.70	16.30	19.98	2.373	7.450
PCB-196 22'33'44'56'-OcCB	10.0		10.40	8.55	10.30	10.80	10.40	10.40	9.74	10.14	0.799	2.509
PCB-203 22'344'55'6-OcCB	10.0		8.03	8.75	10.00	11.40	9.38	11.00	9.13	9.76	1.299	4.080
PCB-195 22'33'44'56-OcCB	10.0		8.92	9.09	10.10	11.50	8.39	11.00	9.08	9.83	1.239	3.892
PCB-194 22'33'44'55'-OcCB	10.0		10.90	11.10	10.60	9.88	8.70	10.20	9.10	10.23	0.873	2.740
PCB-205 233'44'55'6-OcCB	10.0		10.50	11.80	11.80	8.58	10.50	11.60	10.30	10.80	1.245	3.909
PCB-208 22'33'455'66'-NoCB	10.0		9.69	11.00	8.23	9.98	9.35	8.73	7.48	9.50	0.974	3.059
PCB-207 22'33'44'566'-NoCB	10.0		8.89	9.87	8.97	10.60	9.49	10.40	8.13	9.70	0.716	2.248
PCB-206 22'33'44'55'6-NoCB	10.0		13.60	12.10	10.40	10.30	9.34	12.40	10.10	11.36	1.598	5.019

Reviewed by: _Heather Distel_____ Date Reviewed: ___March 2016_____ *SGS Environmental Services*

Method Detection Limit Study

SGS Environmental Services

Method:	1668A	Prep Analyst:	BAH
Prep Method:	3540	MS Analyst:	SCF
Date Analyzed:	3/13/16	Matrix:	Soil
Instrument ID:	MM4	Sample Weight/Volume:	10 g
Analytical Column:	SPB-Ocytl	Spike Amount:	10
Detector:	Autospec Ultima	Report Conc. units:	pg/g
		SGS Project No.:	V1387

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-77 33'44'-TeCB	1.0	1.19	1.12	1.12	1.03	1.04	1.01	1.15	1.11	1.09	0.068	0.204
PCB-81 344'5-TeCB	1.0	0.79	1.07	1.09	0.85	1.00	0.95	1.08	1.05	0.98	0.118	0.35
PCB-105 233'44'-PeCB	1.0	1.53	1.59	1.96	1.68	2.02	2.18	1.77	1.84	1.82	0.241	0.722
PCB-114 2344'5-PeCB	1.0	1.21	1.17	1.19	1.10	1.13	1.09	1.10	1.16	1.14	0.048	0.145
PCB-118 23'44'5-PeCB	1.0	2.42	2.24	3.28	2.49	3.26	3.52	2.94	2.79	2.88	0.498	1.494
PCB-123 23'44'5'-PeCB	1.0	1.07	1.05	1.05	1.10	1.19	1.24	1.10	1.13	1.11	0.073	0.22
PCB-126 33'44'5-PeCB	1.0	1.10	1.05	1.09	1.04	1.11	1.00	1.04	1.06	1.06	0.040	0.119
PCB-156/157 ...-HxCB	2.0	2.25	2.15	2.48	2.19	2.52	2.50	2.40	2.40	2.36	0.156	0.47
PCB-167 23'44'55'-HxCB	1.0	1.02	0.88	1.24	1.10	1.11	1.21	1.19	1.16	1.11	0.124	0.37
PCB-169 33'44'55'-HxCB	1.0	1.18	1.11	0.98	1.09	0.98	1.15	1.12	1.19	1.09	0.078	0.234
PCB-189 233'44'55'-HpCB	1.0	1.04	0.98	1.07	1.10	1.06	1.13	1.00	1.04	1.05	0.053	0.159
PCB-209 DeCB	1.0	1.2	1.1	1.2	1.1	1.2	1.1	1.2	0.99	1.1	0.05	0.15
PCB-1 2-MoCB	1.0	1.12	1.07	1.19	1.07	1.08	1.03	1.06	1.09	1.09	0.052	0.156
PCB-2 3-MoCB	1.0	1.05	1.05	1.02	1.03	1.06	0.96	0.97	0.89	1.02	0.039	0.118
PCB-3 4-MoCB	1.0	1.09	1.18	1.15	1.10	1.42	1.05	1.06	1.05	1.15	0.128	0.383
PCB-4 22'-DiCB	1.0	1.17	1.10	1.18	0.96	1.22	1.08	1.11	1.11	1.12	0.086	0.258
PCB-10 26-DiCB	1.0	0.98	0.87	0.85	0.95	1.03	0.97	0.99	0.94	0.95	0.066	0.197
PCB-9 25-DiCB	1.0	0.89	0.98	0.96	0.92	1.03	0.98	0.83	0.86	0.94	0.066	0.199
PCB-7 24-DiCB	1.0	1.11	0.98	1.06	0.93	1.10	0.91	0.88	0.89	0.99	0.096	0.287
PCB-6 23'-DiCB	1.0	1.02	1.09	1.14	1.03	1.18	1.04	0.87	0.94	1.05	0.101	0.302
PCB-5 23-DiCB	1.0	1.07	0.90	0.99	1.02	0.94	0.94	0.90	0.85	0.96	0.064	0.193
PCB-8 24'-DiCB	1.0	1.24	1.43	1.50	1.19	1.94	1.39	1.33	1.11	1.43	0.248	0.74
PCB-14 35-DiCB	1.0	0.93	0.98	0.97	0.91	0.94	0.92	0.82	0.89	0.92	0.054	0.160
PCB-11 33'-DiCB	1.0	7.09	8.16	9.00	6.63	15.70	9.80	8.7	7.75	9.30	3.027	9.08
PCB-13/12 34'/34-DiCB	2.0	1.7	2.1	2.1	2.0	2.1	1.9	2.1	1.88	2.0	0.143	0.43
PCB-15 44'-DiCB	1.0	1.32	1.25	1.36	1.22	1.48	1.10	1.14	1.23	1.27	0.131	0.393
PCB-19 22'6-TrCB	1.0	1.04	1.09	1.21	1.06	1.31	1.07	1.18	1.13	1.14	0.099	0.298
PCB-30/18 246/22'5-TrCB	2.0	2.26	2.40	2.71	2.29	3.41	2.47	2.59	2.35	2.59	0.395	1.184
PCB-17 22'4-TrCB	1.0	1.30	1.23	1.49	1.18	1.82	1.29	1.26	1.24	1.37	0.2221	0.666
PCB-27 23'6-TrCB	1.0	1.05	1.07	1.12	1.08	1.28	1.09	1.05	1.05	1.11	0.081	0.242

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-24 236-TrCB	1.0	1.03	1.10	0.98	0.94	1.03	1.05	0.99	1.05	1.02	0.053	0.159
PCB-16 22'3-TrCB	1.0	1.36	1.32	1.61	1.27	1.73	1.31	1.35	1.35	1.42	0.176	0.53
PCB-32 24'6-TrCB	1.0	1.18	1.26	1.29	1.06	1.48	1.19	1.24	1.11	1.24	0.128	0.385
PCB-34 23'5'-TrCB	1.0	0.94	0.96	0.97	0.90	0.96	0.99	0.95	0.94	0.95	0.029	0.09
PCB-23 235-TrCB	1.0	0.93	1.01	0.93	1.00	0.99	0.94	1.01	1.06	0.97	0.04	0.11
PCB-26/29 23'5/245-TrCB	2.0	2.10	2.15	2.19	2.09	2.63	2.19	2.17	2.15	2.22	0.186	0.56
PCB-25 23'4-TrCB	1.0	1.01	0.96	1.08	1.00	1.26	1.11	1.20	1.10	1.09	0.11	0.33
PCB-31 24'5-TrCB	1.0	1.52	1.51	1.83	1.48	2.39	1.60	1.63	1.59	1.71	0.323	0.97
PCB-28/20 244'/233'-TrCB	2.0	2.51	2.70	2.92	2.51	3.63	2.66	2.97	2.76	2.84	0.391	1.17
PCB-21/33 234/23'4'-TrCB	2.0	2.36	2.46	2.60	2.44	3.00	2.52	2.64	2.66	2.57	0.21	0.63
PCB-22 234'-TrCB	1.0	1.33	1.34	1.37	1.35	1.50	1.25	1.42	1.40	1.37	0.078	0.23
PCB-36 33'5-TrCB	1.0	1.0	1.1	1.0	1.0	1.0	1.0	0.9	1.06	1.0	0.04	0.12
PCB-39 34'5-TrCB	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.01	1.0	0.04	0.13
PCB-38 345-TrCB	1.0	1.04	1.06	1.04	1.04	0.98	1.01	1.05	1.04	1.03	0.026	0.08
PCB-35 33'4-TrCB	1.0	1.12	1.13	1.06	1.13	0.98	1.07	1.11	1.10	1.09	0.053	0.159
PCB-37 344'-TrCB	1.0	1.3	1.34	1.42	1.23	1.34	1.33	1.33	1.38	1.33	0.055	0.17
PCB-54 22'66'-TeCB	1.0	1.11	0.99	1.06	1.09	1.08	1.14	0.99	1.09	1.07	0.057	0.17
PCB-50/53 22'46/22'56'-TeCB	2.0	2.20	2.19	2.36	2.15	2.52	2.32	2.20	2.02	2.28	0.131	0.393
PCB-45 22'36-TeCB	1.0	1.29	1.16	1.59	1.39		1.37	1.34	1.27	1.36	0.141	0.44
PCB-51 22'46'-TeCB	1.0	1.03	1.23	1.02	0.92		1.18	1.13	1.27	1.09	0.115	0.361
PCB-46 22'36'-TeCB	1.0	0.97	1.14	1.06	0.97	1.15	1.13	1.09	1.06	1.07	0.077	0.23
PCB-52 22'55'-TeCB	1.0	2.65	2.97	3.33	2.71	6.06	3.45	2.83	2.63	3.43	1.199	3.595
PCB-73 23'5'6-TeCB	1.0	0.99	0.95	1.04	1.06	1.05	0.99	0.90	0.96	1.00	0.058	0.17
PCB-43 22'35-TeCB	1.0	1.0	1.2	1.1	1.1	1.2	1.0	0.9	0.92	1.1	0.08	0.25
PCB-69/49 23'46/22'45'-TeCB	2.0	2.66	2.96	3.01	2.71	3.99	3.09	2.79	2.64	3.03	0.452	1.36
PCB-48 22'45-TeCB	1.0	1.14	1.20	1.16	1.07	1.40	1.10	1.11	1.10	1.17	0.111	0.331
PCB-44/47/65 ...-TeCB	3.0	4.47	4.84	5.40	4.49		5.79	4.73	4.87	4.95	0.531	1.67
PCB-59/62/75 ...-TeCB	3.0	3.12	3.21	3.16	2.91	3.34	3.39	3.11	2.86	3.18	0.159	0.478
PCB-42 22'34'-TeCB	1.0	1.31	1.19	1.41	1.24	1.57	1.36	1.21	1.24	1.33	0.134	0.401
PCB-41 22'34-TeCB	1.0	1.12	1.08	1.16	1.05	1.17	1.14	1.12	1.15	1.12	0.043	0.128
PCB-71/40 23'4'6/22'33'-TeCB	2.0	2.39	2.42	2.54	2.31	2.73	2.49	2.38	2.34	2.47	0.139	0.416
PCB-64 234'6-TeCB	1.0	1.36	1.43	1.46	1.26	1.69	1.42	1.41	1.31	1.43	0.131	0.392
PCB-72 23'55'-TeCB	1.0	0.82	0.86	0.88	0.68	1.00	0.91	1.02	1.01	0.88	0.114	0.341
PCB-68 23'45'-TeCB	1.0	0.86	1.10	1.07	0.94		0.99	0.92	1.09	0.98	0.092	0.290
PCB-57 233'5-TeCB	1.0	0.90	0.68	0.93	0.68	0.82	0.85	0.97	0.97	0.83	0.117	0.35
PCB-58 233'5'-TeCB	1.0	0.95	0.86	1.01	0.73	1.01	0.95	1.05	1.08	0.94	0.111	0.332
PCB-67 23'45-TeCB	1.0	0.93	0.82	0.95	0.89	0.97	0.87	0.99	0.95	0.92	0.061	0.182
PCB-63 234'5-TeCB	1.0	0.97	0.77	0.82	0.65	0.88	0.80	0.78	0.92	0.81	0.100	0.30
PCB-61/70/74/76 ...-TeCB	4.0	5.45	5.33	5.83	4.79	6.56	5.95	5.79	5.44	5.67	0.555	1.66
PCB-66 23'44'-TeCB	1.0	1.73	1.53	1.81	1.37	1.99	1.83	1.79	1.75	1.72	0.207	0.62
PCB-55 233'4-TeCB	1.0	1.00	0.78	0.93	0.72	0.85	0.97	0.83	0.96	0.87	0.102	0.31
PCB-56 233'4'-TeCB	1.0	1.24	1.16	1.35	0.99	1.24	1.39	1.18	1.30	1.22	0.131	0.393

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-60 2344'-TeCB	1.0	1.00	1.06	1.09	0.75	1.12	1.03	1.02	1.11	1.01	0.122	0.367
PCB-80 33'55'-TeCB	1.0	0.71	0.84	0.83	0.70	0.86	0.89	1.01	1.02	0.83	0.107	0.320
PCB-79 33'45'-TeCB	1.0	1.00	0.76	0.98	0.89	1.11	1.05	1.11	1.02	0.99	0.126	0.378
PCB-78 33'45-TeCB	1.0	0.8	0.7	1.0	0.8	0.9	0.9	1.0	0.98	0.9	0.120	0.36
PCB-104 22'466'-PeCB	1.0	1.17	1.13	1.16	1.05	1.17	1.11	1.07	1.15	1.12	0.049	0.15
PCB-96 22'366'-PeCB	1.0	1.02	0.94	1.02	1.03	1.01	0.98	0.96	0.98	0.99	0.034	0.10
PCB-103 22'45'6-PeCB	1.0	0.98	0.97	0.98	0.87	1.04	1.00	1.07	1.02	0.99	0.062	0.19
PCB-94 22'356'-PeCB	1.0	1.0	0.9	1.0	0.9	0.9	0.9	1.0	1.04	1.0	0.066	0.20
PCB-95 22'35'6-PeCB	1.0	3.0	2.9	3.8	3.0	5.2	4.0	3.4	3.15	3.6	0.808	2.423
PCB-100/93 22'44'6/22'356-PeC	2.0	1.96	2.0	1.9	1.8	1.9	2.0	2.0	1.86	1.9	0.078	0.23
PCB-102 22'456'-PeCB	1.0	1.17	1.24	1.18	1.11	1.01	1.05	1.32	1.23	1.15	0.108	0.322
PCB-98 22'34'6'-PeCB	1.0	1.29	0.95	1.00	0.79	1.04	1.06	1.00	1.07	1.02	0.151	0.452
PCB-88 22'346-PeCB	1.0	1.07	0.94	0.78	0.63	0.82	0.90	0.93	1.11	0.87	0.139	0.416
PCB-91 22'34'6-PeCB	1.0	1.41	1.70	1.71	1.45	1.92	1.78	1.64	1.47	1.66	0.179	0.538
PCB-84 22'33'6-PeCB	1.0	1.74	1.81	2.04	1.65	2.37	2.25	1.96	1.82	1.97	0.266	0.80
PCB-89 22'346'-PeCB	1.0	1.07	1.04	0.97	0.80	0.83	1.00	1.01	0.96	0.96	0.106	0.32
PCB-121 23'45'6-PeCB	1.0	0.90	1.00	0.87	0.79	0.92	0.95	0.84	0.87	0.90	0.069	0.21
PCB-92 22'355'-PeCB	1.0	1.37	1.33	1.46	1.14	1.61	1.53	1.49	1.32	1.42	0.155	0.46
PCB-113/90/101 ...-PeCB	3.0	4.92	4.54	5.56	4.82	6.41	6.19	5.48	5.29	5.42	0.705	2.113
PCB-83 22'33'5-PeCB	1.0	0.78	0.93	1.42	1.10	1.07	1.19	1.00	0.97	1.07	0.202	0.61
PCB-99 22'44'5-PeCB	1.0	2.28	2.25	2.38	2.03	2.99	2.91	2.55	2.54	2.48	0.355	1.064
PCB-112 233'56-PeCB	1.0	1.02	1.02	0.91	0.89	0.97	0.95	0.98	0.99	0.96	0.051	0.152
PCB-108/119/86/97/125...-PeC	6.0	7.17	7.31	7.65	7.06	8.00	8.31	7.85	7.60	7.62	0.463	1.388
PCB-117 234'56-PeCB	1.0	1.05	1.06	1.04	0.82	0.76	0.83	0.99	1.08	0.94	0.129	0.386
PCB-116/85 23456/22'344'-PeC	2.0	2.22	2.14	2.14	1.99	2.05	2.16	2.10	2.07	2.11	0.076	0.23
PCB-110 233'4'6-PeCB	1.0	2.87	3.17	4.49	3.22	4.12	4.98	3.77	3.61	3.80	0.771	2.313
PCB-115 2344'6-PeCB	1.0	1.06	0.68	0.69	0.97	0.92	0.56	0.81	0.51	0.81	0.179	0.537
PCB-82 22'33'4-PeCB	1.0	1.21	1.10	1.32	1.16	1.25	1.20	1.06	1.14	1.19	0.088	0.265
PCB-111 233'55'-PeCB	1.0	0.98	1.00	0.87	0.88	0.93	0.93	0.94	0.89	0.93	0.048	0.14
PCB-120 23'455'-PeCB	1.0	0.92	1.03	0.88	0.91	0.97	0.97	0.82	0.90	0.93	0.069	0.21
PCB-107/124 ...-PeCB	2.0	1.91	1.92	2.05	1.87	1.75	1.94	1.97	1.86	1.92	0.092	0.277
PCB-109 233'46-PeCB	1.0	0.88	1.01	1.03	0.97	1.03	1.07	1.04	1.04	1.01	0.062	0.186
PCB-106 233'45-PeCB	1.0	0.99	1.07	0.96	0.92	0.86	0.99	0.95	0.94	0.96	0.07	0.20
PCB-122 233'4'5'-PeCB	1.0	0.97	1.00	0.94	0.87	0.96	0.88	0.87	0.90	0.93	0.055	0.16
PCB-127 33'455'-PeCB	1.0	0.91	0.91	0.87	0.94	0.84	0.92	0.99	0.89	0.91	0.050	0.15
PCB-155 22'44'66'-HxCB	1.0	1.04	1.03	1.05	1.01	1.03	1.00	1.02	1.10	1.03	0.017	0.052
PCB-152 22'3566'-HxCB	1.0	0.95	1.02	0.92	1.04	0.93	0.97	0.87	0.96	0.96	0.059	0.18
PCB-150 22'34'66'-HxCB	1.0	0.89	0.76	0.86	0.87	0.89	0.79	0.93	0.90	0.86	0.062	0.19
PCB-136 22'33'66'-HxCB	1.0	1.10	1.3	1.5	1.3	1.68	1.56	1.34	1.16	1.40	0.1993	0.598
PCB-145 22'3466'-HxCB	1.0	0.92	0.99	0.94	1.02	1.03	0.96	0.98	0.86	0.98	0.040	0.119
PCB-148 22'34'56'-HxCB	1.0	0.84	0.95	0.97	0.90	0.93	0.85	0.89	0.84	0.90	0.048	0.145
PCB-151/135 ...-HxCB	2.0	2.44	2.28	3.00	2.69	2.97	3.26	2.62	2.25	2.75	0.344	1.03

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-154 22'44'56'-HxCB	1.0	0.96	0.97	1.00	1.00	0.98	0.88	0.91	0.81	0.95	0.045	0.14
PCB-144 22'345'6-HxCB	1.0	0.9	1.0	1.13	1.1	1.1	1.07	1.0	0.95	1.0	0.062	0.19
PCB-147/149 ...-HxCB	2.0	3.35	3.18	4.81	3.64	5.08	5.51	3.93	3.68	4.21	0.914	2.74
PCB-134 22'33'56-HxCB	1.0	1.01	1.05	1.26	0.92	1.10	0.95	1.00	1.05	1.04	0.113	0.338
PCB-143 22'3456'-HxCB	1.0	0.83	0.93	0.84	1.12	0.84	0.99	0.82	1.01	0.91	0.112	0.34
PCB-139/140 ...-HxCB	2.0	1.88	1.82	2.01	1.90	1.75	1.71	1.92	1.66	1.86	0.103	0.31
PCB-131 22'33'46-HxCB	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.04	1.0	0.044	0.13
PCB-142 22'3456-HxCB	1.0	0.84	0.97	0.86	1.01	0.86	0.96	0.97	0.85	0.92	0.067	0.20
PCB-132 22'33'46'-HxCB	1.0	1.61	1.67	2.40	1.75	2.17	2.85	1.92	1.93	2.05	0.451	1.353
PCB-133 22'33'55'-HxCB	1.0	1.02	0.96	0.92	0.82	0.99	0.85	0.91	0.87	0.92	0.071	0.21
PCB-165 233'55'6-HxCB	1.0	0.90	1.00	0.92	0.94	0.87	0.92	0.87	0.94	0.92	0.046	0.139
PCB-146 22'34'55'-HxCB	1.0	1.14	1.13	1.45	1.28	1.25	1.43	1.29	1.31	1.28	0.125	0.376
PCB-161 233'45'6-HxCB	1.0	0.86	0.85	0.85	0.92	0.90	0.88	0.94	0.89	0.89	0.035	0.106
PCB-153/168 ...-HxCB	2.0	2.70	2.90	3.85	3.18	3.79	4.54	3.47	3.41	3.49	0.631	1.892
PCB-141 22'3455'-HxCB	1.0	1.16	1.10	1.50	1.21	1.36	1.62	1.29	1.17	1.32	0.188	0.562
PCB-130 22'33'45'-HxCB	1.0	0.95	0.93	0.97	0.93	0.98	1.13	0.99	1.00	0.98	0.069	0.208
PCB-137 22'344'5-HxCB	1.0	1.15	1.06	1.09	1.05	1.06	1.01	0.91	0.97	1.05	0.074	0.222
PCB-164 233'4'5'6-HxCB	1.0	1.00	0.91	1.09	0.93	0.98	1.12	1.16	1.02	1.03	0.097	0.29
PCB-163/138/129 ...-HxCB	3.0	4.35	4.16	6.52	4.60	5.41	6.90	5.33	5.03	5.32	1.061	3.18
PCB-160 233'456-HxCB	1.0	0.67	0.76	0.76	0.92	0.77	0.78	0.87	0.81	0.79	0.082	0.25
PCB-158 233'44'6-HxCB	1.0	1.07	1.05	1.26	1.04	1.13	1.19	1.16	1.11	1.13	0.081	0.24
PCB-128/166 ...-HxCB	2.0	2.27	2.17	2.51	2.27	2.48	2.70	2.19	2.28	2.37	0.197	0.59
PCB-159 233'455'-HxCB	1.0	0.95	0.99	1.06	1.09	1.05	1.05	0.99	1.00	1.03	0.048	0.14
PCB-162 233'4'55'-HxCB	1.0	0.99	0.98	1.07	0.95	1.02	1.01	1.00	1.01	1.00	0.039	0.12
PCB-188 22'34'566'-HpCB	1.0	1.15	1.07	1.11	1.15	0.96	1.11	1.15	1.07	1.10	0.07	0.21
PCB-179 22'33'566'-HpCB	1.0	1.22	0.91	1.74	1.21	1.17	1.63	1.30	1.25	1.31	0.28	0.85
PCB-184 22'344'66'-HpCB	1.0	1.05	1.02	0.93	0.99	0.85	0.94	1.01	0.89	0.97	0.068	0.204
PCB-176 22'33'466'-HpCB	1.0	0.95	0.83	1.10	1.03	1.01	1.13	1.09	0.93	1.02	0.102	0.307
PCB-186 22'34566'-HpCB	1.0	0.95	1.07	0.92	0.96	0.93	0.98	0.90	0.88	0.96	0.055	0.16
PCB-178 22'33'55'6-HpCB	1.0	1.03	0.85	1.01	1.02	1.04	1.18	1.00	1.04	1.02	0.096	0.287
PCB-175 22'33'45'6-HpCB	1.0	0.90	0.85	0.92	1.06	0.88	0.96	0.94	0.86	0.93	0.069	0.206
PCB-187 22'34'55'6-HpCB	1.0	1.32	1.43	2.00	1.44	1.82	2.33	1.67	1.84	1.72	0.362	1.085
PCB-182 22'344'56'-HpCB	1.0	0.98	0.87	0.92	0.95	0.94	1.01	1.01	0.94	0.95	0.052	0.155
PCB-183 22'344'5'6-HpCB	1.0	1.00	1.06	1.34	0.99	1.31	1.46	1.25	1.28	1.20	0.186	0.556
PCB-185 22'3455'6-HpCB	1.0	1.01	1.06	1.06	0.97	1.20	1.21	1.02	1.20	1.08	0.093	0.279
PCB-174 22'33'456'-HpCB	1.0	1.23	1.25	2.14	1.53	1.85	2.33	1.78	2.00	1.73	0.421	1.263
PCB-177 22'33'45'6'-HpCB	1.0	1.12	1.22	1.50	1.20	1.42	1.69	1.43	1.49	1.37	0.200	0.599
PCB-181 22'344'56-HpCB	1.0	0.93	0.88	0.94	0.97	0.95	0.96	1.09	0.93	0.96	0.064	0.19
PCB-171/173 ...-HpCB	2.0	1.90	1.83	2.30	1.97	2.11	2.14	2.14	2.13	2.06	0.163	0.49
PCB-172 22'33'455'-HpCB	1.0	1.0	1.0	1.0	1.0	0.9	1.1	1.1	0.91	1.0	0.081	0.24
PCB-192 233'455'6-HpCB	1.0	0.9	0.9	0.8	0.9	0.8	0.9	1.0	0.82	0.9	0.068	0.20
PCB-180/193 ...-HpCB	2.0	2.32	2.18	3.56	2.76	3.17	3.62	2.94	2.89	2.94	0.562	1.68

Contaminant	Test Conc. pg/g	MDL Replicates								X	SD	Calc. MDL
		1	2	3	4	5	6	7	8			
PCB-191 233'44'5'6-HpCB	1.0	0.88	0.93	1.03	0.82	1.00	0.97	1.04	0.96	0.95	0.081	0.24
PCB-170 22'33'44'5-HpCB	1.0	1.23	1.09	1.67	1.26	1.49	1.51	1.46	1.43	1.39	0.200	0.60
PCB-190 233'44'56-HpCB	1.0	1.00	0.92	1.05	1.05	1.00	1.02	1.10	0.97	1.02	0.056	0.17
PCB-202 22'33'55'66'-OcCB	1.0	1.00	0.86	1.03	0.95	1.03	0.90	1.05	0.91	0.97	0.073	0.218
PCB-201 22'33'45'66'-OcCB	1.0	1.03	1.04	1.15	1.01	1.15	0.96	0.99	0.91	1.05	0.075	0.224
PCB-204 22'344'566'-OcCB	1.0	0.97	1.01	0.87	0.91	0.94	0.83	0.86	0.79	0.91	0.065	0.195
PCB-197 22'33'44'66'-OcCB	1.0	0.99	0.92	0.77	1.05	1.06	0.99	1.00	0.82	0.97	0.100	0.299
PCB-200 22'33'4566'-OcCB	1.0	0.96	1.07	0.93	0.96	1.00	1.06	0.93	0.87	0.99	0.058	0.174
PCB-198/199 ...-OcCB	2.0	2.03	2.11	2.27	2.34	2.30	2.36	2.25	2.25	2.24	0.122	0.367
PCB-196 22'33'44'56'-OcCB	1.0	0.98	0.98	1.04	1.14	1.07	1.04	1.03	1.10	1.04	0.054	0.161
PCB-203 22'344'55'6-OcCB	1.0	1.08	1.03	1.29	1.11	1.12	1.14	1.15	1.07	1.13	0.081	0.242
PCB-195 22'33'44'56-OcCB	1.0	1.20	1.05	0.99	1.12	1.13	1.19	1.08	1.06	1.11	0.074	0.222
PCB-194 22'33'44'55'-OcCB	1.0	1.37	1.06	1.23	1.14	1.27	1.25	1.26	1.20	1.23	0.099	0.298
PCB-205 233'44'55'6-OcCB	1.0	0.93	1.03	1.06	0.90	1.02	0.91	0.91	1.03	0.97	0.068	0.205
PCB-208 22'33'455'66'-NoCB	1.0	0.98	0.80	1.02	1.09	1.01	0.92	1.04	0.93	0.98	0.096	0.287
PCB-207 22'33'44'566'-NoCB	1.0	0.94	0.87	0.90	0.87	0.87	0.89	0.86	0.82	0.89	0.027	0.082
PCB-206 22'33'44'55'6-NoCB	1.0	ND	1.23	1.28	0.84	0.98	1.19	1.15	1.04	1.11	0.168	0.504

Method Detection Limit Study

SGS ESI

Method: SW8290
Prep Method: SPE
Instrument ID: HRMS3
Reference: V1382

Date Analyzed: 3/2/16
Analyst: ARL
Prep Analyst: BJF
Matrix: Water
Sample Weight / Volume: 1 L

Units: pg/L

Target Compound	Spike Conc.	MDL Replicates 1	2	3	4	5	6	7	8		AVE	STD DEV	Calc. MDL	RL
2,3,7,8-TCDD	5.0	5.370	5.270	5.230	5.420	5.310	5.900	4.940	4.560		5.25	0.3859	1.160	5.00
1,2,3,7,8-PeCDD	25.0	23.80	24.50	24.00	26.30	25.30	26.00	24.60	27.00		25.20	1.156	3.460	25.0
1,2,3,4,7,8-HxCDD	25.0	25.50	27.00	27.00	29.50	27.60	25.90	28.90	29.00		27.60	1.476	4.430	25.0
1,2,3,6,7,8-HxCDD	25.0	28.30	28.90	28.30	29.40	30.90	28.20	27.10	28.20		28.70	1.117	3.350	25.0
1,2,3,7,8,9-HxCDD	25.0	24.30	25.10	26.10	25.60	27.10	26.00	28.10	25.30		26.00	1.193	3.580	25.0
1,2,3,4,6,7,8-HpCDD	25.0	25.80	29.50	27.90	27.80	27.20	25.80	29.10	27.50		27.60	1.344	4.030	25.0
OCDD	50.0	57.00	52.80	56.40	59.10	55.90	56.90	55.50	56.40		56.30	1.762	5.280	50.0
2,3,7,8-TCDF	5.0	6.290	5.270	4.310	6.570	6.550	6.420	5.470	6.270		5.89	0.8054	2.410	5.00
1,2,3,7,8-PeCDF	25.0	25.70	27.00	25.60	28.90	27.70	26.50	26.00	26.80		26.80	1.111	3.330	25.0
2,3,4,7,8-PeCDF	25.0	25.50	26.80	26.50	30.20	27.60	28.70	28.00	27.60		27.60	1.434	4.300	25.0
1,2,3,4,7,8-HxCDF	25.0	25.10	26.50	26.00	28.20	26.10	25.90	27.10	27.40		26.50	0.9841	2.950	25.0
1,2,3,6,7,8-HxCDF	25.0	25.20	27.00	26.70	28.10	26.90	27.30	26.70	27.40		26.90	0.8306	2.490	25.0
1,2,3,4,6,7,8-HpCDF	25.0	25.80	26.40	25.30	28.50	27.80	26.10	29.20	28.40		27.20	1.459	4.380	25.0
1,2,3,4,7,8,9-HpCDF	25.0	26.70	24.70	25.70	26.70	25.90	26.10	28.20	27.10		26.40	1.044	3.130	25.0
OCDF	50.0	57.60	59.30	48.40	62.30	55.50	67.90	54.50	55.80		57.70	5.769	17.300	50.0

Method Detection Limit Study

SGS ESI

Method: SW8290
Prep Method: SW3540
Instrument ID: MM3
Reference: V1383,V1422

Date Analyzed: 3/1/16
Analyst: LKB/AL
Prep Analyst: BAH/JHL
Matrix: Solid
Sample Weight / Volume: 10 g

Units: pg/g

Target Compound	Spike Conc.	MDL Replicates 1	2	3	4	5	6	7	8		AVE	STD DEV	Calc. MDL	RL
2,3,7,8-TCDD	0.5	0.472	0.472	0.449	0.526	0.500	0.516	0.413	0.420		0.47	0.04199	0.126	0.50
1,2,3,7,8-PeCDD	2.5	2.36	2.28	2.34	2.56	2.37	2.25	2.40	2.31		2.36	0.09493	0.285	2.5
1,2,3,4,7,8-HxCDD	2.5	2.50	2.44	2.37	2.54	2.45	2.46	2.34	2.29		2.42	0.084	0.252	2.5
1,2,3,6,7,8-HxCDD	2.5	2.30	2.44	2.63	2.68	2.41	2.45	2.46	2.46		2.48	0.1214	0.364	2.5
1,2,3,7,8,9-HxCDD	2.5	2.37	2.30	2.41	2.27	2.21	2.29	2.36	2.45		2.33	0.07906	0.237	2.5
1,2,3,4,6,7,8-HpCDD	2.5	2.35	2.29	2.46	2.44	2.57	2.40	2.56	2.41		2.44	0.09607	0.288	2.5
OCDD	5.0	5.25	4.94	4.90	5.10	5.25	4.71	5.12	4.72		5.00	0.2156	0.646	5.0
2,3,7,8-TCDF	0.5	0.586	0.466	0.520	0.486	0.503	0.490	0.513	0.488		0.51	0.03632	0.109	0.50
1,2,3,7,8-PeCDF	2.5	2.20	2.29	2.24	2.49	2.29	2.36	2.19	2.37		2.30	0.1003	0.301	2.5
2,3,4,7,8-PeCDF	2.5	2.29	2.45	2.52	2.59	2.56	2.57	2.52	2.53		2.50	0.0962	0.288	2.5
1,2,3,4,7,8-HxCDF	2.5	2.25	2.39	2.19	2.58	2.27	2.28	2.27	2.40		2.33	0.1235	0.370	2.5
1,2,3,6,7,8-HxCDF*	2.5	2.51	2.19	2.49	2.41	2.42	2.30	2.26	2.56		2.39	0.1307	0.392	2.5
2,3,4,6,7,8-HxCDF*	2.5	2.55	2.39	2.46	2.31	2.20	2.22	2.22	2.28		2.33	0.127	0.38	2.5
1,2,3,7,8,9-HxCDF*	2.5	2.61	2.46	2.45	2.54	2.21	2.60	2.45	2.21		2.44	0.1562	0.47	2.5
1,2,3,4,6,7,8-HpCDF*	2.5	2.53	2.20	2.37	2.55	2.36	2.22	2.38	2.39		2.38	0.1252	0.38	2.5
1,2,3,4,7,8,9-HpCDF	2.5	2.28	2.43	2.45	2.63	2.40	2.62	2.32	2.34		2.43	0.1309	0.393	2.5
OCDF	5.0	4.51	5.13	4.70	5.37	4.91	4.54	4.84	4.86		4.86	0.2894	0.868	5.0

*MDL data from 1/18/17

ATTACHMENT 3

QUALITY ASSURANCE PROJECT PLAN (QAPP)

Former E.A. Nord Door Site

Source Control Evaluation Work Plan
Attachment 3: Quality Assurance Project Plan

Prepared for: JELD-WEN, Inc.

SLR Project No.: 108.00228.00048

November 2017

CONTENTS

TABLES

1. PURPOSE AND PROJECT ORGANIZATION

1.1 PURPOSE

The purpose of this Quality Assurance Project Plan (QAPP) is to identify the quality assurance and quality control (QA/QC) protocols necessary to achieve the project-specific data quality objectives (DQOs) for the proposed sampling activities at the Former E.A. Nord Door facility located in Everett, Washington (Site). This QAPP has been prepared as an attachment to the Source Control Evaluation (SCE) Work Plan to Assess Data Gaps for Completion of the Remedial Investigation (RI)/Feasibility Study (FS) for the project. Additional background information is available in the SCE Work Plan.

1.2 PROJECT ORGANIZATION

Primary responsibility for project quality rests with SLR project manager (PM), Mr. Scott Miller. The PM will review all project deliverables before submittal to appropriate regulatory agencies. Where quality assurance problems or deficiencies are observed, the PM will identify the appropriate corrective action to be initiated.

2. DATA QUALITY OBJECTIVES

This section presents the DQOs for the sampling project. This sampling program is being initiated to complete additional assessment activities focused data gaps identified during Washington Department of Ecology's initial review of the RI/FS. Analytical data results will be used to further characterize groundwater seeps and the North Truck Dock stormwater sump.

The sampling locations and selected analyses have been selected to meet the DQOs. An important DQO for this project is to obtain appropriate laboratory reporting limits in relation to site-specific Preliminary Cleanup Levels (PCLs). Laboratory practical quantitation limits (PQLs) and corresponding PCLs are included in Table 1 of the Sampling and Analysis Plan (SAP), included as Attachment 2 to the SCE Work Plan.

2.1 QUANTITATIVE OBJECTIVES: PRECISION, ACCURACY, AND COMPLETENESS

2.1.1 ACCURACY

Accuracy quantifies the extent to which a measurement agrees with a known reference or true value. It is determined in the analytical laboratory by "spiking" samples with a known concentration of analyte and comparing the measured concentration with the spiked value. Accuracy is expressed as a percentage, known as the recovery (R) of the measured concentration (C_m) less the sample or "background" concentration (C_b) to the spike concentration (C_s):

$$R = \frac{(C_m - C_b)}{C_s} x100$$

Accuracy can be measured on both an individual sample basis with the use of surrogate spikes (organic analyses only) and for each group of samples analyzed together as a "batch." For this project, accuracy will be assessed through the use of both surrogate and batch QC.

For the batch QC, one or more of the following types of spiked samples are used to assess the accuracy of the method for the batch:

- Matrix or Sample Spike (MS): One sample in the batch is spiked and analyzed to determine R (usually analyzed with a matrix or sample spike duplicate; see Precision)
- Blank Spike (BS): A laboratory-prepared blank sample is spiked and analyzed to determine R (usually analyzed with a blank spike duplicate; see Precision)
- Laboratory Control Sample (LCS): A laboratory-prepared blank sample is spiked and analyzed to determine R (may be analyzed with a duplicate)

Accuracy goals (acceptance limits for R) are established by the analytical laboratory for each method and detailed in the analytical reports. Accuracy goals vary by MS, BS, and LCS, and they are updated annually (see **Table 1** of this QAPP for accuracy goals provided by Environmental Science Corp. [ESC] and SGS North America [SGS]). Out-of-range recoveries are summarized by the laboratory in the case narrative for the analytical report. This information is used for data validation as described in Section 4 of this QAPP.

2.1.2 PRECISION

Precision (reproducibility) is estimated by comparing the analytical results of duplicate samples. Precision is determined at both the field and laboratory levels. As presented in the SAP, one blind duplicate sample will be collected for every 10 environmental samples. The blind duplicate will be analyzed for the same suite of analyses as the corresponding sample.

Precision is also measured as an internal laboratory batch QC check for all analytical methods. Laboratory MS and/or BS analyses are analyzed in duplicate. The analytical results are compared and reported by the laboratory as the relative percent difference (RPD),

$$RPD = \frac{2|C_1 - C_2|}{C_1 + C_2} x100$$

where C_1 and C_2 are the concentrations in the duplicate samples.

In addition to the MS and BS, the laboratory may split an environmental sample from a single container to create a laboratory duplicate.

Precision goals (upper limits for the RPD) are established by the analytical laboratory for each method and detailed in analytical reports. Precision goals vary by MS, BS, and laboratory duplicates, and they are updated annually. Current precisions goals provided by the analytical laboratories are included in **Table 1**. Out-of-range precisions are summarized by the laboratory in the case narrative for the analytical report. This information is used for data validation as described in Section 4 if this QAPP.

Precision values for the field duplicates will be calculated upon receipt of the analytical data. The precision goals established by the laboratory for the BS will be adopted for the field duplicates. Precision will only be calculated for analytes at or above concentrations ten times the reporting limit. Out-of-range precision values for field duplicates will be used for data validation as described in Section 4 of this QAPP.

2.1.3 COMPLETENESS

Completeness (C) is the percentage of measurements planned (N_p) that are actually obtained and validated (N_v):

$$C = \frac{N_v}{N_p} x100$$

Each of the QC sample types described in the SAP (i.e. field duplicates) is used in the data validation process; consequently, each plays a role in assessing completeness. Completeness provides a final, overall measure of data quality for each sampling event.

The goal is to achieve 100% data completeness. Where data are not complete, professional judgment will be used to either qualify the data or reject the data. Actions and remedies such as re-sampling or re-analysis may be necessary, depending on the required data quality.

2.2 QUALITATIVE OBJECTIVES: COMPARABILITY AND REPRESENTATIVENESS

2.2.1 REPRESENTATIVENESS

An important goal of the sampling events is to collect data that are representative of conditions at the site. Since the true conditions, i.e., chemical concentrations, are not known in an absolute sense, they cannot be compared to the measured values in a quantitative fashion. Instead, quality control samples and other procedures are used to qualitatively assess data representativeness.

Field procedures such as equipment decontamination before sampling and adherence to established practices for sample collection (described in Section 3 of the SAP), help ensure that the data collected represent conditions at the site and are not compromised by sampling methods or cross-contamination.

Additional procedures used to qualitatively assess data representativeness are presented in Section 3 and Section 4 of this QAPP.

2.2.2 COMPARABILITY

Comparability describes the extent to which valid comparisons between measurements taken at different locations and different times can be made. Like representativeness, comparability can only be ensured in a qualitative fashion. Consistency in sampling methods, measurement devices, calibration practices, and reporting limits and units will help to ensure comparability. Deviations from protocols will be noted and used for data validation as described in Section 4 of this QAPP.

2.3 FIELD DATA QUALITY ASSURANCE OBJECTIVES

This QAPP also presents the field data quality assurance objectives for the sampling project. The field data quality assurance objectives include field measurements and observations, chain-of-custody procedures, and sample handling procedures.

2.3.1 FIELD MEASUREMENT AND OBSERVATION

Field measurements and observations will be recorded in the project log notes or on designated field data sheets. Sufficient information will be recorded so that all field activities can be reconstructed without reliance on personnel memory. Entries will be recorded legibly directly in waterproof ink and will be signed/initialed and dated by the person conducting the work at the end of each field day. If changes are made, the changes will not obscure the previous entry, and the changes will be initialed and dated. At a minimum, the following data will be recorded:

- Location of activity
- Description of sampling reference point(s)
- Date and time of any activity
- Sample number and volume or number of containers along with preservatives (if necessary)
- Field measurements made
- Relevant comments regarding field activities
- Initials of responsible personnel
- Any deviations from the original sampling plan and reasons for those deviations

2.3.2 CHAIN-OF-CUSTODY PROCEDURES

The management of samples collected in the field will follow specific procedures to maintain sample integrity. To maintain sample integrity, the samples will be handled by as few people as possible and the sample collector will be responsible for the care and custody of the samples. Sample possession will be tracked from collection to analysis. Each time the samples are transferred between parties, both the sender and receiver will sign and date the chain-of-custody form and specify what samples have been transferred, with the exception of commercial shipping activities (i.e., FedEx). When a sample shipment is sent to the laboratory, the original form will be placed with the samples and transmitted to the laboratory. A copy of the form will be retained in the project files. A chain-of-custody record will be completed for each batch of samples hand delivered or shipped to the laboratory.

The following information will be included on the chain-of-custody form:

- Sample number
- Sampler signature
- Sample collection date and time
- Site Name
- Sample type
- Inclusive dates of possession

- Signature of sender and receiver

In addition to the chain-of-custody form, other components of sample tracking will include the sample labels and seals, field logs, sample shipment receipt, and laboratory log book. The sample labels and seals will include the following information:

- Project name and number
- Name/initials of sampler
- Date and time of sample collection
- Sample location and number
- Preservation, if applicable

2.3.3 SAMPLE HANDLING PROCEDURES

Sampling plan design, sampling techniques, sampling locations, and sample handling protocols are included in the SAP to ensure that samples collected are representative of site conditions within the limitations of the collection technologies.

3. QUALITY CONTROL

Quality control checks consist of measurements and tests performed in the field and laboratory. The analytical methods that will be performed as a part of this project have routine quality control checks performed to evaluate the precision and accuracy and to determine whether the data are within the quality control limits.

3.1 FIELD QUALITY CONTROL METHODS

3.1.1 FIELD EQUIPMENT/RINSATE BLANKS

A field/equipment rinsate blank will be used to determine whether the equipment used for collection and/or compositing the samples contain chemicals of concern that may be introduced to the sample matrix. As presented in the SAP, one field/equipment rinsate blank will be collected for every 10 environmental samples.

3.1.2 BLIND DUPLICATE

The analytical results between the sample/blind duplicate will be used to assess variance of the total method, including sampling and analysis. As presented in the SAP, one blind duplicate will be collected for every 10 environmental samples.

3.2 LABORATORY QUALITY CONTROL METHODS

Specific procedures and frequencies for laboratory quality control are detailed by the analytical method in the laboratory's Quality Assurance Manual. A general description of the types of laboratory quality control samples is as follows:

3.2.1 METHOD BLANKS

A minimum of one laboratory method blank will be analyzed per twenty samples or one per batch (whichever is greater) to assess possible laboratory contamination. Method blanks will contain all reagents and undergo all procedural steps used for analysis.

3.2.2 CONTROL SAMPLES

A minimum of one laboratory control sample per twenty samples or one per batch (whichever is greater) will be analyzed to verify the precision of the laboratory equipment. The control sample will be at a concentration within the calibration range but at a different concentration than the standards used to establish the calibration curve.

3.2.3 MATRIX SPIKE

A minimum of one laboratory matrix spike sample will be analyzed per twenty samples or one per batch (whichever is greater) to monitor recoveries and assure that extraction and concentration levels are acceptable for quality assurance and quality control review.

4. DATA VALIDATION AND USABILITY

This section of the QAPP addresses the final project QA to determine if the data collected during site sampling activities conform to the specified criteria discussed in the SAP and estimate the effects of any deviations.

4.1 DATA VALIDATION GUIDANCE

Field and laboratory data will be evaluated with respect to the DQOs discussed in Section 2.0 of this QAPP and based on the United States Environmental Protection Agency (EPA)'s *Guidance on Environmental Data Verification and Data Validation* (EPA, 2002). The process presented below will invalidate data determined to be inaccurate, imprecise, unrepresentative, or incomparable. Completeness will be calculated for each analyte as the last step in the validation process.

4.2 STEP 1 – LABORATORY EVALUATION

The standard laboratory data package will correspond with the EPA2B validation level, with the exception of dioxin/furan and PCB congener analyses which will include an EPA4 validation level.

Each laboratory data package will be checked to ensure that the samples arrived intact and cold (temperature blank measure of 4±2°C). For each analyte, the sample collection dates and times will be compared to the dates of analysis to ensure that required hold times were not exceeded. Any non-conformances will be discussed with the laboratory to determine the effects on the validity of the analytical results. This discussion will be used to determine, on a case-by-case basis, if the data are unrepresentative and should be invalidated.

Second, each laboratory report will be reviewed for non-conformances in internal laboratory QC samples – positive detects in method blanks, surrogate or spiked sample recoveries that are out the accepted accuracy range, and relative percent differences between spiked sample duplicates that may indicate an unacceptable method precision. Usually, any non-conformances will be noted in the laboratory report case narrative along with an assessment, based on internal laboratory procedures, of whether the batch data are acceptable. Any data deemed invalid by the laboratory will also be invalidated by SLR's validation process; conversely, data deemed acceptable by the laboratory will also be accepted by SLR.

4.3 STEP 2 – EQUIPMENT BLANK EVALUATION

Equipment blanks collected during the sampling events will be assessed for detectable results. Equipment blank detects may invalidate analytical results if similar concentration levels are detected in associated samples. Equipment blank detects may be much lower in concentration than associated samples; in this case, the analytical sample results may be valid. The decision to invalidate data based on equipment blank results is made on a case-by-case basis.

Equipment blanks will not be evaluated if they were determined to be invalid in Step 1.

4.4 STEP 3 – EVALUATION OF FIELD DUPLICATES

To assess method precision, the RPD will be calculated for field duplicates as discussed in Section 2.1.2. Out-of-range precision values for field duplicates will invalidate the data for both samples.

4.5 STEP 4 – COMPLETENESS

Completeness will be calculated for each analyte as outlined in Section 2.1.3 to provide a final, overall measure of data quality for the project. A completeness goal of 100 percent is established.

5. DATA MANAGEMENT

This section addresses issues related to data sources, data processing, and data evaluation. Raw data generated in the field or received from analytical laboratories will be validated, entered into a computerized database, and verified for consistency and correctness.

5.1 FIELD DATA MANAGEMENT

Accurate documentation of field activities (e.g., field parameters measurements, field notes) will be maintained using field log books and/or field data forms. Entries will be made in sufficient detail to provide an accurate record of field activities without reliance on memory.

Field log entries will be dated and include a chronological description of task activities, names of individuals present, names of visitors, weather conditions, etc. All entries will be legibly entered in waterproof ink and initialed at the end of each field day by personnel performing the work.

5.2 ANALYTICAL DATA MANAGEMENT

Following QA/QC, all analytical data will be entered into a computerized database (i.e., MS Excel). The data may require some manipulation, such as common unit conversions and extraction from support information. To accomplish these manipulations, data reduction and tabulation techniques will be applied to the data and documented.

Several different tabular reports will be generated from the database. All analytical, locational, and tracking data will be stored in the database. Data reports for each type of analysis will be generated to produce standard reports.

Project data backups will be made concurrently with internal network server backup activities. Access to the database will be limited to the project manager and authorized project personnel.

5.3 SAMPLE MANAGEMENT

The sample management system forms the foundation of all other analytical data collection, verification, and QA/QC tasks. Analytical data cannot be considered valid unless all the proper steps have been carried out with respect to sample management. These include:

- Sample properly documented in field notes
- Chain of-custody requirements met
- All sample-related documents filed
- Use of unique sample identification numbers

Data that do not pass the QA/QC process either will be assigned data qualifiers to restrict or modify usage or will be rejected for use. Modifications to the use of data will be documented in data validation reports.

5.4 DATA REPORTING REQUIREMENTS

Quality assured data will be submitted to the Washington Department of Ecology's Environmental Information Management (EIM) database, per the data submittal protocol.

6. REFERENCES

United States Environmental Protection Agency (EPA). 2002. Guidance on Data Verification and Data Validation (EPA QA/G-8). November.

TABLES

Table 1: Laboratory Precision and Accuracy Goals
SCE Work Plan QAPP
Former E.A. Nord Door

Parameter	Laboratory Method	LCS/LCSD %R			MS/MSD %R		
		Lower	Upper	RPD Limit (%)	Lower	Upper	RPD Limit (%)
ESC Lab Sciences							
Total Petroleum Hydrocarbons (TPH)							
TPH-Dx (Diesel and Oil Range)	NWTPH-Dx	50	150	20	50	150	20
Carcinogenic Polynuclear Aromatic Hydrocarbons (cPAHs)							
Benzo(a)anthracene	8270D-SIM	46	120	20	21	123	26
Benzo(a)pyrene	8270D-SIM	46	120	21	23	120	27
Benzo(b)fluoranthene	8270D-SIM	45	120	22	20	127	29
Benzo(k)fluoranthene	8270D-SIM	45	120	23	22	123	28
Chrysene	8270D-SIM	46	120	20	19	127	27
Dibenz(a,h)anthracene	8270D-SIM	47	120	22	10	120	28
Indeno(1,2,3-cd)pyrene	8270D-SIM	48	120	21	10	120	30
Volatile Organic Compounds (VOCs)							
Benzene	8260C	20	71	124	13	146	27
Naphthalene	8260C	20	64	125	10	153	36
Conventional Parameters							
Total Solids	2540G	85	115	20	85	115	20
Total Organic Carbon (TOC)	9060	85	115	20	80	120	20
TVS (Total Volatile Solids)	160.4	85	115	20	85	115	20
Ammonia	350.1	85	115	20	90	110	20
SGS North America							
Dioxins and Furans							
Dioxins/furans	1613B	50	150	35	50	150	35
Polychlorinated Biphenyls (PCBs)							
PCB Congeners	1668C	50	150	35	50	150	35

Notes:
RPD - Relative percent difference
R - Recovery
LCS/LCSD - Laboratory Control Sample/LCS Duplicate
MS/MSD - Matrix Spike/MS Duplicate

ATTACHMENT 4

HEALTH SAFETY & ENVIRONMENTAL PLAN (HSEP)

SITE SPECIFIC HEALTH, SAFETY, and ENVIRONMENTAL PLAN

Client: JELD-WEN, inc.	Location: Former E.A. Nord, Everett, WA
SLR Project No.: 108.00228.00048	HSEP effective period: REV_October 2017
Project Name: Source Control Evaluation	

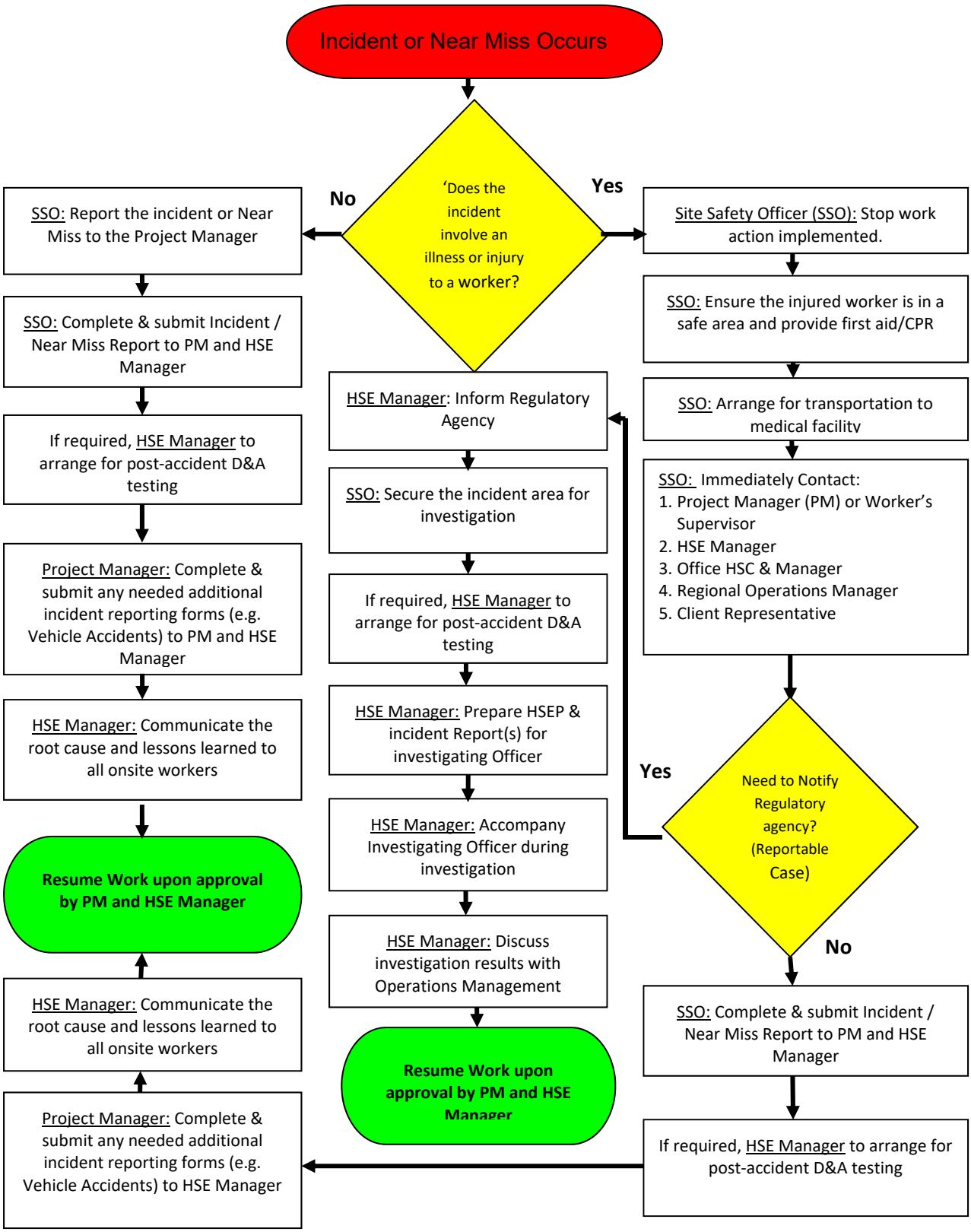
(HSEP must be updated if there are any changes in the scope of work)

1.0 Project Emergency Contact List

Local Emergency Numbers	Name	Telephone Numbers (Include AREA Code)	
Hospital / Ambulance Services	Providence Regional Medical Center	911 / (425) 261-2000	
First Aid Facilities	Providence Regional Medical Center	911 / (425) 261-2000	
Police	Everett Police Department	911 / (425) 257-8400	
Fire	Everett Fire Department	911 / (425) 257-8100	
Public Utilities	Snohomish Co. Public Works	(425) 388-3488	
Other:			
Client Contacts	**Name**	**Telephone Numbers**	
Corporate Contact	Dwayne Arino, JELD-WEN	Office	(541) 883-3373
		Cell	
Site Contact	Diane Keith, JELD-WEN (building access)	Office	(541) 883-3373
		Cell	
Other:		Office	
		Cell	
SLR Contacts	**Name**	**Telephone Numbers**	
Project Manager	Scott Miller	Office	(503) 723-4423
		Cell	(503) 572-1124
Site Safety Officer	Chris Kramer	Office	(503) 723-4423
		Cell	(503) 341-2187
Regional Operations Manager	Scott Miller	Office	(503) 723-4423
		Cell	(503) 572-1124
Local HSE Coordinator	Mel Bocianowski	Office	(503) 723-4423
		Cell	(503) 720-4870
Incident Reporting	Pat Moore, HSE Manager	Cell	(206) 478-6464
Subcontractor Companies	**Name**	**Telephone Numbers**	

2.0 Incident Reporting Guidelines

If an incident or near miss occurs the SLR Site Safety Officer (SSO) will assume charge of the situation in regards to coordination of notification of site emergency response personnel. The following flowchart provides guidance in the event of a work-related incident or near miss. The SLR SSO will access the incident situation and make a determination concerning the need to seek medical attention for any injured or ill personnel, potential need to shut down the job task to assess work practices / procedures, PPE usage, etc. Refer to SLR HSE Manual, *Section 16 – Incident Reporting* for additional incident reporting guidance.

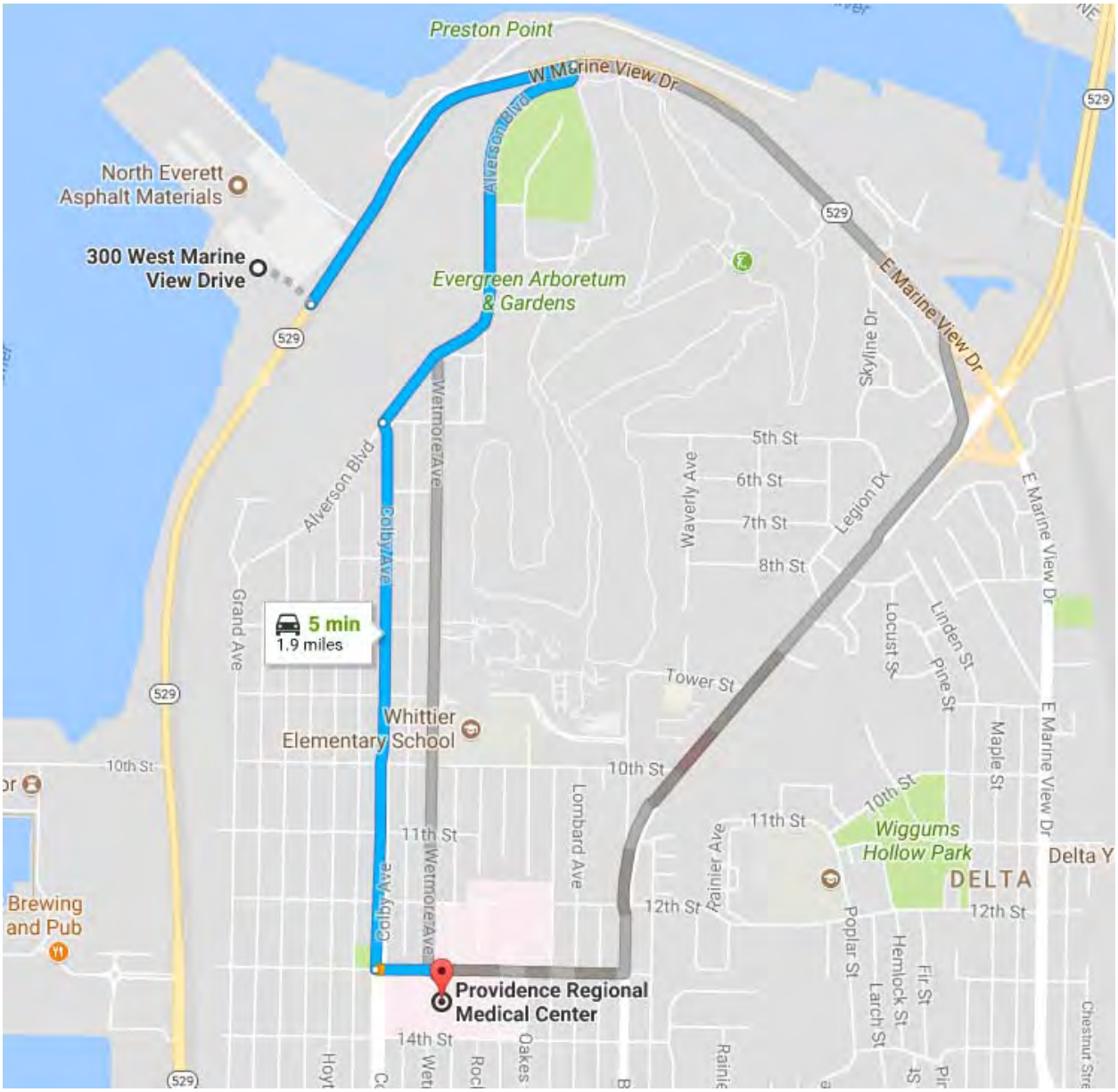

Incident or Near Miss Occurs
'Does the incident involve an illness or injury to a worker?
No
Yes
SSO: Report the incident or Near Miss to the Project Manager
SSO: Complete & submit Incident / Near Miss Report to PM and HSE Manager
If required, HSE Manager to arrange for post-accident D&A testing
Project Manager: Complete & submit any needed additional incident reporting forms (e.g. Vehicle Accidents) to PM and HSE Manager
HSE Manager: Communicate the root cause and lessons learned to all onsite workers
Resume Work upon approval by PM and HSE Manager
HSE Manager: Communicate the root cause and lessons learned to all onsite workers
Project Manager: Complete & submit any needed additional incident reporting forms (e.g. Vehicle Accidents) to HSE Manager
HSE Manager: Inform Regulatory Agency
SSO: Secure the incident area for investigation
If required, HSE Manager to arrange for post-accident D&A testing
HSE Manager: Prepare HSEP & incident Report(s) for investigating Officer
HSE Manager: Accompany Investigating Officer during investigation
HSE Manager: Discuss investigation results with Operations Management
Resume Work upon approval by PM and HSE Manager
Site Safety Officer (SSO): Stop work action implemented.
SSO: Ensure the injured worker is in a safe area and provide first aid/CPR
SSO: Arrange for transportation to medical facility
SSO: Immediately Contact:
1. Project Manager (PM) or Worker's Supervisor
2. HSE Manager
3. Office HSC & Manager
4. Regional Operations Manager
5. Client Representative
Need to Notify Regulatory agency? (Reportable Case)
Yes
No
SSO: Complete & submit Incident / Near Miss Report to PM and HSE Manager
If required, HSE Manager to arrange for post-accident D&A testing

2.1 Hospital Name & Address:

Providence Regional Medical Center, 1700 13th St, Everett, WA 98201

- Head northeast on W Marine View Drive for 0.5 miles, turn right onto Alverson Blvd and continue for 0.6 miles, turn left onto Colby Ave and continue for 0.7 miles, turn left onto 13th Street and continue for 423 feet until you see the hospital on your right.

- Hospital route map:



3.0 Scope of Work

3.1 SLR and Subcontractor Responsibilities:

Brief description of work scope: SLR will be performing stormwater system tracing, groundwater seep sampling, and soil/sediment sampling.
If applicable, have the utility clearance log and ground disturbance checklist been completed? **Yes** ☐ **No** ☐ **N/A** ☒
Brief description of SLR's subcontractor's work scope: Groundwater seep elevation surveying, private utility locating service tracing of the identified stormwater system and inlets/outlet piping.
Is the subcontractor(s) performing "Safety Critical" activities? **Yes** ☐ **No** ☒ **N/A** ☐
If "Yes" have they been pre-approved by HSE for such work? **Yes** ☐ **No** ☐ **N/A** ☒

3.2 Site Characteristics:

Past/Present Site Use: The former E.A. Nord facility is a former wood products plant. Currently, portions of the site are leased to various non-mill related operations.
Expected Contaminants of Concern and Concentrations: TPH-Dx, cPAHs, VOCs (benzene and naphthalene), dioxins/furans, and PCBs.
Unusual Work plan Items (e.g. work off site, air monitoring required, traffic control, etc.): Some work will be performed near water in soft sediment.
Unusual Site Features (e.g. cell phone coverage, remote site, high onsite traffic, etc.): None.
Describe any work occurring onsite that SLR is not prime contractor for: Various portions of the Site are leased for material storage and parking.

3.3 Contaminants of Concern Information

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
Diesel and Heavy Oil Range Organics	Skin and inhalation hazard. Skin irritation; headache, nausea, and confusion. Central nervous system depressant. Long term exposure may result in liver damage.	100 mg/m3 (as diesel fuel)	0.7 ppm (as diesel fuel)	0.7%	N/A
Polycyclic aromatic hydrocarbons (PAHs) – as coal tar pitch volatiles. (Includes chrysene, phenanthrene, fluoranthene, pyrene, acenaphthene, methylnaphthalenes, and anthracene)	Skin, eye, inhalation, and ingestion hazard. The pitch of coal tar is black or dark brown amorphous residue that remains after the redistillation process. Odor thresholds vary. Direct contact or exposure to the vapors may be irritating to the eyes. Direct contact can be highly irritating to the skin and can cause dermatitis. Exposure to high vapor concentrations may cause headaches, nausea, vomiting, and other symptoms. Includes human carcinogens. Reacts with acids and oxidizers; produces acrid smoke, toxic gases when involved in fires, thermal decomposition. Exposure to all routes should be carefully controlled to levels as low as possible. Confirmed Animal Carcinogen.	0.2 mg/m3 TWA 0.1 mg/m3 TWA (Cyclohexane-extractable fraction)	N/A	N/A	UK
Benzene	Skin, eye, inhalation, and ingestion hazard. Colorless liquid with an aromatic odor. Air odor threshold 34-119 ppm. LEL: 1.2%, UEL: 7.8%. Prolonged skin contact with Benzene or excessive inhalation of its vapor may cause headache, weakness, loss of appetite, and lassitude. A human carcinogen. Extremely flammable, keep sources of ignition away. Incompatible with fluorides, chlorides, oxygen, permanganates, acids, and peroxides.	0.5 ppm TWA; (2.5 ppm) Skin IDLH: 500 ppm (CA)	61 ppm	1.2%	9.25
Naphthalene	Skin eye, ingestion, and inhalation hazard. Over exposure may cause headache, nausea, diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions, and coma. Flammable when exposed to heat or flame reacts with oxidizing materials. Reacts violently with	10 ppm TWA; (15 ppm) 250 ppm IDLH	38 ppb	0.9%	8.12

Compound	Physical/Chemical Characteristics (Target Organs/ Route of Entry)	OEL (STEL)	Odor Threshold	LEL (%)	IP (eV)
	CrO3; aluminum chloride + benzoyl chloride.				
Dioxins/Furans	Inhalation, skin adsorption, ingestion skin and/or eye contact. Colorless to white needle-like crystals. Acute effects including irritation to eyes, in animals: liver and kidney damage, hemorrhage. Chronic health effects include allergic dermatitis, chloracne, porphyria, gastrointestinal disturbance, teratogenic effects, damage to liver, kidneys, and reproductive system, potential occupational carcinogenic.	None	UK	UK	UK
Polychlorinated Biphenyls (PCBs)	Skin, eye, inhalation, and ingestion hazard. The most commonly observed health effects in people exposed to high levels of PCBs are skin conditions such as chloracne and rashes. PCBs are either oily liquids or solids and are colorless to light yellow. Some PCBs are volatile and may exist as a vapor in air. They have no known smell or taste.	1mg/m3 for PCBs with 42% chlorine, 0.5mg/m3 for PBCs with 54% chlorine, 0.5 ppb in drinking water	N/A	UK	UK

OEL – Occupational Exposure Limit STEL – Short Term Exposure Limit LEL – Lower Explosive Limit IP – Ionization Potential eV – electron volt UK – Unknown NA – Not Available TWA – Time Weighted Average IDHL – Immediately dangerous to life and health

3.4 Site Plan:

A Site Plan is included as Figure 2 in the Source Control Evaluation Work Plan.

4.0 HSE Guiding Principles

The following HSE guiding principles are paramount on SLR projects:

- Injuries and occupational illnesses are preventable.
- Safety is fundamental to the conduct of our business.
- Employee involvement, feedback, and recognition are fundamental to safety.
- Safe behavior is doing the job right.
- Workplace risk will be reduced in the following priority:
  1. Engineering controls;
  2. Administrative controls and operating practices;
  3. Personal protective equipment.
- Management is responsible for visibly and consistently establishing safety as a core value.

- Management is responsible and accountable for the safety of employees, contractors, and the general public.
- Employees and contractors are responsible and accountable for their actions.
- Employees and contractors have an obligation, without fear of reprisal, to notify management of apparent hazards, and they have the right to receive timely and adequate responses.

5.0 Project Hazard Identification & Risk Assessment

5.1 Conducting a Hazard Identification and Risk Assessment

This section gives instruction on how to fill out the Project Hazard Identification (HazID) and Risk Assessment form on the following page.

1. First in the left hand column, list the main activities of the scope of work.
2. Then, list all of the known or foreseeable hazards for the scope of work.
3. Using the risk-ranking graph below, determine the risk level of each hazard. First determine the potential consequence as negligible, marginal or critical. Then determine the potential outcome of the hazard as unlikely, possible or likely. Where the two intersect on the graph is the risk level.
4. Record the risk ranking in the form. “R” for red or high, “Y” for yellow or moderate, and “G” for green or Low.
5. Describe the control to be used to eliminate or significantly reduce the risk of each hazard. “R” rated hazards must have the approval of the project manager and they must be included in the project JSA.

There are *three potential consequences* or outcomes of a health and safety hazard.

“Critical” This is when the hazard may cause death, severe injury or illness or major company shutdown.

“Marginal” This is when the hazard may cause minor injury or minor illness resulting in lost work time or minor property damage.

“Negligible” This is when the hazard probably would not affect personnel safety or health but still has the potential for a minor injury or illness.

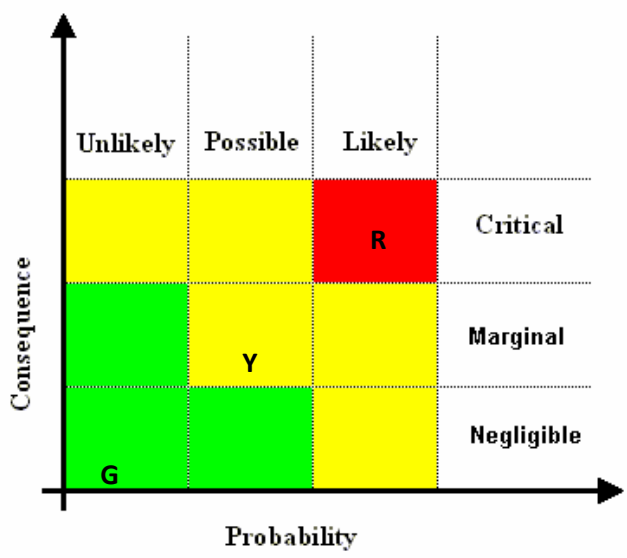
There are *three classifications of the probability* of the outcome of a hazard occurring.

The outcome can be *“likely”* to occur immediately or within a short period of time when exposed to the hazard.

The outcome could also be *“possible”* that it will occur in time.

Lastly, the outcome could be *“unlikely”* to occur

Graph 1 – Risk Ranking



5.2 Project Hazard Identification, Risk Assessment and Control (HIRAC) Form

Project: Source Control Evaluation	
Location: Former E.A. Nord, Everett, WA	Date: REV_October 2017
Project Manager: Scott Miller	Site Supervisor: Chris Kramer

Work Activity	Potential Hazards	Initial Risk Ranking (R/Y/G)	Hazard Controls (including PPE requirements)	Applicable Policy or Procedures	Resulting Risk Ranking (R/Y/G)
General Work Activities	Mobilization / Vehicle Operations (car accidents, etc.)	R	• Establish a call in procedure • Use defensive driving techniques. • Properly maintain vehicle. • Observe all traffic rules and attend required driver safety courses. • Maintain proper following distances. • Do not initiate or answer cell phone or radio calls while the vehicle is in motion. • Yield to wildlife without creating additional road hazards. • Keep fuel tank at least half full. • Drivers shall observe all posted speed limits and drive according to conditions. • Driver is responsible for ensuring all occupants wear their seat belts. • Always turn on the headlights whenever the vehicle is driven. • Perform 360° walk around/conduct vehicle exterior checks prior to operation. • Take prolonged stay field bag if in remote area.	HSE 20 – Journey Management Attachment 20-A SLR Journey Management Plan Form HSE Manual, Attachment 20-C Vehicle Operations Guidelines	Y
	Biological wastes (needles, condoms)	Y	• Ensure that the hazard is isolated using a cone. • Ensure that the work area is cleaned before work.	HSE 35 – Projects with Potential Exposure to Hazardous Substances (Bloodborne Pathogens)	G
	Extreme weather (heat stress)	Y	• Familiarize workers with symptoms. • Use buddy system.	HSE 22 – Extreme Weather; Attachment	G

Work Activity	Potential Hazards	Initial Risk Ranking (R/Y/G)	Hazard Controls (including PPE requirements)	Applicable Policy or Procedures	Resulting Risk Ranking (R/Y/G)
			• Block out direct sunlight in work area, if possible. • Drink plenty of liquids. • Wear light colored, loose fitting clothes. • Be aware of your physical condition and health problems and that of others. • Establish and follow a work/rest schedule as necessary.	22-A Heat Stress Attachment 22-B Cold Stress	
	Extreme weather (cold stress)	Y	• Familiarize workers with symptoms. • Use buddy system. • Wear appropriate clothing, including “liquid proof” footware. • Frequent warm-up periods. • Drink warm sugary drinks. • Avoid exhaustion. • Be aware of your physical condition and health problems and that of others. • Avoid contact with gases expanding from super-cooled glycol and alcohols. • Wear insulated liquid proof gloves and splash shield. • Avoid contact with super cooled liquids.	HSE 22 – Extreme Weather; Attachment 22-B Cold Stress	G
	Ergonomic Injury (Back)	R	• Ensure proper lifting techniques. • Obey sensible lifting limits (50 lb. maximum per person manual lifting). • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads. • Perform muscle/stretch exercises. • Avoid twisting, jerking motions while operating auger. • Use firm footing and leverage; crouch/squat, bend at the knees.	Attachment 21-C Proper Lifting	Y

Work Activity	Potential Hazards	Initial Risk Ranking (R/Y/G)	Hazard Controls (including PPE requirements)	Applicable Policy or Procedures	Resulting Risk Ranking (R/Y/G)
	Vehicle traffic	R	• Maintain situational awareness; work away from moving vehicles. • Communicate with site tenants both in advance of fieldwork and at beginning, middle, and end of day. • Wear high-visibility clothing. • Delineate work area with high-visibility reflective cones.	HSE Manual, Section 28 – Working Near Heavy Equipment	Y
	Sharp Objects	Y	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects. • Maintain all hand and power tools in a safe condition. • Inspect tools frequently. • Use the right tool for the job. • Keep guards in place. • Do not modify tools. • Position your hands and body to avoid pinch points or strikes should a tool come loose. • Use intrinsically safe, non-sparking or pneumatic tools in classified areas. • No open blade knives.	HSE Manual, Section 13 – Personal Protective Equipment HSE Manual, Section 26 – Hand Tools and Machinery Attachment 21-B Hand Tool Use	G
	Slips, trips and falls (general)	R	• Wear appropriate footwear. • Wear traction devices when necessary. • Keep work site clear of trash and debris. • Adjust pace and stride to traction available due to ice, mud, ground cover, etc. • Traction devices are required when walking or working outdoors on icy and snow covered conditions.	HSE Manual, Attachment 21-D Proper Walking on Poor Surfaces	Y

Work Activity	Potential Hazards	Initial Risk Ranking (R/Y/G)	Hazard Controls (including PPE requirements)	Applicable Policy or Procedures	Resulting Risk Ranking (R/Y/G)
			• Pick up tools when not in use. • Do not carry awkward loads or loads that obscure view of path ahead. • Light pathway whenever possible. • Be aware of footing. • Maintain situational awareness. • Set up work areas away from pavement heaves, potholes, railroad tracks, etc.		
	Insect Bites	Y	• Review injury potential with workers. • Avoid insect nests areas, likely habitats outside work areas • Emphasize The Buddy System where such injury potential exists. • Use insect repellant, wear PPE to protect against sting/bite injuries.	HSE Manual, Section 34 – Wildlife and Biological Hazards	G
	High noise levels	Y	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period).	HSE 37 – Hearing Conservation Program	G
Sampling Activities	Exposure to contaminants and preservatives	Y	• Wear disposable nitrile gloves and ANSI Z87.1-approved safety glasses. • Review hazardous properties of site contaminants with workers before operations begin. • Add preservative to sample containers after filling with water. • Return all preservative containers to laboratory in laboratory-provided package with samples. • Store used PPE in large contractor-style garbage bags.	HSE Manual, Section 13 – Personal Protective Equipment; and Section 35 – Projects with Potential Exposure to Hazardous Substances	G
	General field work	Y	• See above sections on: mobilization, ergonomics, sharp objects, slips/trips/falls, and vehicle traffic.		G
Stormwater system	Exposure to contaminants	Y	• Wear appropriate PPE (eye protection) when subcontractor is extracting locating tools.	HSE Manual, Section 13 – Personal Protective	G

Work Activity	Potential Hazards	Initial Risk Ranking (R/Y/G)	Hazard Controls (including PPE requirements)	Applicable Policy or Procedures	Resulting Risk Ranking (R/Y/G)
Tracing			• Beware of loose clothing getting caught in rotating equipment (i.e. spool of locating camera). • Maintain situational awareness when notating surface markings onto site plan/field notes, watch for vehicles and slips/trips/falls.	Equipment	
Near-water Work (Groundwater seep sampling)	Drowning	R	• A buddy system should be maintained in areas with water related-hazards. • Appropriate Personal Flotation Devices (PFDs) must be available and must be used. Inspect work vests before each use. • PFDs shall be fitted with a whistle or noise making device. • Consider using hip waders. • When worn during times of limited visibility, PFDs shall have reflective tape/materials. • In hypothermia conditions insulating suits (i.e. “mustang suites” or dry suits) will also be used.	HSE Manual, Section 20, Attachment 20 - `Small Vessel / Working Near Water Guidelines (Attachment 20-H)	R
	Slips/Trips/Falls (near water)	Y	• Beware of soft footing, especially in sediment adjacent to groundwater seeps. • Buddy system to be used for all near-water work. • Use pole or stick to check softness/depth of sediment prior to stepping onto soft ground. • Use prying device (i.e. ski pole or large stick) when footing becomes stuck in mud. Do not attempt to push self free with hands. • If footing becomes stuck, notify Buddy for assistance. • Be aware of significant site condition changes due to increased rainfall or tidal changes, including softer sediment, change in water levels, increase of puddling.	HSE Manual, Attachment 21-D Proper Walking on Poor Surfaces	Y

5.3 Job Safety Analysis

Any work tasks conducted or hazards identified that are not addressed in the Project Hazard Identification & Risk Assessment form shall be discussed and documented by field project personnel using SLR's Job Safety Analysis Form (JSA [provided in Appendix A of this plan]).

The SSO is responsible for ensuring that the Project Hazard Identification & Risk Assessment form and/or JSA adequately address all potential hazards to project personnel and that they are properly mitigated and documented.

Some project sites may require a JSA to be developed and discussed with the work crew on a daily basis. If this is the case the SLR JSA form will be utilized for this purpose unless directed otherwise by the client site. Recommend referencing the information in the Project Hazard Identification & Risk Assessment form on the JSA form as applicable.

Documented JSAs shall be forwarded to the SLR HSE Manager for review and potential revision of the HSE Plan to meet the identified hazards / mitigation methods.

6.0 Minimum Personal Protective Equipment (PPE)

Mandatory:

☒ ANSI Z41-1991 approved steel toe boots
☒ ANSI Z87.1-1989 approved safety glasses with side shields
☒ Reflective / High visibility vest (or included stitched onto coveralls)
☒ Leather gloves (on your person ready for use)

Optional based on scope/location of work and or client requirements:

☐ Hearing protection (ear plugs or ear muffs required for drilling, excavations, etc.)
☐ ANSI Z89.1-1986 approved hardhat with side impact protection
☒ Chemical Resistant Gloves (appropriate to the chemical hazards present)
☐ Chemical Resistant Coveralls or Apron (appropriate to the chemical hazards present)
☐ Puncture Resistant Gloves (when handling sharp objects)
☐ High Temperature Rated Gloves (when working near hot surfaces or handling hot materials)
☐ Boots equipped with meta-tarsal protection (when working where falling / rolling objects are present)
☐ Boots equipped with steel shanks (when walking on sharp objects)
☐ Personal Fall Protection System (including full body harness, lanyard, deceleration device, and anchorage)
☐ NIOSH approved ½ face air purifying respirator with Organic/HEPA cartridges
☐ Other NIOSH approved respirator – specify: _____
☐ Fire-retardant coveralls (i.e. Nomex)
☒ Personal Floatation Device (when working in or around water deep enough for the PFD to work)
☐ Cold Weather Gear (Required on the Alaska North Slope between October 1st and May 1st)
☐ Traction spikes for Boots (when walking in icy conditions)
☐ Knee Pads (any functions the require crawling or consistent kneeling)
☒ Hip or Chest Waders

- ☐ Fire Extinguisher
- ☐ Insect Repellant
- ☐ Animal Repellant (Bear spray, etc. as needed)
- ☐ Other:

Remote work:

- ☐ Personal Navigation Device (map/compass; GPS)
- ☐ 2-Way Radios
- ☐ Emergency Beacon / GPS Locator (such as SPOT or other)
- ☐ Personal First Aid Kit
- ☐ Personal Survival Kit (matches, space blanket, etc.)

7.0 HSE Forms / References to be included in the Field:

Included in the HASP:

- ☒ Tailgate Safety Meeting Form
- ☒ Vehicle Inspection Form
- ☒ Attachment 5A: SLR Safety Observation/Conversation Form
- ☒ Attachment 10A: SLR Utility Clearance Mark-out Log
- ☒ Attachment 10B: SLR Ground Disturbance Checklist
- ☒ Attachment 9C: Field Job Safety Analysis Form
- ☒ Attachment 16B: Incident/Near Miss/Hazard Identification Report Form
- ☒ Attachment 16C: Vehicle Accident Reporting Form
- ☒ Attachment 17B: Incident Investigation Form
- ☒ Attachment 17C: Witness Statement Form
- ☒ Project Site Checklist

Optional (Dependent upon work scope, copies to be kept in field binder.)

- ☒ Attachment 20A: Journey Management Plan Form
- ☐ Attachment 20B: SLR Contact Schedule
- ☐ Attachment 20C: SLR Vehicle Operations Guidelines
- ☐ Attachment 20D: SLR ATV – Off Road Vehicle Operation Guidelines
- ☐ Attachment 20E: SLR Snowmobile Operation Guidelines
- ☐ Attachment 20F: SLR Helicopter Use Guidelines
- ☐ Attachment 20G: SLR Small Aircraft Use Guidelines
- ☒ Attachment 20H: SLR Small Vessel-Working Near Water Guidelines
- ☐ Attachment 20I: Guidance on Working Abroad
- ☐ Attachment 21B: Hand Tool Use
- ☐ Attachment 21C: Proper Lifting
- ☐ Attachment 21D: Proper Walking on Poor Surfaces
- ☐ Attachment 22A: Heat Stress
- ☐ Attachment 22B: Cold Stress

☐ Attachment 22C: Storm Conditions

☐ Attachment 23B: Fall Arrest System Requirements

☐ Attachment 23C: Portable Ladder Use Requirements

☐ Attachment 23D: Working at Height Tool Management Requirements

☐ Attachment 23E: Proper Stair Use Requirements

☐ Attachment 25A: Typical Unplanned Prolonged Stay Supplies

☐ Attachment 39B: Energy Hazard Assessment Form

☐ Attachment 39C: LOTO Log

8.0 Daily Tailgate Safety Meetings

The SLR field crew will discuss potential hazards and mitigation measures (see Project HazID & Risk Assessment form) each day before starting work, including applicable SLR and client HSE requirements.

The daily safety meetings will be documented describing the topics discussed and will be signed by the field crew. The Daily Safety Meeting Form provided in Appendix A, or similar document, will be used for this purpose. Copies of safety meeting documentation will be kept in project files at the managing SLR office.

9.0 Reporting of HSE Leading Indicators

Field personnel are encouraged to utilize SLR's Behavior Based Safety (BBS) Program (SLR HSE Manual, Section 005) to document and report HSE-related leading indicators.

BBS is an approach to safety management that focuses on employee behaviors which may increase the risk of an accident. The approach assumes that employee behaviors often precede an incident and therefore modifying behavior can prevent an incident.

SLR's BBS program involves reporting the following HSE-related leading indicators which can assist with identifying and correcting unsafe conditions and behaviors:

- First Aids;
- Near Misses;
- Hazard Identifications; and
- Safety Observations / Conversation

The SLR SSO should conduct at least one Safety Observation and/or Conversation at each project site during the course of field activities. Completed forms shall be forwarded to the Project Manager and HSE Manager for review.

Field personnel are encouraged to make safety observations and transmit any safety observations to the SLR SSO using the Job Safety Conversation/Observation Form (see Appendix A).

Field personnel are also expected to document and report any first aid cases, near misses or identified hazards to the SLR SSO utilizing SLR's Incident / Near Miss / Hazard Identification Form (see Appendix A).

10.0 SLR HSEP Completion / Review / Signoff

All HSEPs must be reviewed and signed by the SLR project manager and the office HSEC or their designate.

Chris Kramm		10/23/17
Project Manager	Signature	Date
Melanie Boczanowski		10.23.17
HSE Coordinator	Signature	Date

11.0 Acknowledgement

(All onsite SLR and SLR subcontractor personnel must sign)

I acknowledge I have reviewed the health and safety plan for this project, understand it, and agree to comply with all of its provisions. I acknowledge that I have participated in the Job Safety Analysis identification of hazards and safety controls and agree to comply with the indicated steps/procedures. I understand that I may be prohibited by the Site Safety Officer or other SLR personnel from working on the project for not complying with any aspect of this Health and Safety Plan.

Name	Signature	Company Affiliation	Date

Appendix A
Field Documents

ATTACHMENT 20A: SLR JOURNEY MANAGEMENT PLAN FORM

SLR International – Journey Management Plan				
Departure Date/Time (scheduled):	Date:		Time:	
Return Date/Time (scheduled):	Date:		Time:	
Name of Traveler:				
Names of Additional Travelers:				
Client Name:				
Destination:				
Reason for Trip:				
Travel Mode(s) – auto, commercial aircraft (flight #), helicopter (operator), vessel (vessel name and operator)				
Planned Route(s):				
Lodging (name, location, phone #):				
In Field Contact Number:				
Project Manager:				
Admin. Assistant(s):				
Pre-Trip HIRAC items discussed, hazards expected to be encountered:				
Date of Return (notification required upon return):				
Travel Check-in / Contact directions:				
Please complete the Journey Management Plan and send a copy to the Administrative Assistant(s) and the Project Manager.				
Please confirm trip completion upon return to location of departure.				

Tailgate Safety Meeting Form		
Date:	Time:	Project No.:
Project Name:		

☐	Perform a site walkthrough before the tailgate to identify any unforeseen onsite hazards. _____ _____ _____ _____
☐	Review basic scope of work, who will all be involved (sub and SLR) unusual site features/conditions, time limitations, permits required, utilities all located, potential contaminants, any monitoring requirements, etc. _____ _____ _____ _____
☐	Review Emergency Contact Numbers (front page).
☐	Review and discuss the location and route to hospital/medical facilities and identify/list all first-aid/CPR trained personnel. Also review section 2.0 so that everyone knows what to do in the event of an incident. _____ _____ _____

☐	Indicate what standard safety equipment is kept on site:	
☐	First Aid Kit (s)	Location: _____
☐	Eyewash Stations (s)	Location: _____
☐	ABC Fire Extinguisher(s)	Location: _____
☐	Caution Tape	Location: _____
☐	Traffic Cones/Barricade	Location: _____
☐	Decontamination sprayers	Location: _____

☐	Emergency Muster Point	Location: _____
☐	Review the following general rules EVERYONE will be expected to follow:	
☐	All site visitors must report to the Site Supervisor (SS) upon arriving onsite and must stay in the presence of the SS at all times.	
☐	There will be no horseplay, eating, drinking, smoking, or chewing gum permitted in the work areas at the site.	
☐	Long hair must be confined or worn in a manner that will eliminate danger from snagging or catching in any moving parts.	
☐	All solvent or fuel transfer will be performed with grounded containers.	
☐	All public inquiries must be directed to the site supervisor who will then direct them to the client. Do not provide information or opinions.	
☐	All equipment will be inspected prior to use.	
☐	Others: _____	
☐	With subcontractor participation and input, review RA and add additional information on identified hazards (if applicable) to the JSA including:	
☐	Hazards identified for each work step and safety controls to be implemented	
☐	Tools and equipment required for all tasks	
☐	PPE minimums and any extras to be on site if conditions change	
☐	Review outside authorities requiring to be advised	
☐	Review disposal method/temporary storage locations for soil, groundwater and garbage	

Attendees	**Company**	**Signature**

Vehicle Inspection Form

The following vehicle inspection must be performed and documented for all field projects where vehicles (company owned, rented, leased or personal-owned) are utilized.
Inspections shall be conducted at the beginning of the project and weekly thereafter.
Remember to perform a 360-degree walk around of the vehicle before each operation.

Vehicle Inspection Components	*Condition*		*Comments*
	Ok	*Not Ok*	
Tires (legal tread depth, bald spots, sidewall damage, punctures)	☐	☐	
Spare Tire (inflated, jack, lug wrench present)	☐	☐	
Windshield and windows (cracks)	☐	☐	
Windshield wipers (present, functional, worn)	☐	☐	
Windshield wiper fluid (present, appropriate type for conditions)	☐	☐	
Bumpers (missing, lose, broken, dented)	☐	☐	
Body panels (dented, scraped)	☐	☐	
Climate control (cabin heat, defrost)	☐	☐	
Oil level	☐	☐	
Battery (color indicator, terminals clean and tight, secured)	☐	☐	
Hoses (cuts, cracks, leaks, bulges, chaffing, deterioration)	☐	☐	
Seatbelts (missing, frayed, does not snap)	☐	☐	
Horn (operational)	☐	☐	
Head lights (all functional, cracks)	☐	☐	
Tail lights (all functional, cracks)	☐	☐	
Brake lights (all functional)	☐	☐	
Turn signals (all functional)	☐	☐	
Backup lights (functional)	☐	☐	
Four-way flashers (functional)	☐	☐	
Brakes (solid feel, squealing, no warning light)	☐	☐	
Mirrors (present, functional, appropriate to use (trailer)	☐	☐	
Clutch (engages well, not slipping)	☐	☐	
Fuel tank (leaks, odor)	☐	☐	
Exhaust system (leaks)	☐	☐	
Coolant system (leaks)	☐	☐	
Emergency equipment (first aid kit, fire extinguisher, etc.)	☐	☐	
Other:	☐	☐	

Inspected By: _____ Date: _____

Attachment 9C: Job Safety Analysis Form

Job Name: _____ Job No. _____

Supervisor: _____ Date: _____

The Job Safety Analysis (JSA) will be developed in collaboration with the field work crew with their input on the necessary job steps, associated hazards and control measures necessary to perform the work safely. If the job steps are found to be different than originally anticipated or additional hazards are noted the work shall be stopped and a new JSA conducted.

	Job Steps	Hazards	Controls
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

All field work crew members shall review the contents of the JSA and sign below acknowledging their understanding of its contents.

Company Name	**Attendee Name**	**Signature**

Attachment 5A: Safety Observation/Conversation Form

Event Classification(s) – Mark all that apply

☐ Safety Observation ☐ Safety Conversation

Date _____ Time _____

Location _____

Client name _____ Project # _____

Safety Observations					
At Risk	**Human Behaviors**	**Safe**	**At Risk**	**Working Conditions**	**Safe**
☐	Attention to Work	☐	☐	Ambient Conditions	☐
☐	Communications	☐	☐	Condition of Tools and Equipment	☐
☐	Housekeeping Behavior	☐	☐	Housekeeping Conditions	☐
☐	Job Setup/Sequence	☐	☐	Guards and Barriers	☐
☐	Use of PPE	☐	☐	Workplace Design	☐
☐	Following HSEP/JSA/HSE Manual	☐	☐	Walking/Working Surfaces	☐
☐	Proper use of Tools/Equipment	☐	☐	Working at Heights	☐
☐	Recognition of Change of Conditions	☐	☐	Chemical Exposures	☐
☐	Body Position/Mechanics	☐	☐	Biological Exposures	☐
☐	Other:	☐	☐	Other:	☐
Comments					

Safety Conversations
What topic(s) were discussed? Employee behaviors? Working Conditions? LMRA? JSA?
Follow up action – Any corrective actions needed? HSEP or JSA revision needed? Positive feedback?

Any new hazards identified? ☐ Yes ☐ No If Yes, complete and submit Incident/Near Miss/Hazard ID form

Completed By: _____ _____ _____
(Print) (Signature) (Date)

Project Manager/Supervisor: _____ _____ _____
(Print) (Signature) (Date)

Attachment 5B: Incident/Near Miss Hazard Identification Report Form

Event Classification

☐ Incident – Injury or Illness ☐ Near Miss ☐ First Aid Case

☐ Incident – Significant Property Damage ☐ Hazard Identification ☐ Stop Work Action

☐ Incident – Environmental Damage ☐ Vehicle Accident (complete Vehicle Accident Form)

Date _____ Time _____

Location _____

Client name _____ Project # _____

Names of Known Witnesses _____

Notifications: Verbal notification within 1 hour for Incidents (if possible) / Provide written report within 24 hours

Function	Time	Contact Name	Contact number
☐ Emergency Responders			
☐ Medical Facility			
☐ PM or Supervisor			
☐ HSE Director			
☐ Office HSC or Manager			
☐ Regional Ops Manager			
☐ Client			
☐ Government agency(ies)			

Event Description (what happened, how, who was involved; provide diagram on back or photos.)
Immediate Response to the Event (Response on site and within next 8 hrs):
Recommendations for further actions:

Completed By: _____ _____ _____
(Print) (Signature) (Date)

Project Manager/Supervisor: _____ _____ _____
(Print) (Signature) (Date)

This report must be completed by the employee's supervisor or Site Safety Officer immediately upon learning of the incident. The completed report must be reviewed and signed by the Project Manager and e-mailed within 24 hours of the incident to Area HSE Manager. e-mail: pmoore@slrconsulting.com

Attachment 16C: Vehicle Accident Reporting Form

This report is to be initiated by the employee involved in the accident or his/her direct supervisor. Please answer all questions completely. This report must be forwarded the appropriate HSE Manager within **24 hours** of the accident. **Attach Police Report**.

Accident Description

Accident Date: Time: ☐ A.M. or ☐ P.M.

Location of Accident (City, State):

Description of Accident:

Witness: Phone No.

Address: City: State: ZIP:

Police Officer's Name and Badge #: Department:

Work Vehicle Description

Driver: Drivers' License No. State:

Address: City: State: ZIP:

Work Phone No. Project Name: Project No.

Vehicle No. Year: Make: Model: License Plate No.

State: Vehicle Owner: ☐ Company ☐ Rented/Leased ☐ Private Vehicle

Vehicle Type: ☐ Commercial Motor Vehicle ☐ Non-Commercial

If not Company-owned: Owner: Phone No.

Address: City: State: ZIP:

Vehicle Damage Description:

No. of vehicles towed from scene: Number of Injuries: Number of Fatalities:

Were hazardous materials released? ☐ No ☐ Yes If Yes, describe materials:

Other Vehicle(s)

Driver: Drivers' License No. State:

Address: City: State: ZIP:

Phone No. Owner's Name (☐Check if same as Driver):

Address: City: State: ZIP:

Insurance Company: Policy Number:

Agent's Name: Phone Number:

Address: City: State: ZIP:

Vehicle Year: Make: Model: Plate No. State:

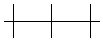
Vehicle ID No.

Vehicle Damage Description:

Passengers: ☐ No ☐ Yes Injuries: ☐ No ☐ Yes (if Yes, list names and telephones numbers below)

Attachment 16C: Vehicle Accident Reporting Form (continued)

Weather: ☐ Clear ☐ Cloudy ☐ Fog ☐ Rain ☐ Sleet ☐ Snow Other:
Pavement: ☐ Asphalt ☐ Steel ☐ Concrete ☐ Wood ☐ Gravel/Dirt ☐ Brick/Stone Other:
Condition: ☐ Dry ☐ Wet ☐ Icy ☐ Pot Holes Other:
Traffic Control: ☐ Traffic Light ☐ Stop Sign ☐ Railroad ☐ No Intersection ☐ No Control
Roadway: No. of Lanes each direction: ☐ Residential ☐ Divided Highway ☐ Undivided Highway

Draw and name roadways showing each vehicle, direction of travel, and point of impact. Indicate travel before the accident with a solid line, and post-accident movement with a broke line. **SYMBOLS**: Your Vehicle: ① Other Vehicle(s): ②, ③ Pedestrian:  Stop Sign:  Yield Sign:  Railroad track: 	

Additional Information: _____

Employee _____ (Print) _____ (Signature) _____ (Date)

Supervisor _____ (Print) _____ (Signature) _____ (Date)

HSE Representative _____ (Print) _____ (Signature) _____ (Date)

ATTACH POLICE REPORT TO VEHICLE ACCIDENT REPORT FORM

Attachment 17B: Incident Investigation Form

Incident Date _____ Incident Time _____

Incident Location _____

Client name _____ Project # _____

Incident Classification:

Injury/Illness:	☐ First Aid ☐ Restricted Workday	☐ OSHA Recordable ☐ Fatality	☐ Lost Workday
Other:	☐ Vehicle Accident	☐ Near Miss	☐Property/Equipment Loss/Damage

Incident Investigation Team:

Team Leader	Project Manager	HSE representative	Supervisor
Employee(s)			
Witnesses			

Investigation start date/time:_____

Investigation Completion Date/time: _____

Incident Description (Provide facts, what happened, how, who was involved)

Incident Time line:

Event	Time	Personnel Involved	Task/Activity	Equipment/Materials Involved
If possible, identify task(s) when incident occurred. _____ _____				

Attachment 17B: Incident Investigation Form (continued)

HSE Program Elements

Were there applicable HSE program, plans or procedures in place for the identified task related to this incident?

Risk Assessment: Yes ☐ No ☐
Job Safety Analysis: Yes ☐ No ☐
HSE Plan: Yes ☐ No ☐
Other: Yes ☐ No ☐ Describe:

Incident Analysis (What unsafe acts or conditions contributed to the incident?)

Corrective Action(s)/Lessons Learned(List corrective action items, responsible person, scheduled completion date)

Attachment 17C: Witness Statement Form

This information is being solicited from you so that the company can accurately assess the reported incident to avoid similar occurrences in the future. Describe only the facts for which you have personal knowledge.

Exact Location of Incident:

Date of Incident: Time: ☐ a.m. ☐ p.m.

Date of this Statement: Time: ☐ a.m. ☐ p.m.

Witness Information

Name: Phone No.

Company:

Did you see the Incident? ☐ Yes ☐ No

How Far From You (approx., in feet) Did the Incident Occur?

Stating only factual information, describe in detail what happened and include any applicable events leading to the incident.

Witness Signature / Date

Print Name

Project Site Checklist

Project Activities: _____

Checklist Items	Yes	No	N/A
Written HSEP is on-site			
Addendums to the HSEP are documented on-site			
Information in the HSEP matches conditions and activities at the site			
HSEP has been read and signed by all site personnel, including visitors			
Daily tailgate safety meetings have been held and documented			
Site personnel have appropriate training and medical clearance			
Air monitoring is performed as described in the HSEP			
Air monitoring equipment has been calibrated daily			
Site zones are set up and observed where appropriate			
Access to the work area is limited to authorized personnel			
Decontamination procedures are followed and match the requirements of the HSEP			
Decontamination stations (including hand/face wash) are set up and used			
Personnel protective equipment used matches HSEP requirements			
Hearing protection used where appropriate			
Respirators are properly cleaned and stored			
Overhead utilities do not present a hazard to field equipment/personnel			
Traffic control measures have been implemented			
Emergency and first aid equipment is on-site as described in the HSEP			
Drinking water is readily available			
Accessible phone is readily available for emergency use			
Proper drum and material handling techniques are used			
Drums and waste containers are labeled appropriately			
Extension cords are grounded and protected from water and vehicle traffic			
Tools and equipment are in good working order			
Other:			
Other:			
Other:			

Notes: (All “no” answers must be addressed and corrected immediately. Note additional health and safety observations here).

_____

_____

_____

Conducted by: _____ Signature: _____ Date: _____

Appendix B
Additional HSE Documentation

ATTACHMENT 20H: SLR SMALL VESSEL / WORKING NEAR WATER GUIDELINES

1. Vessels must be fit for duty and sea worthy.
2. Immediate access to emergency communications such as radio communications and/or cell phones must be provided.
3. A buddy system should be maintained in areas with water related hazards.
4. SLR employees will pay attention to the vessel operators' safety briefing and become familiar with the location and operation of safety features on the vessel, including: extra PFDs, survival equipment, first aid kit, and fire extinguisher.
5. Appropriate Personal Flotation Devices (PFD) must be available and must be used for work activities on or near water.
6. Throwing Rings
    a. U.S. Coast Guard approved Type IV PFDs ("life rings" or "throwing rings") are required for work near water.
    b. The interval between rings will not exceed 200 feet and/or throwing rings must be within 100 feet of work.
    c. Maintain 90 feet of retrieval line attached to throwing rings.
7. PFD Vests
    a. Wear Coast Guard approved work vests.
    b. Inspect work vests before each use.
    c. Do not use recreational boating PFDs such as ski jackets for work applications.
    d. PFDs used as work vests may be Type I, II, or III. Type V PFD is acceptable if it is U.S. Coast Guard approved and marked for use as a work vest.
    e. PFDs will be fitted with a whistle or noise making device.
    f. When worn at night, PFDs will have reflective tape/materials.
    g. Safety nets or similar fall protection or positioning devices may be used in place of PFDs.
    h. In hypothermia conditions, insulating suits (i.e., "mustang suites", dry suits, or the equivalent) will also be used.

ATTACHMENT 5

NPDES INFORMATION

10301 9104
Everett WA

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

June 11, 2007

Jeld-Wen, Inc
Attn: Jason DeVries
PO Box 1187
Everett WA 98206

Dear Sir:

RE: Notice of Termination (NOT) of Coverage under the Industrial Stormwater General Permit

Permit Number:	SO3-000158
Facility\Site Name:	Jeld Wen Inc DBA Jeld Wen Ever+Nor
Address:	300 W Marine Drive Everett WA 98206

The Washington Department of Ecology has reviewed your Notice of Termination (NOT) of coverage under the Industrial Stormwater General Permit for the subject facility. Based upon your letter dated March 5, 2007, we are terminating your coverage under the permit as of March 5, 2007, for the following reason(s):
(Note: of course we pick the reasons that apply)

- Jeld Wen Inc – Everett has ceased operations at the site located at 300 W Marine Drive in Everett, Washington

If stormwater discharges associated with industrial activity resume, you must reapply for coverage under this or another NPDES permit.

You must retain the Stormwater Pollution Prevention Plan (SWPPP) and copies of all notices of intent, reports on inspections, spill reports, and all other reports required by this permit for at least three years from the date of the report or submission. You must make them available upon request.

Please be aware that you are still responsible for compliance with other water quality laws and regulations, such as ground and surface water quality standards. Therefore, you should continue to take measures to reduce the potential for surface water or ground water pollution at your facility.

EVRT

DEPARTMENT OF ECOLOGY

MAR 13 2007
WATER QUALITY PROGRAM

NOTICE OF TERMINATION

Baseline General Permit
to Discharge Stormwater for

Industrial Activity

Permit No. SO3000158D

(Please print or type in ink.)

I. FACILITY ADDRESS

Facility Name: JELD-WEN, inc. (dba JELD-WEN)	
Street Address: 300 W. Marine Drive	
City: Everett Zip + 4:	
County: Snohomish	
Phone No. of Primary Contact Person: (541) 882-3451 x2732	
Operator/Primary Contact Person: Jason DeVries	
Legal Description (if no address for facility)	

II. BILLING ADDRESS

Company Name: JELD-WEN, inc.
Contact Name: Diane Keith
Phone No.: (541) 883-3373 x2812
PO Box: P.O. Box 1540
Street Address: 407 Harbor Isles Blvd
City: Klamath Falls, OR Zip + 4: 97601

POSTED DATE: 3/14/07 INITIALS: JAA

III. JUSTIFICATION FOR TERMINATION

Provide a brief description justifying termination.

Industrial activities have ceased at the site. Equipment and outside storage with the potential for contamination of storm water have been removed. The site no longer requires a permit for discharge of storm water.

Total size of area with industrial activity: 28 acre(s). Name of receiving waters: Snohomish River/Port Gardner Bay

IV. CERTIFICATION OF PERMITTEE(S)

"I certify under penalty of law that all stormwater discharges associated with industrial activity from the identified facility that are authorized by this NPDES and State Waste Discharge general permit have been eliminated, or that I am no longer the operator of the facility, or that I no longer need coverage under this permit as explained in the attached letter. I understand that by submitting this Notice of Termination, that I am no longer authorized to discharge stormwater associated with industrial activity by the general permit, and that discharging pollutants in stormwater to water associated with industrial activity to surface waters of the State of Washington is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release the operator (and owner, if co-permittee) from liability for any violations of this permit or the Clean Water Act."

Jason DeVries/Real Estate Manager
Operator's Printed Name / Title

Operator's Signature

3/5/2007
Date

(If co-permittee)

Owner's/Representative's Printed Name / Title

Owner's/Representative's Signature

Date

ECY 020-86 (8/01)

(Instructions on back)

STORM WATER POLLUTION PREVENTION PLAN
JELD-WEN, INC.
EVERETT, WASHINGTON

Prepared by:

Diane Keith
Permitting Manager

JELD-WEN ENVIRONMENTAL ENGINEERING
3922 Lakeport Blvd.
Klamath Falls, OR 97601
(541) 885-7420

July 2005

File #10301.0102

JELD-WEN

TABLE OF CONTENTS

LIST OF TABLES

I. CERTIFICATION AND SIGNATURE

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name & Official Title
Jay Swanson, General Manager

Date Signed

II. OBJECTIVES OF THE SWPPP

- To eliminate the discharges of unpermitted process wastewater, domestic wastewater, noncontact cooling water, and other illicit discharges to stormwater drainage systems or to surface waters of the state;

- To implement and maintain Best Management Practices (BMPs) to identify, reduce, eliminate and/or prevent the discharge of storm water pollutants;

- To prevent violations of surface water quality, ground water quality or sediment management standards; and

- To prevent adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak rates and volumes of storm water runoff at the permittee's outfalls and downstream of the outfalls.

1.1 LOCATION OF FACILITY

JELD-WEN's Everett plant is located at at 320 W. Marine View Drive, Everett, Washington, 98201. It is located at 48°00'53. 64" and 122°12'26.91" in Snohomish County.

1.2 DESCRIPTION OF FACILITY

JELD-WEN operates an interior door manufacturing facility at this site. The facility employs 161 people and operates one shift, 5 days per week, 52 weeks per year. Occasionally, employees work weekend hours.

Industrial activities at the Everett facility encompass approximately 33.28 acres. Of this acreage, approximately 96% is impervious surface and 6% is pervious area. Most of the pervious area onsite is shoreline located on the north and south sides of the site with a small grassed area on the east side.

With the bulk of the site in impervious surfaces (roofs and pavement), storm water does have the opportunity to accumulate and flow. Storm water accumulating from the south side of the site and from the center and south part of the u-shaped area west of the main building, including roof drains, discharges to Port Gardner Bay via Outfalls 001, 00X1, 002, 00X2, 003 and 004. Storm water accumulating from the north side of the site and from the catch basins on the north part of the u-shaped area west of the main building, including roof drains, discharges to the Snohomish River through Outfalls 005 and 006. Storm water from accumulating from the west end of the site remains on site where is infiltrates into the ground.

Monitoring of storm water on the north side of the site is performed at Outfall 006. The outfalls on the south side of the facility are often below the tide line so monitoring from this area is performed at an interior catch basin known as Outfall 002A.

Due to the relatively flat topography of the facility, installation of rip rap along shorelines and the relatively low amount of exposed soil, there is a low potential for excessive erosion and sedimentation that would necessitate specific erosion/sedimentation specific Best Management Practices (BMPs).

An investigation has been performed on site to determine if non-storm water discharges are occurring. A copy of the Investigation of Non Storm Water Discharge certification is located in Appendix A.

The water site map and topographic map for the Everett site can be found in Appendix B.

1.3 CLASSIFICATION

JELD-WEN's Everett facility primarily falls within Standard Industrial Classification of 2431, Sawmills and Planing, Millwork.

1.4 AREAS OF INDUSTRIAL ACTIVITIES AND ASSOCIATED BMPS

A review of technical and economic feasibility of changing the methods of operations and/or storage practices to eliminate or reduce exposure of materials and processes to storm water has been performed.

Following the technical and economic review of the methods of operations and/or storage practices, Best Management Practices (BMPs) were selected from the Storm Water Management Manual for Western Washington (Manual) under the presumptive approach for implementation at this site. Under the presumptive approach, the Manual provides project proponents, regulatory agencies and others with technically sound storm water management practices which are *presumed* to protect water quality and instream habitat and meet the stated environmental objectives of the regulations described in the Manual. BMPs at this site include:

- **Loading and unloading of dry bulk materials or liquids.** Bulk unloading areas of concern include the bulk glue unloading port located on the west side of the main building by the Glue Room, bulk oil tanks located in the Oil Storage Shed, the truck transfer area for sawdust, and barrels and totes of miscellaneous products (such as paints and hydraulic fluid for machinery) at shipping and receiving areas.
    - **Potential Pollutant(s)** – wood dust, particulate matter and oil & grease.
    - **BMPs –** Loading and unloading of bulk materials occurs indoors and/or under cover where possible. Areas where outdoor loading/unloading of bulk materials occurs are monitored for leaks/spills and cleaned/swept up as needed. Spill clean up supplies are readily available for clean up in the event of a spill. Drip pans are used under hose connections for transfer of liquid bulk products.
- **Outdoor storage of materials or products.** Outdoor storage of materials or products includes stacked pallets, scrap metal, cooling ash, stacked lumber, sawdust and waste wood.
    - **Potential Pollutant –** Particulates.
    - **BMP** – Materials stored outdoors are typically impervious and/or weather resistant. Materials are stacked neatly.
- **Outdoor manufacturing and processing.** No outdoor manufacturing or processing occurs on site.
- **Dust or particulate generating processes.** Dust is generated from woodworking areas and particulates are generated from painting operations. Wood dust from wood working operations is directed into a cyclone/baghouse system located in the u-shaped area west of the main building. Paint particulates are controlled with filters.
    - **Potential Pollutant –** Wood dust, particulates.

- **BMP** – Dust or particulate source areas are monitored and swept if necessary. A cyclone/baghouse system is used to control wood dust emissions. Filters are used to control paint emissions.

- **Roofs or other surfaces exposed to air emissions from a manufacturing building or a process area**. Roofs are exposed to air emissions from wood processing and painting equipment that emit particulate matter to the atmosphere.
  - **Potential Pollutant** – Wood dust particulates; paint particulates.
  - **BMP** – Areas near the vicinity of roof drains are monitored for material accumulation and swept up as needed. Baghouses, cyclones and filters control these emissions.
- **On site waste treatment, storage or disposal**. Waste is not treated on site. Waste is stored on site in dumpsters and includes common refuse (such as cardboard, paper, general waste and binding material).
  - **Potential Pollutants** – Particulates, oil & grease.
  - **BMP** – Waste storage areas are routinely monitored and swept up as needed. Waste containers stored outdoors are periodically inspected to help minimize the potential for material that could contribute potential storm water pollutants. Waste materials are recycled whenever possible.
- **Vehicle and equipment fueling, maintenance and/or cleaning**. Vehicle fueling occurs west of the south kilns. Limited maintenance occurs in the Maintenance Shop located on the west side of the main building.
  - **Potential Pollutants** – Particulates, oil & grease.
  - **BMP** – Employees are trained on fueling procedure that includes staying with the vehicle during fueling, not topping the tank off and draining the hose completely prior to its return to the pump. The fueling pad is constructed of concrete. Maintenance of vehicles is performed inside a building. Drained oil filters are kept in a drum and recycled.

Table 2.1 summarizes the inventory of significant materials located at the facility.

TABLE 2.1 SIGNIFICANT MATERIALS INVENTORY

MATERIAL	LOCATION	POTENTIAL FOR PRESENCE IN STORM WATER	BMPS
Miscellaneous lubricants and oil	Maintenance area; Oil Storage Shed	Low - during transfer	Stored indoors and/or under cover. Secondary containment provided.
Used oil	Maintenance area	Low – during transfer	Stored indoors and/or under cover.

Boiler chemicals	Boiler house	Low – during transfer	Stored indoors with secondary containment provided.
Glue wash water	Sump located in Glue Room	Low – no exposure	Stored indoors.
Glue	Glue room; Door Assembly	Low – during transfer	Stored indoors and bulk tank has secondary containment.
Paint	Paint kitchen	Low – during transfer	Stored indoors with secondary containment.
General garbage	Dumpster located on the south side of the Paint Kitchen; dumpster located south of the fuel bin	Low – contained in bin	Area is routinely inspected and swept. Garbage is picked up routinely and removed from the site.
Hazardous waste storage	Maintenance warehouse	Low – during transfer	Stored indoors under cover; secondary containment provided.
Sawdust	Fuel silo and truck bin in u-shaped area on the west side of the main building.	Medium – during transfer	Routine inspections; swept/ cleaned as needed
Stacked pallets	East of the planer	Low – solid material	Stacked neatly; area inspected routinely and cleaned as needed
Scrap steel	West of maintenance warehouse	Low – contained in bin	Contained in bin; area inspected routinely and cleaned as needed
Wood waste	South side lumber sorter; near the boiler	Low – solid material	Area inspected routinely and cleaned as needed
Stacked lumber	West end of the side	Low – rotated frequently	Area inspected routinely and cleaned as needed

1.5 PAST LEAKS AND SPILLS

No leaks or spills have been reported at this site within the past three years.

2.1 STORM WATER POLLUTION PREVENTION TEAM

2.1.1 POLLUTION PREVENTION TEAM RESPONSIBILITIES

The individuals serving on the Pollution Prevention Team are responsible for implementing the SWPPP, and were chosen due to their leadership roles, as well as their familiarity with the facility and its operations The General Manager has been assigned overall responsibility for the plan as Team Leader. Designated personnel have been assigned responsibility in the event that the General Manager is not available. These assignments are detailed in Table 3.1.

The Pollution Prevention Team is responsible for the following tasks:

- Implementing all general permit and pollution prevention plan requirements;
- Defining and agreeing upon an appropriate set of goals for the facility's storm water management program, and ongoing measurement of goal attainment;
- Identifying changes in plant operations to determine whether any provisions of the SWPPP must be revised;
- Maintaining a clear line of communication with other plant management and personnel to ensure a cooperative partnership; and
- Developing and implementing a training program for employees to ensure operational practices that protect the storm water resource.

The Pollution Prevention Team will meet periodically to discuss compliance with this SWPPP and to identify further opportunities for protection of the storm water resource. These meetings will be informal and may not include all members at all meetings.

2.1.2 POLLUTION PREVENTION TEAM MEMBERS

The members of the Pollution Prevention Team are listed in Table 3.1.1. Each team member has been given specific responsibilities as shown in the table.

TABLE 3.1.1 POLLUTION PREVENTION TEAM MEMBER ROSTER

Leader	**Jay Swanson**
Title	General Manager
Responsibilities	Coordinates all environmental programs and is responsible for plan implementation.
Team Member	**Steve Pfister**
Title	Group Manager
Responsibilities	Acts as Team Leader at the direction of or in absence of Jay Swanson. Coordinates inspections of manufacturing area and grounds to ensure general cleanliness and ongoing compliance with Best Management Practices to minimize potential for storm water runoff contamination, oversees housekeeping and implementing BMPs, insures that all required records and the SWPPP are kept current. Coordinates employee training program.
Team Member	**Dave De Vries**
	Maintenance Manager
	Assists with coordination of tasks required by permit and with assigning personnel.
Advisor	**Bob Roach**
Title	Senior Environmental Compliance Manager, JELD-WEN, inc.
Responsibilities	Assists in coordinating environmental compliance facility wide.
Immediately report any spills or conditions which could cause contamination of storm water to one of the individuals listed above. Use care in material handling and production practices to prevent conditions that could pollute the storm water running off of this facility.	

2.2 MONITORING PROGRAM

Eight outfalls exist on this site. Six outfalls, located on the south side of the property, discharge directly into Port Gardner Bay. Two outfalls, located on the north side of the property, discharge into a canal and then into the Snohomish River where it discharges into Port Gardner Bay.

In addition, 10 dry wells are located next to the kilns. Five of these dry wells have gravel bottoms and allow storm water to percolate into the ground. The remaining five dry wells have concrete bottoms and storm water is periodically pumped from them into Port Gardner.

The permit requires that monitoring of storm water be performed. The monitoring requirements are shown below with the documentation form used following in parentheses. Blank copies of the forms are located in Appendix D. Required monitoring includes:

- Quarterly sampling (Form #10301.0110, Storm Water Sampling Log);
- Quarterly visual inspections (Form #10301.0134A, Quarterly Visual Inspection of Storm Water);
- Annual visual inspections (Form #10301.0134B, Annual Visual Inspection of Storm Water); and
- Dry season inspection (Form #10301.0135, Annual Dry Season Inspections).

All monitoring is performed under the direction of a member of the Pollution Prevention Team identified in Table 3.1.1.

The current permit requires that any discharge points where quarterly sampling is not done be inspected visually at least annually during a storm event. Quarterly sampling and visual inspections will occur at Outfalls 002A and 006. Both of these outfalls are considered to be representative outfalls. They were chosen because each of these outfalls collects storm water from industrial activities that are similar in nature to other outfalls or include industrial activities that are not present at other outfalls. Outfall 002A discharges storm water to Port Gardner Bay and Outfall 006 discharges storm water to the Snohomish River.

Annual visual inspections will occur at all eight outfalls with the exception of Outfall 001. This outfall has been covered with rip rap and is not accessible for end-of-pipe discharge sampling. Since the dry wells are located in one area near the kilns, two representative visual inspections will also occur annually, one near the west end and one near the east end of the north kilns.

Monitoring is performed during a storm event. All samples taken at this facility will be grab samples taken during the first hour after discharge begins. The outfalls on the south side of the facility are often below the tide line so sampling from this area is performed at an interior catch basin known as Outfall 002A. Sampling on the north side of the facility occurs at Outfall 006.

The storm event sampled must be at least 0.1 inches of rain in a 24-hour period and must be preceded by at least 24 hours of no measurable precipitation. To determine if a storm event met sampling requirements, samples are taken as required when a prospective rain event begins. Then the website, www.wxusa.com/WA/EVERETT is accessed for the date of sampling (usually the next day) to determine the total rainfall for the sampled storm event. This information is entered into the Storm Water Sampling Log.

For this location, parameters for analysis include:

Parameter	**Units**	**Benchmark Value**
Turbidity	NTU	25 NTU
PH	Standard Units	6-9 SU
Total Zinc	ug/l	117 ug/l
Petroleum (Oil & Grease)	mg/L	15 mg/l

BOD^5	mg/l	30 mg/l

Once a sample is collected, it is immediately packed in ice for transport to the laboratory for analysis. A chain of custody form is filled out for the samples. Collection bottles, the chain of custody forms and a cooler are typically provided by the laboratory that is performing the analysis. The "storm water sampling kit" is picked up at the start of each quarter from the lab to be used to sample discharges from the first measurable storm event of the quarter.

Sampling may be suspended if results do not exceed the benchmark values for eight consecutive quarters of sampling. If no samples were taken during a quarter, the sampling must continue until 8 consecutive quarters' worth of sampling have been taken.

Visual samples are taken using the same methodology as analytical samples. There is no need to put them on ice as these samples are discarded after immediate inspection for required parameters.

Dry season inspections are conducted to determine the presence of non-storm water during times when no storm water is discharging. This inspection is performed annually between July and September. This inspection determines the presence of non-storm water discharges such as domestic wastewater, non-contact cooling water or process wastewater (including leachate) to the storm water system that are not authorized under the permit.

Each quarter, the results of the sampling analyses must be submitted to the Department of Ecology using Discharge Monitoring Reports (DMR). These are due to the DOE on the following schedule:

First Quarter:	Not later than May 15
Second Quarter:	Not later than August 14
Third Quarter:	Not later than November 14
Fourth Quarter:	Not later than February 14

The DMR's can be submitted either electronically or by printed report. Printed reports are submitted to Ecology's headquarters office at:

Industrial Storm Water Permit Manager
Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7596

All other documentation is retained on site. All documentation must be kept on site for a period of not less than five years.

In addition to permit required monitoring, the following tasks have been identified to help ensure compliance with permit requirements:

- Weekly Condensate Line Inspections (Form #10301.0136, Weekly Condensate Line Inspections);

- Monthly Spill Kit Inspections (Form #10301.0133, Spill Kit Inspections); and
- Annual SWPPP Review and Update (Form #10301.0120A, SWPPP Recertification).

2.3 GOOD HOUSEKEEPING

Good Housekeeping practices utilized at the facility include:

- Regular sweeping and maintenance of surfaces exposed to storm water;
- Promptly containing and cleaning up of solid and liquid pollutant leaks and spills including oils, solvents, fuels and dust from manufacturing operations on any exposed soil, vegetation, or paved areas;
- Sweeping paved material handling and storage areas regularly as needed, for the collection and disposal of dust and debris that could contaminate storm water;
- Covering storm drains and wetting down pollutants on paved areas to contain dust and facilitate removal of debris from the area; and
- Solid absorbents and rags are available are used for cleanup of liquid spills/leaks where practicable.

2.4 PREVENTIVE MAINTENANCE

Preventive maintenance BMPs that have been implemented at the site include:

- Routine inspections of storm water control measures and associated structures are performed and documented. Cleaning and maintenance is performed immediately as needed;
- Drip pans are used for collecting and containing leaks and spills from industrial equipment. Following identification of the source of the leak(s), due diligence is exercised to fix and/or minimize the leak; and
- Where exposed to storm water, containers, piping, tubing, pumps, fittings and valves are used that are appropriate for their intended use and for the contained liquid. They are inspected periodically for leaks.

2.5 SPILL PREVENTION AND EMERGENCY CLEAN UP

Each JELD-WEN facility has a site specific Spill Reporting, Response and Cleanup Plan developed for their location. A copy of this plan is located in Appendix F along with state specific reporting information.

2.6 EMPLOYEE TRAINING

All employees that work in pollutant source areas are trained in spill prevention and clean up procedures each year. The training includes a video, “Just Passing Through”, and is documented with

the SWPPP Spill Prevention and Response Training Log and a quiz. Training can be provided in both English and Spanish. Instructions and forms for training are located in Appendix G.

2.7 PEAK FLOW AND VOLUME BMPS

Following review of operational and structural BMPs and historic storm water sampling results, it was determined that peak flow and volume BMPs are not required at this point in time.

APPENDIX A

CERTIFICATION OF NON-STORM WATER DISCHARGES

JELD-WEN

Investigation of Non Storm Water Discharges

This investigation is to be performed during dry weather. To perform the investigation, visually inspect all outfalls to determine the presence or absence of water discharge. Also inspect all roof drains, catch basins and storm water conveyances. In the event of discovery of non-storm water discharges, determine their origin. Visually inspect the discharge for odor, clarity, solids, and other potential pollutants. Determine if the discharge is allowable under Part II.A.4 or Part V of the general storm water permit. If it is, the Storm Water Pollution Prevention Plan must be revised to reflect this. In the event that it is not an allowable discharge, measures must be taken (either through Best Management Practices or removal of the source) to eliminate the discharge from the storm water discharge system.

Type of Investigation: VISUAL

Date of Investigation:

	Is Water Present (Y/N)?	If Yes, Source	Is It An Allowable Discharge?	If No, Corrections Made	Date of Corrections	Inspector
Outfalls						
Roof Drains						
Catch Basins						
Storm Water Conveyances						
Other						

Certification

I certify that the separate storm sewer system has been evaluated for the presence of non-storm water discharges and that the discharge of non-permitted, non-storm water does not occur.

_____ _____

General Manager *Date*

JELD-WEN Engineering
Environmental Engineering Department

APPENDIX B

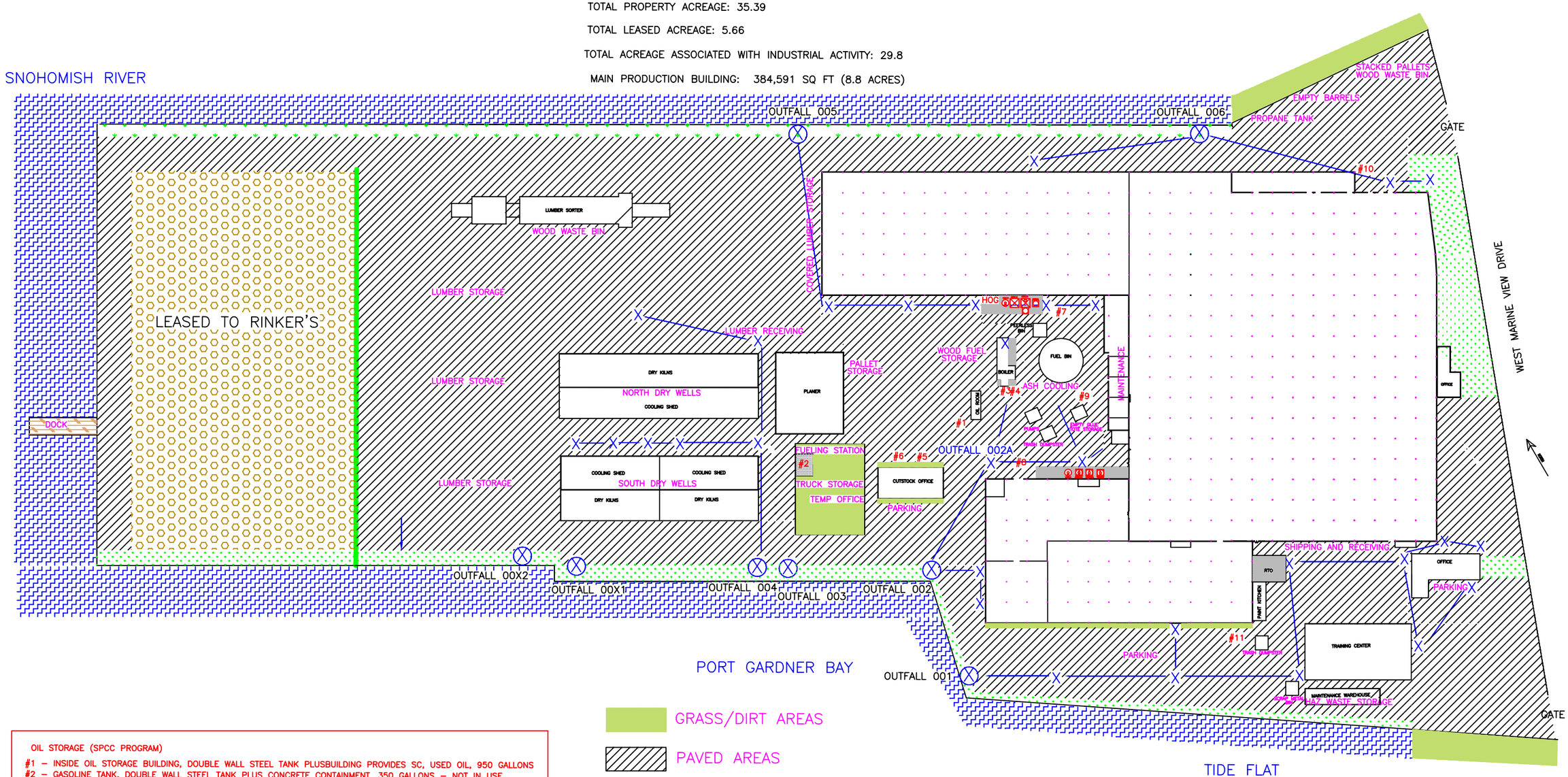
MAPS AND DIAGRAMS

TOTAL PROPERTY ACREAGE: 35.39

TOTAL LEASED ACREAGE: 5.66

TOTAL ACREAGE ASSOCIATED WITH INDUSTRIAL ACTIVITY: 29.8

MAIN PRODUCTION BUILDING: 384,591 SQ FT (8.8 ACRES)



OIL STORAGE (SPCC PROGRAM)

#1 – INSIDE OIL STORAGE BUILDING, DOUBLE WALL STEEL TANK PLUSBUILDING PROVIDES SC, USED OIL, 950 GALLONS
#2 – GASOLINE TANK, DOUBLE WALL STEEL TANK PLUS CONCRETE CONTAINMENT, 350 GALLONS – NOT IN USE
#3 – TRANSFORMER ON TOP OF ESP STACK, NO SC, TRANSFORMER OIL, 160 GALLONS
#4 – TRANSFORMER ON TOP OF ESP STACK, NO SC, TRANSFORMER OIL, 160 GALLONS
#5 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL, 226 GALLONS
#6 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL, 294 GALLONS
#7 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL 327 GALLONS
#8 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL, 327 GALLONS
#9 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL, 615 GALLONS
#10 – TRANSFORMER INSIDE LOCKED FENCE, CONCRETE BARRIER PROVIDES SC, TRANSFORMER OIL, 316 GALLONS
#11 – TRANSFORMER ON CONCRETE SLAB, NO SC, TRANSFORMER OIL

GRASS/DIRT AREAS

PAVED AREAS

GRASSED AREAS

CONCRETE AREAS

TOTAL IMPERVIOUS AREA: 33.28 ACRES (94%)

TOTAL PERVIOUS AREA: 2.11 ACRES (6%)

STORM WATER DIRECTIONAL FLOW

STORM WATER CATCH BASINS

STORM WATER OUTFALLS

P.S.	DWG. REQ'D	ITEM	QTY.	DESCRIPTION	WGHT.

JELD-WEN ENGINEERING, ENVIRONMENTAL ENGINEERING
PHONE (541) 885-7420
P.O. BOX 1329 KLAMATH FALLS, OR

SCALE:	APPROVED BY:	DATE: 03-08-06	DRAWN BY: DKK

DRAWING TITLE: Storm Water Site Plan

PROJECT NUMBER	PLANT NAME & LOCATION: EVERETT FACILITIES, EVERETT, WASHINGTON	DWG. NUMBER	REV.	SHEET 1 OF 1 SHEETS

JELD-WEN

Everett Facilities
Topographic Map
Map Created July 1, 1991

48° 00' 49"N, 122° 12' 37"W
(WGS84/NAD83)
USGS Marysville Quad

JELD-WEN Engineering
Environmental Engineering Department

APPENDIX C

STORM WATER PERMIT

Issuance Date:	August 21, 2002
Effective Date:	September 20, 2002
Expiration Date:	September 20, 2007
Modification Date:	December 1, 2004
Effective Date of Modifications:	January 14, 2005

THE INDUSTRIAL STORMWATER GENERAL PERMIT

A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND STATE WASTE DISCHARGE GENERAL PERMIT FOR
STORMWATER DISCHARGES ASSOCIATED WITH
INDUSTRIAL ACTIVITIES

State of Washington
DEPARTMENT OF ECOLOGY
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions which follow.

David C. Peeler, Manager
Water Quality Program
Washington State Department of Ecology

TABLE OF CONTENTS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S1.D.	Permit Application for Modification of Coverage	As necessary	
S4.	Discharge Monitoring Report (DMR)	Quarterly	August 14, 2003
S4.C	Response to Exceedance of Benchmark Values	As necessary, with DMR	Submit as necessary with DMR
S5.E	Noncompliance Notification	As necessary	
S8.A.	Reporting Bypasses	As necessary	
G14.	Notice of Permit Transfer	As necessary	
G15.	Application for Permit Renewal	1/permit cycle	March 24, 2007

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Who is Required to Have Coverage Under the Industrial Stormwater General Permit?

This is a statewide permit for facilities conducting industrial activities. Most industrial facilities that discharge stormwater to a surface waterbody or to a municipal storm sewer system require permit coverage. Coverage is required for private entities, state, and local government facilities. Existing and new facilities are required to have coverage. For a complete list of industrial categories identified for coverage, see below or Appendix 1-Section C of this permit. Facilities that do not find their SIC code listed should also read Special Condition S12, Determination of Primary Activity. Ecology can also require permit coverage of any facility on a case-by-case basis in order to protect waters of the state.

Except as provided for in special conditions S1.B. and S1.C., permit coverage is required for the following industrial activities if there is a stormwater discharge to a surface waterbody or a storm sewer system that discharges to a surface waterbody:

1. Facilities listed at 40 CFR Subpart 122.26(b)(14)(i-xi, excluding x), Stormwater Discharges; see Appendix #1-Section C, categories 1-9 and 11 for a listing of these facilities. Category 10, construction activities, is not included in this general permit**.**
2. Previously exempt facilities owned or operated by municipalities must obtain coverage by March 10, 2003. These facilities were not required to obtain coverage under the previous industrial stormwater general permit (special condition S2.F.1.) consistent with the Intermodal Surface Transportation and Efficiency Act (ISTEA) exemption. If they meet the criteria for coverage identified in this special condition, they now require coverage.
3. All facilities that are classified as Category 11, Light Industry, that have a discharge to surface water or to storm sewer that discharges to surface water, must apply for coverage or submit a certificate of “no exposure”. This includes those light industry facilities that were not required to apply for coverage under previous releases of this permit because their industrial activities were completely under cover.
4. Facilities which are included in a group application [as described at 40 CFR Subpart 122.26(c)(2)] to USEPA, unless otherwise excluded under this special condition.
5. Any facility that has an existing NPDES discharge permit which does not address all stormwater discharges associated with industrial activity if required by 40 CFR Subpart 122.26(b)(14) to have a stormwater NPDES permit.
6. Any inactive industrial facility which is listed under 40 CFR Subpart 122.26(b)(14), and where significant materials remain on site and are exposed to stormwater.
7. Facilities listed in a. to c. below that have stormwater discharges subject to effluent limitation guidelines:

a. Hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart A.

b. Non-hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart B.

c. Stormwater discharge from coal storage piles.

B. When is Coverage under the Industrial Stormwater General Permit Not Required?

The types of facilities listed below are not required to obtain coverage. However, coverage is not categorically prohibited and these facilities may request coverage if applicable.

1. Industrial facilities that submit an application and qualify for a Conditional "No Exposure" Certificate. (See Special Condition S6. Conditional "No Exposure" Certificate for qualification requirements.)
2. Industrial facilities which discharge their stormwater only to a municipal combined sewer or sanitary sewer. Discharge of stormwater to sanitary or combined sewers shall only occur as authorized by the municipal authority responsible for that sewer.
3. Industrial facilities that discharge all of their stormwater to the ground and have no point source discharge to surface water or a municipal storm sewer unless determined to be a significant contributor of pollutants to ground water. Discharge to ground includes infiltration basins, dry wells, drain fields, and grassy swales. Facilities that discharge to a drywell, drainfield, or an infiltration system that uses perforated pipe to discharge to the subsurface must comply with the Underground Injection Control Program (UIC) regulations, 173-218 WAC.
4. Office buildings and/or administrative parking lots from which stormwater discharges are not commingled with stormwater discharges from areas associated with industrial activity unless determined to be a significant contributor of pollutants to waters of the state.
5. In accordance with 40 CFR 122.3(d), any part of a facility with a discharge which is in compliance with the instructions of an On-Scene-Coordinator pursuant to 40 CFR part 300 (The National Oil and Hazardous Substances Pollution Contingency Plan) or 33 CFR 153.10(e) (Pollution by Oil and Hazardous Substances).
6. Any part of a facility with a stormwater discharge resulting from remedial action conducted by the USEPA or Ecology or a potentially liable/responsible person under an order, agreed order or consent decree issued under the Comprehensive Environmental Response, Compensation, and Liability Act. These facilities must still comply with the substantive requirements in this general permit determined by Ecology to be applicable, relevant and appropriate requirements under these laws.
7. Any land application site used for the beneficial use of industrial or municipal wastewater for agricultural activities at agronomic rates or for landscaping purposes.
8. Any farmland, domestic garden, or land used for sludge management where domestic sewage sludge (biosolids**)** is beneficially reused (nutrient builder or soil conditioner) and which is not physically located in the confines of domestic sewage

treatment works, or areas that are in compliance with Section 405 (Disposal of Sewage Sludge) of the CWA.

9. Any inactive coal mining operation if the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Act (SMCRA) authority has been released.
10. Any inactive noncoal mining operation if released from applicable state or federal reclamation requirements after December 17, 1990. Any inactive noncoal mining operation which does not have a discharge of stormwater that comes in contact with any overburden, raw material, intermediate products, finished products, byproducts, or waste products located on the site of the facility.
11. Inactive mining, inactive oil and gas operations or inactive landfills where neither an owner nor an operator can be identified.

C. What Facilities are EXCLUDED from Coverage?

Ecology will not consider coverage for the following facilities or activities:

1. Except as identified in Special Condition S1.A.7., any part of a facility with a stormwater discharge subject to an Effluent Limitations Guideline, Toxic Pollutant Effluent Standard, or New Source Performance Standard addressing stormwater or a combination of stormwater and process water, (See Section D of Appendix #1). These facilities need to obtain coverage under another NPDES permit for stormwater discharges associated with industrial activity.
2. Nonpoint source silvicultural activities with natural runoff as excluded in 40 CFR Subpart 122.27. This includes silvicultural nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance.
3. Facilities that are federally owned or operated or are on Tribal land, or facilities that discharge stormwater to receiving waters subject to water quality standards of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation.
4. Any facility authorized to discharge stormwater under an existing NPDES individual or other general permit.
5. Construction activities as identified by 40 CFR Subpart 122.26(b)(14)(x) and Subpart 122.26(b)(15).

6. Facilities that discharge to a waterbody with a control plan[1] unless this general permit is adequate to provide the level of protection required by the control plan. Excluded facilities need to obtain coverage under another NPDES permit for stormwater discharges associated with industrial activity.
7. Facilities that discharge to a waterbody listed pursuant to Section 303(d) of the Clean Water Act unless the Permittee can meet the requirements of special condition S3.E. Excluded facilities need to obtain coverage under another NPDES permit for stormwater discharges associated with industrial activity.

D. Modification of Permit Coverage

Any facility with coverage under this general permit that intends to implement a significant process change, request an alternate sampling protocol, request a waiver for stormwater treatment, or add or modify a mixing zone must request a modification of coverage by submitting a revised application for coverage, clearly indicating the proposed change in accordance with the requirements of S2.B.

A significant process change is any modification of the facility that would:

- add different pollutants of a significant amount to the discharge, increase the pollutants in the stormwater discharge by a significant amount, or,
- add a new industrial activity (SIC) that was not previously covered; or
- add additional impervious surface or acreage such that stormwater discharge would be increased by 25% or more.

E. Coverage for Significant Contributors of Pollutants

This permit may also cover any facility discharging stormwater which Ecology determines to be a significant contributor of pollutants to waters of the state of Washington or may reasonably be expected to cause a violation of a water quality standard. Coverage may be required of facilities that are significant contributors of pollutants to ground water even though no discharge to surface water or storm sewer system exists. These determinations are made on a case-by-case basis, are actions subject to appeal as described by RCW 43.21B.230, and consider the following factors:

1. Potential of discharge to cause a violation of surface or ground water quality or sediment management standards,
2. Sensitivity of the receiving waterbody, and
3. Applicability of industrial stormwater general permit to reduce potential to pollute.

F. Coverage for Discharges to Ground Water

Stormwater discharges to ground will be regulated as part of permit coverage for all facilities under this permit. Permittee must also comply with any applicable

[1] Control plans may be total maximum daily load (TMDL) determinations, restrictions for the protection of endangered species, ground water management plans, or other limitations that regulate or set limits on discharges to a specific waterbody or groundwater recharge area.

requirements for discharges to ground under the Underground Injection Control Program (UIC) regulations, 173-218 WAC.

S2. COVERAGE REQUIREMENTS

A. Who Is the Permittee?

The Permittee must have legal authority to manage the facility under the terms and conditions of this permit, including the authority to make capital improvements as necessary. The Permittee must have day-to-day operational control to assure compliance. The owner is the Permittee if they are also the operator of the industrial facility. If the owner and the operator (or tenant) of an industrial facility are not the same, the operator is typically the Permittee and the owner may choose to be a co-Permittee.

B. How Do I Obtain Coverage?

1. Facilities Currently Under Permit

Coverage will continue for all facilities with existing coverage under the industrial stormwater general permit (effective date November 18, 2000) unless otherwise notified by Ecology. This permit revokes and replaces the previous permit on the effective date of this permit. However, existing facilities must submit to Ecology by November 30, 2002, a completed identification of receiving waterbody and declaration of mixing zone form (form provided by Ecology).

2. Facilities with Applications Currently Pending

Applications for coverage under the previous permit that were received before the effective date of this permit but processing was incomplete will be processed for coverage under the reissued permit. Those with pending applications are not required to submit a new application. However, additional information will be required to complete processing including the identification of receiving waterbody and declaration of mixing zone form provided by Ecology and a copy of the stormwater pollution prevention plan (SWPPP).

3. New Facilities or Existing Facilities Not Under Permit Coverage

New facilities and existing facilities that do not already have permit coverage must submit Ecology's Industrial Stormwater General Permit Application for Coverage to obtain coverage. Unless not required under S1.B. or excluded under S1.C., all facilities that require a permit for the discharge of stormwater under S1.A. but are not already permitted for that discharge must submit an application for coverage to Ecology as follows:

a. Municipal Previously Exempt Facilities (ISTEA)

Those municipal facilities identified in S1.A.2. must submit an application for coverage:

i. Facilities that existed before the effective date of this permit, September 20, 2002, shall submit an application for coverage by January 31, 2003. Public notice is not required.

ii. Facilities that begin operation on or after the effective date of this permit shall submit an application for coverage by January 31, 2003 or at least 38 days before the commencement of the industrial activity. They shall comply with the requirements for new facilities (S2.B.3.c.)

b. Existing Facilities

Existing facilities are those facilities that were in operation before the effective date of this permit, September 20, 2002. Facilities that are in operation and identified for coverage as "significant contributors of pollutants", S1.E. are considered existing facilities. Facilities that had coverage but lost it because they failed to renew coverage as required by this permit, lost coverage as a result of failure to pay permit fees or other enforcement action, or who terminated coverage and then reapply for coverage will be considered "new" facilities. Existing facilities required under special condition S1.A. to have coverage but which failed to obtain coverage may be subject to enforcement action for discharging without a permit and shall complete public notice requirements for application for coverage. Existing facilities shall submit an application for coverage to Ecology within 30 days of notification by Ecology that coverage is required.

c. New Facilities

i. All new industrial facilities must apply for coverage at least 38 days before the commencement of the industrial activity.

ii. All new industrial facilities must have their stormwater pollution prevention plan completed and implemented before the commencement of the industrial activity. Completed means all SWPPP components that can be completed before operation are included in the SWPPP. Implemented applies to all BMPs identified in the SWPPP including those that require capital investment. The SWPPP must be submitted to Ecology with the application for coverage. Receipt of the SWPPP by Ecology does not constitute review or approval of the SWPPP contents.

iii. The applicant must comply with the State Environmental Policy Act (SEPA) before receiving permit coverage.

iv. The applicant must complete public notice requirements before receiving permit coverage.

4. Facilities with Significant Process Change

Any facility anticipating a significant process change as identified in S1.D., Modification of Permit Coverage, must submit a completed application for coverage, marked as modification of coverage, as follows:

a. The facility must apply for modification of coverage at least 38 days before implementing the significant process change.

b. The applicant must complete public notice requirements before receiving modification of permit coverage.

c. The facility must have their stormwater pollution prevention plan updated and implemented to reflect the change before commencement of the significant process change. The updated SWPPP must be submitted to Ecology with the application for coverage. Receipt of the SWPPP by Ecology does not constitute review or approval of the SWPPP contents.

d. The applicant must comply with the State Environmental Policy Act (SEPA) as applicable to the proposed significant process change.

5. Add or Modify Mixing Zone

Any Permittee submitting a request to add or modify a mixing zone must submit a completed application for coverage, marked as modification of coverage, as follows:

a. The Permittee must apply for modification of coverage at least 38 days before a changed mixing zone can become effective.

b. The Permittee must complete public notice requirements before receiving modification of permit coverage.

c. Modification of coverage that includes a request for a mixing zone will not be effective until approved by Ecology.

6. Modify Sampling Protocol

Any Permittee submitting a request to modify the permit sampling protocol for their facility must submit a completed application for coverage, marked as modification of coverage.

a. The Permittee must submit a request detailing the proposed changes in sampling protocol with documentation on why the proposed changes are appropriate.

b. The Permittee must complete the public notice requirements.

c. The proposed changes will not become effective unless approved by Ecology.

7. Light Industry Previously Exempt

Any category 11 facility, light industry (see Appendix 1), that was not required to apply for coverage under the "no exposure" provision in the previous permit must submit an application for coverage or an application for "no exposure" within three (3) months of the effective date of this permit.

C. Is There a Compliance Schedule for Developing and Implementing the SWPPP?

No compliance schedule is authorized under this permit for developing and implementing the stormwater pollution prevention plan except as identified below:

1. Permittees have until March 1, 2003 to complete the stormwater monitoring plan required under stormwater pollution prevention plan, S9.B.2.

2. For ISTEA existing facilities (S2.B.3.a.i.)

a. The Stormwater Pollution Prevention Plan (SWPPP) must be completed and submitted to Ecology by March 10, 2003. Receipt of the SWPPP by Ecology does not constitute review or approval of the SWPPP contents.

b. Implementation of non-capital best management practices (BMPs) must be completed by May 10, 2003. BMPs that require a capital investment must be completed by November 10, 2003.

3. For existing facilities not previously permitted (S2.B.3.b.)

   a. The Stormwater Pollution Prevention Plan (SWPPP) must be completed and submitted to Ecology within 30 days of receiving coverage. Receipt of the SWPPP by Ecology does not constitute review or approval of the SWPPP contents.

   b. Implementation of non-capital best management practices (BMPs) must be completed within 90 days of receiving coverage. BMPs that require a capital investment must be implemented within nine (9) months of receiving coverage.

D. What are Public Notice Requirements?

Public notice must be published once each week for two consecutive weeks (twice), at least seven days apart, in a newspaper of general circulation within the county in which the discharge is proposed. The public has up to 30 days after the second publication to comment on the proposal. At a minimum, public notice must include the following:

1. A statement that the applicant is seeking coverage under the Washington Department of Ecology's NPDES General Permit for Stormwater Discharges Associated with Industrial Activities;
2. The name, address and location of the facility where the proposed discharge would occur;
3. The name and address of the applicant if different from facility in 2. above;
4. A description of the type of business, description of areas from which a stormwater discharge will occur including acreage, and when industrial activities will begin;
5. A brief description of stormwater management activities that provide source control and treatment;
6. Whether application is for a new permit coverage or modification of existing permit coverage;
7. Identification of the waters that will receive the stormwater discharge and if a mixing zone is included;
8. Whether the facility has any other wastewater discharge permit; and
9. The statement: “Any person desiring to present their views to the Department of Ecology concerning this application, or interested in the department's action on this application may notify the Department of Ecology in writing within 30 days of the last date of publication of this notice. Comments shall be submitted to: Department of Ecology, P.O. Box 47696, Olympia, WA 98504-7696.”

E. When Does Coverage Begin?

Ecology intends to notify applicants by mail of their status concerning coverage under this permit within 30 days of completion of all application requirements including compliance with SEPA and public notice requirements.

1. Except for an application that includes a mixing zone or a modification of coverage to change a Permittee's sampling protocol, if the applicant does not receive notification from Ecology, coverage/modification of coverage under this permit automatically commences on the later of the following:

   a. The thirty-first (31st) day following receipt by Ecology of a completed application for coverage;

   b. The thirty-first (31st) day following the end of a thirty (30) day public comment period; or

   c. The effective date of the general permit.

2. Additional time may be required to review the application:

   - if the application is incomplete, or
   - if Ecology requires additional site-specific information, or
   - if there is a request for a public hearing, or
   - if public comments are filed, or
   - when more information is necessary to determine whether coverage under the general permit is appropriate for a facility.

   When additional time is required:

   a. Ecology will notify the applicant in writing and identify the issues that must be resolved before a decision can be reached.

   b. Ecology will submit the final decision to the applicant in writing. If the application for coverage/modification of coverage is approved, coverage begins the thirty-first (31st) day following approval.

3. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable, within thirty days of the effective date of coverage or modification of coverage of that discharger. For those dischargers under permit on the effective date of this permit, the thirty day appeal period begins with the effective date of the general permit. The procedures and requirements for the appeal process are contained in RCW 43.21B.310.

4. If the applicant has an individual permit but applies for coverage under the general permit, the individual permit will remain in effect until terminated in writing by Ecology. However, an expired individual permit, pursuant to WAC 173-220-180(5), will terminate upon coverage by the general permit.

F. Does Coverage Preempt Local Government Requirements?

The Permittee must comply with local government requirements. Where the permit and local government requirements overlap, the most restrictive requirements shall be followed.

Facilities with stormwater discharge to a storm sewer operated by any of the following municipalities shall send a copy of their application for coverage to the appropriate municipality:

Seattle, King County, Snohomish County, Tacoma, Pierce County, Clark County.

G. Do I have to Reapply for Coverage When This Permit Expires?

Facilities that have coverage under the industrial stormwater general permit must reapply for coverage by submitting the Application for Renewal of Coverage at least 180 days before the specified expiration date of this permit.

S3. DISCHARGE LIMITATIONS

A. Authorized Stormwater and Non-Stormwater Discharges

Beginning on the effective date of this permit and lasting through its expiration date, the Permittee is authorized to discharge stormwater and conditionally approved non-stormwater discharges to waters of the state. All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

B. Discharges Prohibited

Unless authorized by a separate NPDES or state waste discharge permit, the following discharges are prohibited.

1. The discharge of process wastewater is not authorized. *Process wastewater* means any water which, during manufacturing or processing comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Stormwater that commingles with process water becomes process water. This definition of process wastewater does not include non-stormwater discharges conditionally approved under S.3.C.

2. Illicit discharges are not authorized by this permit, nor does it relieve entities responsible for illicit discharges, including spills of oil or hazardous substances, from obligations under state and federal laws and regulations pertaining to those discharges. Conditionally approved non-stormwater discharges in compliance with S.3.C are not illicit discharges.

C. Conditionally Approved Non-Stormwater Discharges

The categories and sources of non-stormwater discharges identified in condition S.3.C.1 below are not considered illicit discharges and are conditionally approved, provided the discharge is otherwise

consistent with the terms and conditions of this permit, AND the non-stormwater discharges are in compliance with the non-stormwater conditions in S.3.C.2.

1. Conditionally approved non-stormwater discharges include:

   a. Discharges from fire fighting activities;

   b. Fire protection system flushing, testing, and maintenance;

   c. Discharges of potable water including water line flushing, provided that water line flushing must be de-chlorinated prior to discharge;

   d. Uncontaminated air conditioning or compressor condensate;

   e. Irrigation drainage;

   f. Uncontaminated ground water or spring water;

   g. Discharges associated with dewatering of foundations, footing drains, or utility vaults where flows are not contaminated with process materials such as solvents;

   h. Incidental windblown mist from cooling towers that collects on rooftops or areas adjacent to the cooling tower. This does not include intentional discharges from cooling towers such as piped cooling tower blow down or drains.

2. Non-stormwater discharges identified in Section S.3.C.1 above are conditionally approved provided the Stormwater Pollution Prevention Plan required in S.9 includes the following for each non-stormwater discharge, and the non-stormwater discharge is in compliance with all applicable discharge limitations in S.3 including compliance with state water quality standards. The SWPPP shall:

   a. Identify each non-stormwater source including the location of where it is likely to be discharged into the stormwater collection system;

   b. Characterize the non-stormwater source, including estimated flows or flow volume, and likely pollutants which may be present;

   c. Non-stormwater discharges which include mist from cooling towers must be evaluated to determine the potential for the discharge to be contaminated by chemicals used or which may be present in the cooling tower mist;

   d. Evaluate and implement available and reasonable source control best management practices to reduce or eliminate the discharge;

   e. Evaluate, and if necessary to comply with state water quality standards, design and implement appropriate best

management practices for each non-stormwater source derived from information gathered in items b through c above to control pollutants and or flow volumes.

f. Discharges associated with fire fighting activities are exempt from the provisions of S.3.C.2.

g. Discharges of uncontaminated ground or spring water are exempt from the provisions of S.3.C.2.

D. Stormwater Discharges Subject to Effluent Guideline Limits

Stormwater discharges from the following facilities/activities are authorized subject to effluent limitations. The discharge of the pollutants at a level more than that identified and authorized by this permit for these facilities/activities shall constitute a violation of the terms and conditions of this permit.

1. Hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart A

	EFFLUENT LIMITATIONS FOR HAZARDOUS WASTE LANDFILLS	
Parameter	**Average Monthly[a]**	**Maximum Daily[b]**
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	
BOD5	56 mg/L	220 mg/L
TSS	27 mg/L	88 mg/L
Ammonia	4.9 mg/L	10 mg/L
Alpha Terpineol	0.019 mg/L	0.042 mg/L
Aniline	0.015 mg/L	0.024 mg/L
Benzoic Acid	0.073 mg/L	0.119 mg/L
Naphthalene	0.022 mg/L	0.059 mg/L
p-Cresol	0.015 mg/L	0.024 mg/L
Phenol	0.029 mg/L	0.048 mg/L
Pyridine	0.025 mg/L	0.072 mg/L
Arsenic (total)	0.54 mg/L	1.1 mg/L
Chromium (total)	0.46 mg/L	1.1 mg/L
Zinc	0.296 mg/L	0.535 mg/L

[a] The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. If only one sample is taken during the calendar month, the average monthly effluent limitation applies to that sample. If only one sample is taken during the monitoring quarter, the average monthly effluent limitation applies to that sample.

[b] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. The daily discharge is the average measurement of the pollutant over the day.

2. Non-hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart B

	EFFLUENT LIMITATIONS FOR NON-HAZARDOUS WASTE LANDFILLS	
Parameter	**Average Monthly[a]**	**Maximum Daily[b]**
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	
BOD5	37 mg/L	140 mg/L
TSS	27 mg/L	88 mg/L
Ammonia	4.9 mg/L	10 mg/L
Alpha Terpineol	0.016 mg/L	0.033 mg/L
Benzoic Acid	0.071 mg/L	0.12 mg/L
p-Cresol	0.014 mg/L	0.12 mg/L
Phenol	0.015 mg/L	0.026 mg/L
Zinc (total)	0.11 mg/L	0.20 mg/L

[a] The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. If only one sample is taken during the calendar month, the average monthly effluent limitation applies to that sample. If only one sample is taken during the monitoring quarter, the average monthly effluent limitation applies to that sample.

[b] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. The daily discharge is the average measurement of the pollutant over the day.

3. Exposed Coal Piles Regardless of Facility Category

	EFFLUENT LIMITATIONS FOR COAL PILES	
Parameter	**Average Monthly[a]**	**Maximum Daily[b]**
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	
Total Suspended Solids (TSS)	NA	50 mg/L

[a] The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. If only one sample is taken during the calendar month, the average monthly effluent limitation applies to that sample. If only one sample is taken during the monitoring quarter, the average monthly effluent limitation applies to that sample.

[b] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. The daily discharge is the average measurement of the pollutant over the day.

E. Stormwater Discharges to Impaired Waterbodies Except 303(d) Listings for Sediment and Tissue

The Permittee's discharge must not cause or contribute to an excursion of the State's water quality standards, including the State's narrative criteria for water quality. For 303(d) listings based on numeric water quality criteria, Permittees must comply with the State's water quality standard for each pollutant named as a pollutant causing a violation of water quality standards at the location named on the State's 303(d) list except for temperature which is not required and fecal coliform which is only required if there is a potential source from the industrial activity. Ecology will not require monitoring for fecal coliform if the Permittee can document that there is no potential source of fecal coliform from any of their industrial activities. A permittee's requirements to comply with this condition will be listed on the cover sheet. Ecology will maintain an electronic list of permittees subject to this permit condition. This list, titled Appendix 4, is available on Ecology's web site.

For waterbody segments listed as impaired by the State under Section 303(d) of the Clean Water Act, the applicable 303(d) list is the list which is in effect August 21, 2002, or the 303(d) list which is in effect at the date the first application for coverage is received by Ecology, whichever is later.

Permittees must be in compliance with applicable Total Maximum Daily Load (TMDL) determinations. Applicable TMDLs or TMDL determinations are TMDLs which have been completed by the issuance date of this permit, or which have been

completed prior to the date that the permittees application is received by Ecology, which ever is later. A permittee's requirements to comply with this condition will be listed on their cover sheet. Ecology will maintain an electronic list of permittees subject to this permit condition. This list, titled Appendix 5, is available on Ecology's web site.

Unless the first application for coverage is received **after** any updated 303(d) list is effective, changes associated with revised 303(d) lists completed after September 20, 2002 will only become effective if they are imposed through an administrative order issued by Ecology.

Unless the first application for coverage is received **after** the TMDL is completed TMDL requirements associated with TMDLs completed after the issuance date of this permit will only become effective if they are imposed through an administrative order issued by Ecology.

1. New Facilities and Significant Process Change

   New facilities that discharge either directly or indirectly via a stormwater conveyance system to waterbody segments listed as impaired by the State under Section 303(d) of the Clean Water Act must comply with the State's water quality standards for the named pollutant(s) at the point of discharge. Facilities with coverage under this permit, that implement a significant process change (see S1.D.1.) must either comply with the State's water quality standards for the named pollutant(s) at the point of discharge or demonstrate no increase in loading from the entire facility as a result of the process change. All new discharges including new discharges associated with significant process changes must be in compliance with any applicable TMDL determination.

PARAMETER	**EFFLUENT LIMITATIONS:** **NEW FACILITIES TO IMPAIRED WATERS OR WATERS COVERED BY A TMDL**
Parameter(s) as identified for the 303(d) listed segment or if applicable, TMDL determination	As listed on the coversheet, based on Chapter 173-201A or as identified in the TMDL or listing documentation

2. Existing Facilities discharging to water bodies for which an applicable TMDL has been completed:

PARAMETER	EFFLUENT LIMITATIONS: EXISTING FACILITIES TO WATERS COVERED BY A TMDL
Parameter(s) as identified in the applicable TMDL	As listed on the cover sheet to comply with the applicable TMDL

Note: A current listing of permittees subject to this permit condition and the specific effluent limitations and monitoring requirements, Appendix 5, is available on Ecology's web site.

3. Existing facilities which discharge either directly or indirectly via a stormwater conveyance system to waterbody segments listed as impaired by the State under Section 303(d) of the Clean Water Act are subject to the general compliance with standards provisions in S7. Additional monitoring and benchmarks apply as described in S.4.G

Note: A current listing of permittees subject to this permit condition, and the associated benchmarks and monitoring requirements, Appendix 4, is available on Ecology's web site.

F. Mixing Zones

A mixing zone may be requested during application for coverage or through modification of coverage. The applicant/Permittee must demonstrate that their discharge meets the applicability requirements listed below under S3.F.1. Mixing zone information must also be included in the public notice of the application for coverage/modification of coverage. The mixing zone is authorized when the application for coverage or modification of coverage becomes effective (see special condition S2, Coverage Requirements).

1. A mixing zone is only applicable when:

   a. The pollutant is not subject to 303(d) listing at the point of discharge to a listed segment/grid;

   b. The receiving waterbody does not have a control plan[2] that would limit available dilution;

   c. The facility has implemented all known, available and reasonable methods of prevention, control and treatment (AKART) as identified below:

      i. the facility has prepared and implemented a stormwater pollution prevention plan consistent with permit requirements

[2] Control plans may be total maximum daily load (TMDL) determinations, restrictions for the protection of endangered species, ground water management plans, or other limitations that regulate or set limits on discharges to a specific waterbody or groundwater recharge area.

ii. all appropriate best management practices established for stormwater pollutant control associated with their industry as identified by Ecology's stormwater management manual have been applied to the discharge

d. The mixing zone does not have a reasonable potential to result in a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the waterbody, result in damage to the ecosystem, or adversely affect public health as determined by Ecology; and

e. The mixing zone does not create a barrier to the migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.

2 The size of the requested mixing zone must be defined by the applicant/Permittee and the applicant/Permittee must clearly demonstrate the requested mixing zone complies with the requirements of Chapter 173-201A WAC. The mixing zone will only become effective if Ecology approves it in writing and after the public notice requirements of S2.B.5 have been met.

3. A mixing zone shall be automatically revoked when notified by Ecology that an Ecology site inspection has determined the site does not meet the applicability requirements listed under S3.F.1 and S3.F.2.

G. General Prohibitions

All facilities must manage stormwater discharges to prevent the discharge of:

1. Synthetic, natural or processed oil or oil-containing products as identified by an oil sheen or

2. Floating materials

S4. MONITORING REQUIREMENTS

All facilities under this permit that discharge to surface water are required to conduct quarterly monitoring and sampling of stormwater as identified below. Facilities identified or covered as significant contributors of pollutants may be required to perform additional sampling and/or analysis as a condition of coverage. The Permittees must report their monitoring results for each quarter. The results of visual monitoring will be recorded in writing, signed according to General Condition G-17 and kept with the stormwater pollution prevention plan. The results of sampling and analysis will be submitted to Ecology. All monitoring reports will retained for a minimum of five years, consistent with S5.B., Records Retention**.** If there is no discharge during the entire quarter, the Permittee must submit a report stating that no discharge occurred. If the Permittee was not required to conduct sampling and analysis based on consistent attainment of benchmark values, the Permittee must submit a report stating that sampling was not required based on consistent attainment. The quarters are defined as:

First Quarter: January, February, March

Second Quarter:	April, May, June
Third Quarter:	July, August, September
Fourth Quarter:	October, November, December

A. Sampling Requirements

Stormwater must be sampled according to the instructions below unless the Permittee submits an alternative plan as a modification of coverage and it is approved by Ecology. The Permittee is not required to sample outside of regular business hours or during unsafe conditions. If a Permittee is unable to sample during a monitoring quarter they must submit an explanation with the monitoring report explaining why. Sampling of stormwater will be conducted in accordance with the following requirements. If one or more of the sample collection criteria below can not be met, the permittee must still collect and submit stormwater sampling result. A permittee is required to sample only once in a sample collection period and use its best efforts to achieve the storm event sample collection criteria. If a sample is taken and one or more of the sample collection criteria are not met, the permittee is not required to conduct additional sampling for that sample collection period.

1. The Permittee may take a single grab sample, a time-proportionate sample, or a flow proportionate sample. Grab samples are taken within the first hour after discharge begins. Time-proportionate and flow proportionate samples are started within the first 30 minutes after discharge begins and are taken over a two hour period.

2. All samples, except stormwater from coal piles, are taken as close to the point of discharge as reasonably practical and can be achieved safely. Stormwater from coal piles is sampled before the stormwater from the coal pile commingles with stormwater for other sources.

3. The storm event sampled is at least 0.1 inches of rain in a 24-hour period or the storm event has an intensity equal to 0.1 inches or greater in a 24 hour period proceeding sample collection.

4. The storm event sampled is preceded by at least 24-hours of no greater than trace precipitation.

5. Sampling is conducted to capture stormwater with the greatest exposure to significant sources of pollution. Each distinct point of discharge offsite must be sampled and analyzed separately if activities and site conditions that may pollute the stormwater are likely to result in discharges that will significantly vary in the concentration or type of pollutants. Where pollutant types do not vary, the Permittee may sample only the discharge point with the highest concentration of pollutants. However, the SWPPP must include documentation on how these determinations were made and in the description of each point of discharge, include the relative quantity (volume) of discharge and pollutants likely to be found.

A permittee is only required to sample once per quarter and use its best efforts to achieve the storm event sampling criteria.

If a sample is taken but one or more of the criteria listed above are not met, the Permittee must submit the sample results and must include an explanation with the monitoring report identifying what criteria were not met and why. If a Permittee is not able to collect a sample, the permittee must still submit a quarterly discharge monitoring report and must include an explanation of why a sample was not collected.

B. Exceptions to Sampling Requirements

1. Facilities that are inactive and unstaffed during an entire quarter must notify Ecology at the beginning of the inactive period. Monitoring will typically not be required during the inactive and unstaffed period but may be required if conditions at the inactive site warrant it. To be eligible for a monitoring waiver at inactive and unstaffed sites you must certify the site is unstaffed and inactive and that pollutant generating activities (e.g. vehicle maintenance) are not occurring at the site. The certification must be signed in accordance with signatory requirements of G17 and must include a projected start and end date during which the site is inactive and unstaffed. The signed certification must be sent to Ecology prior to the beginning of the inactive period. A copy of the certification must also be kept with the Stormwater Pollution Prevention Plan. Unstaffed is defined as no staff assigned industrial or pollutant generating activities. A site may be "unstaffed" even when security personnel are present, provided that pollutant generating activities are not included in their duties.

2. Sampling may be suspended for one or more parameters based on consistent attainment of benchmark values as described below. However, a facility that conducts a significant process change must continue monitoring and may not use previous monitoring to demonstrate consistent attainment. Visual monitoring is not suspended.

3. Stormwater sampling requirements under this provision, S4.A., may be modified by Ecology for facilities that have received an "extreme hardship fee reduction" under chapter 173-224 WAC. In addition to economic hardship, Ecology must also determine that stormwater from the site will pose no significant environmental risk. Qualifying facilities must submit a written request for relief to Ecology. After receipt of the request, Ecology will conduct a site visit to evaluate whether stormwater runoff from the site constitutes a significant environmental risk. No reduction is authorized except through a written statement from Ecology that specifies the reduction that will be allowed. There will be no reduction in the visual monitoring requirements of this provision.

C. Response to Monitoring Results Above Permit Benchmark Values

The requirements of this condition apply to monitoring results collected after December 31, 2004. Any facility monitoring more than once per quarter shall use the average all of the monitoring results for each parameter monitored during the

quarter to determine whether the following adaptive management requirements are applicable.

Level One Response

Each time after December 31, 2004 quarterly sampling results are above a benchmark value or outside the benchmark range for pH, the permittee shall take the following actions:

Actions:

The permittee shall:

1) conduct an inspection of their facility as promptly as possible but no later than two weeks after receipt of sampling results.

2) The inspection shall:

- evaluate possible sources of the benchmark parameter in the stormwater discharge,
- identify source /operational control methods by which the permittee can further reduce stormwater contamination,
- evaluate whether any improvements or changes to the stormwater pollution prevention plan are warranted to control the benchmark parameter,

3) summarize the results, including remedial actions taken, if any, and place them in the SWPPP,

4) evaluate the need for a level two or three response as outlined below, and

5) include a brief summary of inspection results and remedial actions with the quarterly discharge monitoring report for the quarter for which sample results were above benchmark values.

Action Levels

– for samples collected after December 31, 2004

If any two out of the four previous quarterly sampling results for a parameter are above the action levels identified below, the permittee shall proceed with a level two response. If any four quarterly samples for a particular parameter are above the action levels identified below, the permittee shall proceed with a level three response.

Parameter	Action Level
Total Copper	149 µg/L
Total Lead	159 µg/L
Total Zinc	372 µg/L
Petroleum Oil & Grease	30 mg/L
Turbidity	50 NTU
BOD5	60 mg/L
Ammonia	38 mg/L
Nitrate/Nitrite Nitrogen	1.36 mg/L
Total Phosphorous	4.0 mg/L
pH	Outside the range of 5-10
Cover sheet parameters for 303(d) listed waterbody segments not listed above	Twice the benchmark level

Level Two Response

A level two response shall be immediately initiated whenever two out of the previous four quarterly sampling results collected after December 31, 2004 are above the action levels identified above.

Action:

The Permittee shall:

1) promptly identify the potential sources of stormwater contamination that are causing or contributing to the presence of the benchmark parameter,

2) investigate all available options of source control, operational control and stormwater treatment best management practices to reduce stormwater contaminate levels below permit benchmark values,

3) implement additional source and operational best management practices identified as part of this investigation,

4) prepare a level two source control report outlining actions taken, planned and any scheduled for implementing source and operational best management practices to reduce stormwater contaminate levels, and

5) submit the level two source control report to Ecology within six months of initiating a level two response.

Level Three Response

If any four quarterly samples collected after December 31, 2004 are above the action levels identified above, the permittee shall immediately initiate a level three response.

Action:

The Permittee shall:

1) promptly identify the potential sources of stormwater contamination that are causing or contributing to the presence of the benchmark parameter,

2) investigate all available options of source control, operational control and stormwater treatment best management practices to reduce stormwater contaminant levels to or below permit benchmark values,

3) implement additional source control, operational control and stormwater treatment best management practices identified as part of this investigation within twelve months of initiating the level three response,

4) prepare a level three source control report outlining actions taken, planned and scheduled to reduce stormwater contaminant levels including stormwater treatment best management practices, and

5) submit the level three source control report to Ecology within twelve months of initiating a level three response.

6) The permittee may request a waiver from employing stormwater treatment best management practices. The waiver request must be submitted to Ecology within 3 months of initiating the level three response and must include an explanation why the implementation of stormwater treatment best management practices are infeasible,

and are not necessary for compliance with water quality standards due to unique site conditions. The stormwater treatment waiver request must be reviewed and approved by Ecology as a modification of permit coverage in accordance with condition S1.D before the stormwater treatment waiver becomes effective.

Compliance with the requirements of this condition does not relieve the permittee of the duty to comply with any other applicable conditions of this permit.

D. Monitoring Requirements for All Facilities

Beginning with the second quarter of the year 2003, all facilities must conduct quarterly monitoring of authorized discharges of stormwater. Facilities that discharge only to ground must complete visual monitoring but are not required to conduct sampling and analysis unless specified by an Order issued by Ecology. Monitoring of discharges to surface water shall consist of visual monitoring and stormwater sampling.

1. Visual Monitoring

Visual monitoring shall be done at least quarterly and must include observations made at stormwater sampling locations at the time of sampling. Discharge locations that are not sampled shall receive visual inspection at least annually during a storm event. Visual monitoring includes discharges to ground. Inspection shall include observations for the presence of floating materials, visible sheen, discoloration, turbidity, odor, etc. in the stormwater discharge(s). Visual monitoring shall assess the SWPPP BMPs required by this permit. The visual inspection shall be conducted by personnel named in the SWPPP to verify that the description of potential pollutant sources required under this permit is accurate; the site map as required in the SWPPP has been updated or otherwise modified to reflect current conditions; and the controls to reduce pollutants in stormwater discharges associated with industrial activity identified in the SWPPP are implemented and adequate.

In addition to quarterly visual inspection during storm events, the Permittee shall conduct at least one dry season (July, August, September) inspection each year by personnel named in the SWPPP and after at least seven (7) consecutive days of no precipitation. The dry season inspection shall determine the presence of nonstormwater discharges such as domestic wastewater, noncontact cooling water, or process wastewater (including leachate) to the stormwater drainage system that are not authorized under this permit**.** It does not include inflow of ground water. If a nonstormwater discharge is discovered, the Permittee shall notify Ecology. The Permittee shall eliminate the illicit discharge within 30 days.

Effective December 31, 2004, the results of each inspection/visual monitoring event shall be summarized in an inspection report or checklist and be entered into or attached to the Permittees SWPPP. Quarterly, visual monitoring reports must be signed by the person making the observations. Visual monitoring reports must

be reviewed and signed by a duly authorized representative of the facility as described in condition G.17. Monitoring reports must include a certification that, in the judgment of the person signing the report, the facility is in compliance or non-compliance with the SWPPP and the permit, and identifying any incidents of non-compliance. If the site inspection indicates that the requirements of the SWPPP or the permit are not being met, the visual inspection report must include a summary of the actions which will be taken to meet the requirements of the SWPPP and the permit. Reporting of any non-compliance identified as part of visual inspections/visual monitoring shall be as required under S5.E of this permit.

2. Stormwater Sampling

Stormwater shall be sampled for the parameters listed in the following table. The Permittee may suspend stormwater sampling and analysis for turbidity, pH, zinc, and petroleum based on consistent attainment of benchmark values. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported values are equal to or less than the benchmark values. For pH equal to or less than the benchmark values means that the pH did not exceed 9 and was not less than 6**.** It is not necessary to test and report parameters that are required under other categories unless different sampling points are required (e.g. coal piles).

Benchmark values are not water quality standards and are not permit limits. They are indicator values. Values at or below benchmark are considered unlikely to cause a water quality violation.

The listed test methods are the EPA standard methods considered appropriate for the required test. Equivalent or superior test methods may be substituted by an accredited lab. All meters used onsite for sample analysis must be operated in accordance with the manufacturers' requirements and properly calibrated.

Parameter	**Units**	**Analytical Method**	**Benchmark Value**	**Minimum Sampling Frequency**
Turbidity	NTU	meter	25 NTU	Quarterly
pH	Standard Units	meter/litmus paper	6 – 9 SU	Quarterly
Total Zinc	µg/L	EPA 200.7	117 µg/L	Quarterly
Petroleum - Oil and Grease	mg/L	EPA 1664 or 1664A	15 mg/L	Quarterly

3. Additional Metal Sampling

If the value for total zinc exceeds the benchmark value for two consecutive quarters, beginning with the next sampling quarter the Permittee shall include analysis for copper and lead as defined below. Analysis for these parameters will be required for the remainder of the permit term unless the Permittee becomes eligible to suspend monitoring through consistent attainment of benchmark

values. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported value for a parameter is equal to or less than the benchmark value**. Testing for hardness is not required for discharges to marine waters.**

Parameter	Units	Analytical Method	Benchmark Value	Minimum Sampling Frequency
Total Copper	µg/L	EPA 200.7	63.6 µg/L	Quarterly
Total Lead	µg/L	EPA 200.7	81.6 µg/L	Quarterly
Hardness	mg/L	EPA 130.1 or 130.2	NA	Quarterly

E. Additional Monitoring Requirements by Industrial Group

In addition to the requirements above, beginning with the second quarter of the year 2003, all facilities identified by category below must conduct quarterly monitoring of authorized discharges of stormwater to surface water for the listed parameters. Stormwater sampling requirements under this provision, S4.E, may be reduced by Ecology for facilities that have received an "extreme hardship fee reduction" under chapter 173-224 WAC. In addition to economic hardship, Ecology must also determine that stormwater from the site will pose no significant environmental risk. Qualifying facilities must submit a written request for relief to Ecology. Ecology will conduct a site visit to evaluate whether stormwater runoff from the site constitutes a significant environmental risk. No reduction is authorized except through a modification of permit coverage in accordance with condition S1.D that specifies what, if any, reduction will be allowed.

1. Timber Product Industry, Paper and Allied Products

This group includes industries identified by SIC codes 24xx except for 2434 (wood Kitchen Cabinets) and industries identified by SIC codes 26xx except for 265x (Paperboard Containers) and 267x (converted paper and paperboard products).

Parameter	Units	Analytical Method	Benchmark Value	Minimum Sampling Frequency
BOD5	mg/L	EPA 405.1 or Standard Methods 5210B	30 mg/L	Quarterly

The Permittee may suspend stormwater sampling and analysis for BOD5 based on consistent attainment of benchmark values. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported value for BOD5 is equal to or less than the benchmark value.

2. Air Transportation

This group includes industries identified by SIC codes 4512-4581, air transportation, that use more than 100,000 gallons of glycol-based deicing/anti-icing and/or 100 tons or more of urea on an average annual basis. Monitor ONLY those outfalls from the airport facility that collect runoff from areas where deicing/anti-icing activities occur. Sample 4 times during the period when deicing activities are occurring.

Parameter	Units	Analytical Method	Benchmark Value	Minimum Sampling Frequency
Ammonia*	mg/L	EPA 350.1	19 mg/L	4/Year
Nitrate/ Nitrite as N*	mg/L	EPA 353.1 or 353.2	0.68 mg/L	4/Year
BOD5	mg/L	EPA 405.1 or Standard Methods 5210B	30 mg/L	4/Year

*required only if urea is applied

The Permittee may suspend stormwater sampling and analysis for ammonia, nitrate/nitrite, and BOD5 based on consistent attainment of benchmark values. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported values for ammonia, nitrate/nitrite, and BOD5 are equal to or less than the benchmark value.

3. Chemical and Allied Products, Food and Kindred Products

This group includes industries identified by SIC codes 28xx and 20xx.

Parameter	**Units**	**Analytical Method**	**Benchmark Value**	**Minimum Sampling Frequency**
Nitrate/ Nitrite as N	mg/L	EPA 353.1 or 353.2	0.68 mg/L	Quarterly
Phosphorus (TP)	mg/L	EPA 365.1, 365.3 or SM 4500-PH/PI	2.0 mg/L	Quarterly
BOD5	mg/L	EPA 405.1 or Standard Methods 5210B	30 mg/L	Quarterly

The Permittee may suspend stormwater sampling and analysis for nitrate/nitrite, total phosphorus, and BOD5 based on consistent attainment of benchmark values. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported values for nitrate/nitrite, total phosphorus, and BOD5 are equal to or less than the benchmark value.

4. Primary Metals, Metals Mining, Automobile Salvage, Scrap Recycling, Metals Fabricating

This group includes facilities involved in the recycling of materials (includes metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards) and industries identified by SIC codes 10xx, 33xx, 34xx, 5015, 5093.

Parameter	Units	Analytical Method	Benchmark Value	Minimum Sampling Frequency
Copper	µg/L	EPA 200.7	63.6 µg/L	Quarterly
Lead	µg/L	EPA 200.7	81.6 µg/L	Quarterly
Hardness	mg/L	EPA 130.1	NA	Quarterly

The Permittee may suspend stormwater sampling and analysis for copper and/or lead, based on consistent attainment of benchmark values. If all metals monitoring is suspended, monitoring for hardness is also suspended. Consistent attainment is defined as eight consecutive quarters (any quarter with no stormwater discharge is not counted) where the reported values are equal to or less than the benchmark value. Testing for hardness is not required for discharges to marine waters.

F Additional Requirements for Facilities With Limits Based on EPA Effluent Guidelines

In addition to the requirements in S4.A. above, beginning with the second quarter of the year 2003, all facilities identified by category below must conduct quarterly monitoring of authorized discharges of stormwater to surface water for the listed parameters.

1. Hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart A

Parameter	Units	Analytical Method	Minimum Sampling Frequency
pH	Standard Units	meter	Quarterly
BOD5	mg/L	EPA 405.1 or Standard Methods 5210B	Quarterly
TSS	mg/L	EPA 160.2	Quarterly
Ammonia	mg/L	EPA 350.1, 350.2, or 350.3	Quarterly
Alpha Terpineol	mg/L	EPA 8270	Quarterly
Aniline	mg/L	EPA 8131	Quarterly
Benzoic Acid	mg/L	EPA 8270	Quarterly
Naphthalene	mg/L	EPA 610, 625, or 1625	Quarterly
p-Cresol	mg/L	EPA 8270	Quarterly
Phenol	mg/L	D4763	Quarterly
Pyridine	mg/L	EPA 8270	Quarterly
Arsenic (total)	mg/L	EPA 200.7	Quarterly
Chromium (total)	mg/L	EPA 200.7	Quarterly
Zinc	mg/L	EPA 200.7	Quarterly

2. Non-hazardous waste landfills subject to the provisions of 40 CFR Part 445 Subpart B

Parameter	Units	Analytical Method	Minimum Sampling Frequency
pH	Standard Units	meter	Quarterly
BOD5	mg/L	EPA 405.1 or Standard Methods 5210B	Quarterly
TSS	mg/L	EPA 160.2	Quarterly
Ammonia	mg/L	EPA 350.1, 350.2, or 350.3	Quarterly
Alpha Terpineol	mg/L	EPA 8270	Quarterly
Benzoic Acid	mg/L	EPA 8270	Quarterly
p-Cresol	mg/L	EPA 8270	Quarterly
Phenol	mg/L	D4763	Quarterly
Zinc (total)	mg/L	EPA 200.7	Quarterly

3. Coal Piles (at any facility)

Parameter	Units	Analytical Method	Minimum Sampling Frequency
pH	Standard Units	meter	Quarterly
TSS	mg/L	EPA 160.2	Quarterly

G Monitoring Requirements for Facilities Discharging to 303(d) Listed Waters or Subject to TMDL Determination Except 303(d) Listings for Sediment and Tissue

In addition to the requirements in S4.C. above, beginning January, 2005, all facilities that discharge to waterbody segments listed as impaired by the State under Section 303(d) of the Clean Water Act must conduct quarterly monitoring of authorized discharges of stormwater to surface water. Samples must be analyzed for the parameters named on the 303(d) as causing impairment of the listed waters except for temperature which is not required and fecal coliform which is only required if there is a potential source from the industrial activity. Note: A current Appendix 4 with a list of permittees subject to the monitoring requirements of this condition is available on Ecology's web site.

Discharges to a waterbody for which a TMDL has been completed must be consistent with the TMDL determination. Where the TMDL determination sets load allocations for new discharges or limits pollutant concentrations in the discharge, the Permittee must conduct quarterly monitoring for the named pollutant(s) and the monitoring must be consistent with TMDL requirements, if any. Reporting as required by this permit begins with the first quarter of the year 2005. Note: A current Appendix 5 with a list of permittees subject to the monitoring requirements of this condition is available on Ecology's web site.

1. Permittees may suspend monitoring for a listed parameter if:

   a. Eight consecutive samples fail to detect the presence of the listed parameter. Fail to detect does not apply to pH. For pH it is eight consecutive samples where the values are not outside of the water quality-based range of 6.5 to 8.5 (freshwater) or 7.0 to 8.5 (marine).

   b. The Permittee can demonstrate to Ecology's satisfaction after eight or more consecutive quarterly samples that there is no reasonable potential to violate water quality standards. For the purposes of suspending monitoring required under S4.G only, no reasonable potential to violate water quality is defined as a single sample exceeding eighty percent of the benchmark, and the average of the last eight consecutive quarterly samples is less than sixty percent of the benchmark.

2. For existing permittees discharging to water bodies for which an applicable TMDL has been completed:

Parameter	Units	Analytical Method	Minimum Sampling Frequency
Parameter(s) as identified in the applicable TMDL. (See cover sheet)	As Applicable (see cover sheet)	Appropriate EPA or Equivalent Method	Quarterly (See cover sheet for specifics)

Note: A current Appendix 5 with a list of permittees subject to the monitoring requirements of this condition is available on Ecology's web site.

3. Existing permittees discharging to water bodies that discharge to waterbody segments listed as impaired by the State under Section 303(d) of the Clean Water Act:

Parameter	**Units**	**Analytical Method**	**303(d) Benchmark Value**	**Minimum Sampling Frequency**
Parameter(s) as identified for the 303(d) listed segment (See cover sheet)	As Applicable (See cover sheet)	Appropriate EPA or Equivalent Method	Based on Chapter 173-201A (See cover sheet)	Quarterly (See cover sheet for specifics)

Note: A current Appendix 4 with a list of permittees subject to the monitoring requirements of this condition is available on Ecology's web site.

H Monitoring Requirements for Facilities Discharging to 303(d) Waterbody segments listed for Sediment

All facilities that discharge to waterbody segments listed for sediment must notify Ecology of any sediment data they may have collected. Upon request from Ecology they will submit the data.

In addition to the requirements in S4.A. above, beginning with the first quarter of the year 2005, all facilities that discharge to waterbody segments listed by the State for violations of sediment standards under Section 303(d) of the Clean Water Act must conduct quarterly monitoring of authorized discharges of stormwater to surface water for total suspended solids (TSS). Discharges that demonstrate TSS levels consistent with secondary treatment standards (30 mg/L monthly average not to exceed 45 mg/L) are considered unlikely to violate sediment quality standards. Permittees that can demonstrate consistent attainment TSS levels of secondary treatment standards may suspend monitoring for the duration of the permit term. Consistent attainment is defined as 8 consecutive quarterly samples (omitting any quarter where there is no discharge) with an average TSS of 30 mg/L and no sample exceeding 45 mg/L.

I Analytical Procedures for Monitoring Requirements

Analytical methods used to meet the monitoring requirements specified in this permit shall conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 or to the latest revision of *Standard Methods for the Examination of Water and Wastewater* (APHA), unless otherwise specified in this permit or approved in writing by the Department of Ecology (Ecology) provided that such otherwise approved analytical method is the equivalent of that found in the guidance cited in this section or will result in more accurate analytical results or will have a lower detection limit.

J Laboratory Accreditation

All monitoring data required by Ecology shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories,* Chapter 173-50 WAC. Flow, temperature, settleable solids, conductivity, pH, turbidity, and internal process control parameters are exempt from this requirement. Conductivity, pH, and turbidity shall be accredited if the laboratory must be registered or accredited for any other parameter. Ecology exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

Unless referring to a specific permit requirement (e.g. reporting sampling results), the following conditions apply to all records and reports required by this permit. The falsification of information submitted to Ecology shall constitute a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins in the second quarter of 2003. Monitoring results must be submitted quarterly. Monitoring data obtained during each monitoring period must be summarized, reported, and submitted on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology. Permittees are authorized and encouraged to use electronic submission when an official Ecology electronic DMR form becomes available. DMR forms may be submitted any time after completing the required monitoring each quarter but must be sent to or filed electronically with Ecology within 45 days following the end of the reporting period.

First Quarter	Not later than May 15
Second Quarter	Not later than August 14
Third Quarter	Not later than November 14
Fourth Quarter	Not later than February 14

If you are unable to submit discharge monitoring reports electronically, you may submit printed reports to Ecology's headquarters' office:

Industrial Stormwater Permit Manager
Department of Ecology

Water Quality Program
PO Box 47696
Olympia, Washington 98504-7696

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location (may use SWPPP identifier), date of analysis, parameter name, CAS number, analytical method/ number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. These records must be maintained onsite and are not submitted to Ecology unless requested.

Discharge Monitoring Report forms must be submitted quarterly whether or not the facility was discharging. Discharge monitoring forms must also be submitted quarterly if monitoring has been suspended as a result of consistent attainment of benchmark values. If there was no discharge during a given monitoring period, submit the form electronically or by mail marking the "no discharge" check box. If you have suspended monitoring based on consistent attainment, submit the form electronically or by mail marking the "consistent attainment" check box.

In accordance with condition S4.C, Response to Monitoring Results Above Benchmarks if monitoring results are above applicable benchmark values or action levels, permittees must include with the quarterly discharge monitoring report an explanation of the actions taken.

B. Records Retention

The Permittee shall retain records of all monitoring information, inspection reports, and any other documentation of compliance with permit requirements for a minimum of five (5) years. Such information shall include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place, method, and time of sampling or measurement; (2) the individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) the individual who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Condition S4. of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Noncompliance Notification

In the event the Permittee is unable to comply with any of the terms and conditions of this permit that could result in the discharge of pollutants in a significant amount, the Permittee shall:

1. Immediately take action to minimize potential contamination or otherwise stop the noncompliance and correct the problem.

2. Immediately notify the appropriate Ecology regional office of the failure to comply.

3. Submit a detailed written report to Ecology within thirty [30] days unless Ecology requests an earlier submission. The report shall contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

F. Public Access to Stormwater Pollution Prevention Plans

As specified in Condition S9.A.3, Ecology will maintain a copy of the SWPPP for each industrial facility at the appropriate Ecology regional office, and the public may view a copy of a Permittee's SWPPP at the appropriate regional office. Also, in the interest of the public's right to know, you must provide a copy, or access to a copy, of your SWPPP to the public if requested in writing to do so.

Upon receiving a request from the Public for a copy of the SWPPP the Permittee shall provide a copy of the SWPPP as requested within a reasonable time frame.

1. The Permittee may contact the requestor to determine if the entire SWPPP is needed or specific portions satisfy the requestor's needs; or

2. Notify the requestor of the location and times within normal business hours that the SWPPP can be viewed. The Permittee will provide reasonable access to copying services for which a reasonable fee may be charged; or

3. Notify the Department and requestor of claims to confidential business information and/or security concerns with releasing the SWPPP to the public. The Permittee shall identify the general sections of concern. The Department shall then coordinate with the permittee and requestor to provide such information as needed to satisfy the requestor's needs. Disputes on SWPPP material released shall be subject to Section S13 Dispute Resolution of this permit or such other applicable course of appeal as pertain to the information under consideration.

S6. CONDITIONAL "NO EXPOSURE" CERTIFICATE

Any industrial activity identified for coverage under S1.A.1. may submit a "no exposure" form in lieu of an application for coverage if they meet the criteria for "no exposure". Submission may be by hard copy form or by electronic submission using the official Ecology form.

A. The facility must completely fill out and submit the "no exposure" form provided by Ecology.

B. The facility must retain a signed copy of the completed "no exposure" form on-site.

C. The facility must meet the following minimum conditions:

1. All areas where industrial materials and activities occur must be protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff.

2. The "no exposure" determination must apply to the entire facility and cannot apply just to individual outfalls.

3. The facility's stormwater discharge has no reasonable potential to cause or contribute to a violation of applicable water quality standards.

4. Stormwater is not subject to significant levels of pollutants from impervious surfaces such as copper or zinc from some roof surfaces.

5. Impervious surface added to achieve a "no exposure" determination must not result in adverse flow impacts on the receiving water.

6. There must be no previous site contamination that can be mobilized by stormwater.

D. A conditional "no exposure" determination is granted 60 days after submitting the form to Ecology unless Ecology responds in writing. Ecology may deny "no exposure" status, require additional information, or specify additional time for review of the request for "no exposure" status. The "no exposure" certificate is conditional on having and maintaining a status of "no exposure" as defined above (S6.C.).

E. A "no exposure" determination does not void General Condition G3., Right of Entry, of this permit.

F. "No exposure" must be reauthorized by submitting a new "no exposure" form every five (5) years or within thirty (30) days of the effective date of reissuance of the industrial stormwater general permit, whichever comes first.

G. If changes at a facility will result in exposure of industrial activities or materials, the "no exposure" exclusion ceases to apply as soon as those changes occur. You must apply for stormwater permit coverage under an applicable NPDES permit for stormwater discharges at least thirty-eight days before implementing changes that would result in exposure.

S7. COMPLIANCE WITH STANDARDS

Permittees must comply with Washington State surface water quality standards (Chapter 173-201A WAC), sediment management standards (Chapter 173-204 WAC), ground water quality standards (Chapter 173-200 WAC), and human health-based criteria in the national Toxics Rule (federal Register, Vol. 57, No. 246, Dec. 22, 1992, pages 60848-60923). Compliance with standards applies to all discharges except for the implementation time provided to existing facilities with first time coverage as identified in S2.B.

Compliance with surface water quality standards means that stormwater discharges by a facility with permit coverage will not cause or contribute to a violation of water quality standards in the receiving water.

A. The receiving water is the waterbody at the point of discharge. If the discharge is to a stormwater conveyance system, either surface or subsurface, the receiving water is the waterbody that the stormwater conveyance system discharges to. Systems designed primarily for other purposes such as for groundwater drainage or for conveyance of irrigation water/return flows that coincidentally convey stormwater are considered the receiving water and not a stormwater conveyance system.

B. Ecology will apply a mixing zone where one is authorized and consistent with Special Condition S3.E. Compliance with numerical surface water quality standards shall be determined after consideration of available dilution.

C. Where a mixing zone is not allowed, stormwater discharges must comply with surface water quality standards at the point of discharge to the receiving water or to the stormwater conveyance system for those systems that do not discharge directly to the receiving water.

D. For the purposes of this permit, all references and requirements associated with Section 303(d) of the Clean Water Act shall use the list which is in effect August 21, 2002, or the 303(d) list which is in effect at the date the first application for coverage is received by Ecology, whichever is later.

E. Compliance with water quality standards shall be presumed, unless discharge monitoring data or other site specific information demonstrates that a discharge causes or contributes to violation of water quality standards, when the permittee is:

1. In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and

2. Fully implementing storm water best management practices contained in storm water technical manuals approved by the department, or practices that are demonstrably equivalent to practices contained in storm water technical manuals approved by the department, including the proper selection, implementation, and maintenance of all applicable and appropriate best management practices for on-site pollution control.

"Demonstrably equivalent" means that the technical basis for the selection of all storm water best management practices are documented within a storm water pollution prevention plan. The storm water pollution prevention plan must document:

a. The method and reasons for choosing the storm water best management practices selected;
b. The pollutant removal performance expected from the practices selected;
c. The technical basis supporting the performance claims for the practices selected, including any available existing data concerning field performance of the practices selected;
d. An assessment of how the selected practices will comply with state water quality standards; and
e. An assessment of how the selected practices will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment.

S8. OPERATION AND MAINTENANCE

The Permittee shall, at all times, properly operate and maintain all facilities or systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the approved design criteria for stormwater management. The Department may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.

2. Bypass for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of Stormwater is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit.

   This bypass is permitted only if:

a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. A severe storm event overwhelms properly designed and maintained stormwater management systems and there are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. The Department is properly notified of the bypass as required in condition S5E of this permit.

4. A Planned Action That Would Cause Bypass of Stormwater and has the Potential to Result in Noncompliance of this Permit During a Storm Event The Permittee shall notify the Department at least thirty (30) days before the planned date of bypass. The notice shall contain (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with SEPA; (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

The Department will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, the Department will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by the Department under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

S9. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

All facilities covered under this permit must have a Stormwater Pollution Prevention Plan (SWPPP) specifically developed for their facility. The SWPPP must be consistent with permit requirements, fully implemented as directed by permit conditions, and updated as necessary to maintain compliance with permit conditions. The SWPPP must include the BMPs necessary to provide all known, available and reasonable methods of prevention, control, and treatment (AKART). It must also include any additional BMPs as necessary to comply with state water quality standards. New facilities must have a SWPPP developed and implemented before beginning operation. However, some components of a SWPPP are added over time (e.g. results of dry and wet weather inspections) and cannot be included in the first SWPPP. The Permittee must update the SWPPP as required by permit conditions.

The technical basis for the selection of all stormwater BMPs must be documented within the Stormwater Pollution Prevention Plan. The SWPPP must document how stormwater BMPs were selected, the pollutant removal performance expected from the BMP being selected and the technical basis which support the performance claims for the BMPs being selected, and an assessment of how the selected BMP will comply with state water quality standards, satisfy the state AKART requirements, and the federal technology-based treatment requirements under 40 CFR part 125.3 (the *demonstration approach*).

Permittees which choose to follow the stormwater management practices contained in approved stormwater technical manuals (*the presumptive approach*), including the proper selection, implementation, and maintenance of appropriate best management practices are presumed to have satisfied this demonstration requirement and do not need to include within the Stormwater Pollution Prevention Plan the technical basis which support the performance claims for the BMPs being used. The proper use and selection of approved stormwater technical manuals is outlined in S9.A.5. Permittees choosing the presumptive

approach may select BMPs which are functionally equivalent to BMPs in the Manual but must document within the SWPPP their functional equivalency.

A. General Requirements

The Permittee shall retain the SWPPP on-site or within reasonable access to the site and make it immediately available, upon request, to Ecology. If discharge is to a municipal storm sewer system, the municipal operator of the storm sewer system shall also have access to the SWPPP. The responsible party as identified in General Condition G17, Signatory Requirements, shall sign the SWPPP and significant updates.

1. Illicit Discharges:

   The SWPPP shall include measures to identify and eliminate the discharge of process wastewater, domestic wastewater, noncontact cooling water, and other illicit discharges, to stormwater drainage systems, or to surface waters of the state of Washington.

2. Ecology Request:

   Ecology may request a current copy of or update to the stormwater pollution prevention plan (SWPPP). The Permittee must submit their SWPPP/update to Ecology within two (2) weeks of receiving the request or at a later date if approved by Ecology.

3. Public Access:

   Ecology will maintain a copy of the SWPPP for each industrial facility at the appropriate Ecology regional office. The public may view a copy of a Permittee's SWPPP at the Ecology regional office. (See also condition S.5.F)

4. Enhanced/Additional Best Management Practices (BMPs):

   The Permittee shall provide a schedule in the SWPPP for implementation of any additional or enhanced BMPs that are necessary because of a notice from Ecology, facility changes, or self-inspection. A schedule for implementation (plan) must be completed and entered into the SWPPP within 30 days of a notice/determination of necessary improvements. BMPs identified in the plan must be implemented with due diligence. Noncapital BMPs shall be completed within two weeks after completing the plan and capital BMPs within six months. Enhanced/additional BMPs will comply with Special Condition S9.A.5. below. Complying with this provision does not limit the potential liability for enforcement action where the Permittee has failed to implement required BMPs or where stormwater discharges violate water quality standards.

   Ecology may issue a notice to the Permittee when the SWPPP does not meet one or more of the minimum requirements of Special Condition S9 or when it is not

adequate to assure compliance with standards. The Permittee shall modify the SWPPP and the BMPs to correct the deficiencies identified in the notice.

Ecology may require additional BMPs where the Permittee exceeds benchmark values for required sampling.

The Permittee shall modify the SWPPP whenever there is a change in design, construction, operation or maintenance of any BMP which cause(s) the SWPPP to be less effective in controlling the pollutants.

This permit requires the Permittee to conduct visual monitoring and this monitoring may identify BMPs that are inadequate or pollutant sources that are not identified or poorly described in the SWPPP. When visual monitoring identifies inadequacies in the SWPPP, due to the actual discharge of or potential to discharge a significant amount of any pollutant, the SWPPP must be modified and BMPs adjusted to correct the deficiency.

5. Proper Selection And Proper Use of Stormwater Management Manuals (SWMM):

Permittees choosing to use the Presumptive Approach in selecting BMPs from approved stormwater technical manuals must clearly state which of the approved stormwater technical manuals the BMPs in their SWPPP are based on. Permittees who choose not to use this approach must demonstrate in their SWPPP the technical basis for the BMPs selected as set forth in the introductory paragraphs of this section, S9.

For permittees which choose to follow the presumptive approach, the approved and applicable stormwater management manuals are:

- The Stormwater Management Manual for Western Washington is the applicable SWMM for all facilities west of the crest of the Cascade Mountains as of February 1, 2002.
- The Stormwater Management Manual for Eastern Washington is the applicable SWMM for all facilities east of the crest of the Cascade Mountains as of November, 2004.
- Regional Road Maintenance ESA Program Guidelines as approved by NOAA fisheries in a 4(d) rule.

New facilities shall apply the minimum technical requirements and BMPs appropriate for their facility as found in the most recent published edition of the SWMM or other equivalent manuals that are available when selecting BMPs for their facility.

Existing facilities are not required to redo their SWPPP and BMPs to incorporate changes to BMPs that were designed and implemented according to an earlier version of the SWMM. However, existing facilities shall apply the applicable

technical standards and BMPs as found in the most recent published edition of the SWMM, or other equivalent manuals, that are available when updating their SWPPP to accommodate changes at their facility or when additional BMPs are required to maintain compliance with permit conditions.

Facilities undergoing new development or redevelopment will apply the applicable minimum requirements of the appropriate, most current SWMM available when beginning final design of the project to the development site.

All treatment BMPs that include the addition of chemicals to provide treatment must be approved by Ecology before implementation.

6. Other Pollution Control Plans:

The Permittee may incorporate by reference applicable portions of plans prepared for other purposes at their facility. Plans or portions of plans incorporated into a SWPPP become enforceable requirements of this permit and must meet the availability requirements of the SWPPP (see S9.A., S9A.2. and 3.). A Pollution Prevention Plan prepared under the Hazardous Waste Reduction Act, Chapter 70.95C RCW, is an example of such a plan.

B. SWPPP Contents and Requirements

The SWPPP shall contain a detailed assessment of the facility and a detailed description of the best management practices (BMPs). Any parts of the SWPPP which the facility wants to claim as Confidential Business Information must be clearly identified in the plan.

1. Facility Assessment:

The facility assessment must include a description of the facility, a detailed site map, an inventory of facility activities and equipment that contribute to or have the potential to contribute pollutants to stormwater, and an inventory of materials that contribute to or have the potential to contribute pollutants to stormwater. The assessment must be as complete as possible (including incidental sources such as tire wear or equipment leaks) and must be updated to reflect substantive changes at the facility. The SWPPP must address each potential pollutant source of a significant amount with best management practices that will eliminate or reduce the potential to contaminate stormwater through source control or treatment.

a. **Facility Description:** The facility description will describe the industrial activities conducted at the site, the general layout of the facility including buildings and storage of raw materials, and the flow of goods and materials through the facility. It should include seasonal variations including peaks in production and any changes in work based on season or weather (e.g. moving work outdoors on dry days).

b. **Site Map:** The site map must be drawn to an identified scale or include relative distances between significant structures and drainage systems. It

must provide identifiers (names) of significant features and be of sufficient size and detail to identify the following: The site map will show the stormwater drainage and discharge structures, an outline of the stormwater drainage areas for each stormwater discharge point (including discharges to ground water), paved areas and buildings, areas of pollutant contact (actual or potential), surface water locations (including wetlands and drainage ditches), areas of existing and potential soil erosion (in a significant amount) and vehicle service areas;

Lands and waters adjacent to the site shall also be depicted where helpful in identifying discharge points or drainage routes.

c. **Industrial Activities:** The inventory of industrial activities will identify all areas associated with industrial activities (see Appendix #1-Section A) which have been or may potentially be sources of significant amounts of pollutants, including the following:

i) Loading and unloading of dry bulk materials or liquids.

ii) Outdoor storage of materials or products.

iii) Outdoor manufacturing and processing.

iv) Dust or particulate generating processes.

v) Roofs or other surfaces exposed to air emissions from a manufacturing building or a process area.

vi) On-site waste treatment, storage or disposal.

vii) Vehicle and equipment fueling, maintenance and/or cleaning (includes washing).

viii) Roofs or other surfaces composed of materials that may be mobilized by stormwater (e.g. galvanized or copper roofs).

d. **Inventory of Materials:** The inventory of materials will list all the types of materials handled at the site that potentially may be exposed to precipitation or runoff and could result in stormwater pollution of a significant amount. The inventory will include a short narrative for each material describing the potential of the pollutant to be present in stormwater discharges. The Permittee will update this narrative when data become available to verify the presence or absence of these pollutants. The inventory will include a narrative description of any potential sources of pollutants of a significant amount from past activities; significant materials that were previously handled, treated, stored, or disposed of in a manner to allow ongoing exposure to stormwater. Include the method and location of on-site storage or disposal; and a list of significant spills and significant leaks of toxic or hazardous pollutants.

2. **Monitoring Plan:** The SWPPP will include a monitoring plan. The plan must identify all the points of discharge to surface water or to a storm drain system. If

there is more than one point of discharge then the plan must include a discussion of representative sampling and how the Permittee has determined which points of discharge will be monitored. The discussion must include a means to estimate of the volume/rate of discharge from each discharge point based on storm duration, intensity and quantity, differences in exposure to pollutants, pollutants likely to be in each discharge and a relative comparison of probable pollutant concentrations. The plan must identify who is responsible for monitoring and how monitoring will be conducted to comply with permit conditions. The monitoring plan will address stormwater sampling requirements and visual inspections. The plan must include the following:

a. Identification of points of discharge

b. A check list for visual monitoring

c. Who conducts stormwater sampling

d. Where samples will be taken

e. Parameters for analysis

f. Procedures for sample collection and handling

g. Procedures for sending samples to lab

h. Procedure for submitting results to Ecology

3. **BMPs:** The SWPPP must include a description of the best management practices (BMPs) that are necessary for the facility to eliminate or reduce the potential to contaminate stormwater. BMPs must also be considered to regulate peak flow and volume of stormwater discharge. The SWPPP must document how stormwater BMPs were selected, the pollutant removal performance expected from the BMP being selected and the technical basis that supports the performance claims for the BMPs being selected and an assessment of how the selected BMP will comply with state water quality standards, satisfy the state AKART requirements, and the federal technology-based treatment requirements under 40 CFR part 125.3.

Permittees which choose to follow the stormwater management practices, or their functional equivalents, contained in approved stormwater management manuals, including the proper selection, implementation, and maintenance of appropriate best management practices are presumed to have satisfied this demonstration requirement and do not need to include within the Stormwater Pollution Prevention Plan the technical basis which support the performance claims for the BMPs being used. The proper use and selection of approved stormwater management manuals is outlined in S9.A.5.

BMPs shall be included to comply with the following requirements:

a. **Operational Source Control BMPs:** Operational BMPs are common to all facilities. The categories listed below are a minimum set of BMPs that must be included in the SWPPP.

i) Pollution Prevention Team: The SWPPP will include a BMP that identifies specific individuals by name or by title within the plant organization who are responsible for developing the SWPPP and assisting the plant manager in its implementation, maintenance, and modification. The activities and responsibilities of the team should address all aspects of the facility's SWPPP.

ii) Good Housekeeping: The SWPPP will include a BMP(s) that defines ongoing maintenance and cleanup, as appropriate, of areas which may contribute pollutants to stormwater discharges. The SWPPP will include the schedule/frequency for completing each housekeeping task.

iii) Preventive Maintenance: The SWPPP will include a BMP(s) to inspect and maintain the stormwater drainage and treatment systems (if any), and plant equipment and systems that could fail and result in contamination of stormwater. The SWPPP will include the schedule/frequency for completing each maintenance task.

iv) Spill Prevention and Emergency Cleanup Plan: The SWPPP will include BMP(s) to identify areas where potential spills can contribute pollutants to stormwater discharges. The BMP(s) must specify material handling procedures, storage requirements, cleanup equipment and procedures as appropriate. The SWPPP may include excerpts of plans prepared for other purposes (e.g., Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the CWA), where those excerpts meet the intent of this requirement.

v) Employee Training: The SWPPP will include a BMP(s) to provide SWPPP training for employees who have duties in areas of industrial activity subject to this permit. At a minimum, training shall include an overview of what is in the SWPPP and how employees make a difference in complying with the SWPPP and preventing contamination of stormwater. The training must address spill response procedures, good housekeeping, and material management practices. The BMP(s) must provide the content of the training, how training will be conducted and the frequency/schedule for assuring employees receive training. Annual training is the minimum acceptable frequency. A log of the dates on which specific employees receive training shall be kept and included in the SWPPP.

vi) Inspections and Recordkeeping: The SWPPP will include documentation of procedures to assure compliance with permit requirements for inspections and recordkeeping. At a minimum it will:

- identify plant personnel who will inspect designated equipment and plant areas as required in Special Condition S4, Monitoring Requirements,
- provide a tracking or follow-up procedure to ensure that a report is prepared and any appropriate action taken in response to visual monitoring,
- define how Permittee will comply with signature requirements and records retention identified in Special Condition S5, Reporting and Recordkeeping Requirements, and
- include certification of compliance with the SWPPP.

b. **Structural Source Control BMPs:** Structural source control BMPs must be provided to eliminate or minimize the exposure of stormwater to pollutants. Volume IV of Ecology's SWMM provides useful information for source control BMPs for different industrial activities. For permittees choosing to use approved SWMMs or other technical guidance documents approved by Ecology as a means to meet this requirement the BMPs listed as "applicable" are considered the minimum set of required BMPs for an industrial activity. Equivalent BMPs may be selected which result in equal or better quality of stormwater discharge.

c. **Treatment BMPs:** Treatment BMPs are required when operational and source control BMPs are not adequate to reduce pollutants below a significant amount and maintain compliance with water quality standards. At a minimum the SWPPP must include a narrative that describes how the Permittee determined if treatment BMPs are/are not required. When treatment BMPs are required, the permittee may refer to the Ecology SWMM, Volume V, or equivalent manual, for guidance on selecting treatment BMPs.

d. **Stormwater Peak Runoff Rate and Volume Control BMPs:** Stormwater runoff from new development and redevelopment shall be evaluated to determine if flow control is necessary to satisfy the state AKART requirements, prevent pollution of state waters, or comply with state water quality standards. At a minimum, the SWPPP must include a narrative that describes how the Permittee determined if flow control BMPs are/are not required. Permittees which choose not use approved SWMMs or other technical guidance documents approved by Ecology to meet this requirement must include within the SWPPP the technical basis for their chosen BMPs as described in the introductory paragraphs of section S9.Where required, the SWPPP shall include appropriate BMPs from Volumes I and III of Ecology's SWMM or equivalent manuals.

4. Erosion and Sediment Control BMPs: All facilities must evaluate the risk of soil erosion on their site that could contaminate stormwater. At a minimum the SWPPP must include a narrative that describes if there is reasonable potential for soil

erosion of a significant amount at the site. Where reasonable potential exists, the Permittee must include BMPs to prevent or minimize the potential for soil erosion on-site. The SWPPP must document how stormwater BMPs were selected, the performance expected from the BMP being selected and the technical basis that supports the performance claims for the BMPs being selected, and an assessment of how the selected BMP will reduce the potential for soil erosion.

Permittees which choose to follow the stormwater management practices contained in approved stormwater management manuals, including the proper selection, implementation, and maintenance of appropriate best management practices are presumed to have satisfied this demonstration requirement and do not need to include within the Stormwater Pollution Prevention Plan the technical basis which support the performance claims for the BMPs being used. The proper use and selection of approved stormwater management manuals is outlined in S9.A.5.

S10. SOLID AND LIQUID WASTE DISPOSAL

Disposal of waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, shall be conducted in accordance with the Minimum Functional Standards for Solid Waste Handling, Chapter 173-304 WAC, and where appropriate, the Dangerous Waste Regulations, Chapter 173-303 WAC.

S11. NOTICE OF TERMINATION (NOT)

A. The Permittee(s) may submit a Notice of Termination as prescribed by Ecology and signed in accordance with General Condition G17. of this permit. A Notice of Termination is appropriate when one or more of the following conditions are met:

1. All permitted stormwater discharges associated with industrial activity that are authorized by this permit cease because the industrial activity has ceased, and no significant materials or industrial pollutants remain exposed to stormwater.

2. The party that is responsible for permit coverage (signatory to application) sells or otherwise legally transfers responsibility for the industrial activity.

3. All permitted stormwater discharges associated with industrial activity that are authorized by this permit cease because the stormwater is redirected to sanitary sewer.

4. The Permittee applies for and receives a conditional certificate of no exposure.

A transmittal letter, which provides a brief description of the circumstances warranting termination of permit coverage, shall be included with the NOT submission.

B. The Permittee may transfer permit coverage to a new owner/operator. Permittee must meet the conditions of General Condition G14., Permit Transfer.

S12. DETERMINATION OF PRIMARY ACTIVITY

For the purpose of requiring stormwater discharge permit coverage Ecology may determine the primary activity of any facility based on the activities taking place at the facility regardless of the SIC code of its ownership or parent company. Permit coverage may be required if the primary activity is listed among the industrial SIC categories in Appendix #1-Section C.

S13. DISPUTE RESOLUTION

Ecology encourages parties that disagree with an Ecology action taken under this permit, to contact Ecology and set up a process to resolve the issues. Actions taken by Ecology may also be appealed through the procedures established under RCW 43.21B.310.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit shall be consistent with the terms and conditions of this general permit. The discharge of any pollutant more frequently than, or at a concentration in excess of that authorized by this general permit shall constitute a violation of the terms and conditions of this general permit.

G2. PROPER OPERATION AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of collection, treatment, and control (and related appurtenances) which are installed or used by the Permittee for pollution control.

G3. RIGHT OF ENTRY

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records shall be kept under the terms and conditions of this permit;

B. To have access to and copy at reasonable times any records that shall be kept under the terms of this permit;

C. To inspect at reasonable times any monitoring equipment or method of monitoring required in this permit;

D. To inspect at reasonable times any collection, treatment, pollution management, or discharge facilities; and

E. To sample at reasonable times any discharge of pollutants.

G4. PERMIT COVERAGE REVOKED

Pursuant with Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may require any *discharger* authorized by this permit to apply for and obtain coverage under an individual permit or another more specific and appropriate general permit. Cases where revocation of coverage may be required include, but are not limited to, the following:

A. Violation of any term or condition of this permit;

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts;

C. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090;

D. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations;

E. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC;

F. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable; or

Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G5. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification or revocation and reissuance include, but are not limited to, the following:

A. When a change which occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit;

B. When effluent limitation guidelines or standards are promulgated pursuant to the FWPCA or Chapter 90.48 RCW, for the category of dischargers covered under this permit;

C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved; or

D. When information is obtained which indicates that cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G6. REPORTING A CAUSE FOR MODIFICATION

A Permittee who knows or has reason to believe that any activity has occurred or will occur which would constitute cause for modification or revocation under Condition G5. above, or 40 CFR 122.62 shall report such plans, or such information, to Ecology so that a decision can be made on whether action to modify coverage or revoke coverage under this permit will be required. Ecology may then require submission of a new application for coverage under this, or another general permit, or an application for an individual permit. Submission of a new application does not relieve the Permittee of the duty to comply with all the terms and conditions of the existing permit until the new application for coverage has been approved and corresponding permit has been issued.

G7. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G8. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this general permit by reference.

G9. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable Federal, State, or local statutes, ordinances, or regulations.

G10. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order[3] or permit modification.

G11. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by Ecology. Ecology may revoke this permit or take enforcement, collection, or other actions, if the permit fees established under Chapter 173-224 WAC are not paid.

G12. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater shall not be resuspended or reintroduced for discharge to State waters.

G13. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER A GENERAL PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under the industrial stormwater general permit by applying for an individual permit. The discharger shall submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons must fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director shall either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the industrial stormwater general permit, the applicability of the industrial stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G14. PERMIT TRANSFER

Coverage under this permit is automatically transferred to a new owner or operator if:

A. The type of industrial activities and practices are substantially unchanged;

[3] Ecology's determination to issue an Order to increase monitoring frequency is an appealable action under RCW 43.21B.310.

B. A written agreement between the old and new owner or operator containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to Ecology;

C. A copy of this permit is provided to the new owner; and

D. Ecology does not notify the Permittee of the need to submit a new application for coverage under the general permit or for an individual permit pursuant to Chapters 173-216, 173-220, and 173-226 WAC.

Unless this permit is automatically transferred according to section A. above, this permit may be transferred only if it is modified to identify the new Permittee and to incorporate such other requirements as determined necessary by Ecology.

G15. DUTY TO REAPPLY

The Permittee shall reapply for coverage under this permit, at least, one hundred and eighty (180) days prior to the specified expiration date of this permit. An expired permit continues in force and effect until a new permit is issued or until Ecology cancels it. Only those facilities which have reapplied for coverage under this permit are covered under the continued permit.

G16. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be and be deemed to be a separate and distinct violation.

G17. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to Ecology shall be signed and certified.

A. In the case of a municipal, State or other public facility, all permit applications shall be signed by a principal executive officer or ranking elected official. In the case of a corporation, partnership, or sole proprietorship, all permit applications shall be signed by either a principal executive officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.

B. All reports required by this permit and other information requested by Ecology shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

G18. APPEALS

The terms and conditions of the industrial stormwater general permit are subject to appeal. There are two different appeal categories.

A. The permit terms and conditions as they apply to the appropriate class of dischargers are subject to appeal within thirty (30) days of issuance of the industrial stormwater general permit in accordance with Chapter 43.21(B) RCW and Chapter 173-226 WAC; and

B. The applicability of the permit terms and conditions to an individual discharger are subject to appeal in accordance with Chapter 43.21(B) RCW within thirty (30) days of the effective date of coverage of that discharger.

Consideration of an appeal of the industrial stormwater general permit coverage of an individual discharger is limited to the applicability or non-applicability of the industrial stormwater general permit to that same discharger. Appeal of this permit coverage of an individual discharger will not affect any other individual dischargers. If the terms and conditions of the industrial stormwater general permit are found to be inapplicable to any

discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

G19. SEVERABILITY

The provisions of this permit are severable, and if any provision of this general permit or application of any provision of this general permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this general permit, shall not be affected thereby.

APPENDIX #1

A. **Edited Version of 40 CFR Subpart 122.26(b)(14)**

"Stormwater discharge associated with industrial activity" means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR Part 122. For the categories of industries identified in subparagraphs (1) through (10) below, the term includes, but is not limited to, stormwater discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters [as defined at 40 CFR Subchapter N (Effluent Guidelines and Standards) Part 401 (General Provisions)]; sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater.

For the categories of industries identified in subparagraph (11), the term includes only stormwater discharges from all the areas (except access roads and rail lines) that are listed in the previous paragraph where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to stormwater. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas. Industrial facilities (including industrial facilities that are federally, state, or municipally owned or operated that meet the description of the facilities listed in this Appendix) include those facilities designated under the provisions of 40 CFR 122.26 (a)(1)(v).

B. **Identify Primary Activity**

A facility may need to apply for permit coverage if the primary activity at the facility is listed among the industrial SIC categories in this Appendix #1-Section C whether or not the activity is auxiliary to the owner or other operating establishment. Thus, the primary activity at the facility will be used when determining permit coverage regardless of the SIC code of the owner or parent company. For example, a distribution center for a supermarket chain could be engaged in several activities listed in Appendix #1-Section C, such as transportation or warehousing. Both the transportation and warehousing facilities may be required to apply for permit coverage regardless of their relationship to the supermarket operations.

C. **Categories of Facilities Engaging in Industrial Activity**

The following categories of facilities are considered to be engaging in industrial activity and are listed in 40 CFR Subpart 122.26(b)(14) of the November 16, 1990, federal regulation.

1. FACILITIES SUBJECT TO STORMWATER EFFLUENT LIMITATIONS GUIDELINES, or NEW SOURCE PERFORMANCE STANDARDS specified in 40 CFR Subchapter N, or TOXIC POLLUTANT EFFLUENT STANDARDS under 40 CFR Subchapter D (except facilities with toxic pollutant effluent standards which are exempted under category 11 below).

2. FACILITIES LISTED UNDER THE FOLLOWING STANDARD INDUSTRIAL CLASSIFICATIONS (SIC):

24xx	Lumber and Wood Products (except 2434 - Wood Kitchen Cabinets, see Category 11)
26xx	Paper and Allied Products (except 265 - Paperboard Containers; and 267 - Converted Paper and Paperboard Products, see Category 11)
28xx	Chemicals and Allied Products (except 283 - Drugs; and 285 Paints, Varnishes, Lacquers, Enamels, and Allied Products, see Category 11)
29xx	Petroleum and Coal Products, (except 2951 - Asphalt Concrete Plants, must apply for the sand and gravel general permit)
311x	Leather Tanning and Finishing
32xx	Stone, Clay and Glass Products (except 323 - Glass Products made from purchased glass, see category 11) and (except 3273 - Ready-Mixed Concrete, must apply for the sand and gravel general permit)
33xx	Primary Metals Industries
3441	Fabricated Structural Metal
373x	Ship and Boat Building and Repairing

3. FACILITIES CLASSIFIED AS SICs 10 THROUGH 14 (mineral industry) listed below, including active or inactive mining operations [except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 CFR 434.11(1) Subchapter N (Coal Mining Point Source Category: BPT, BAT, BCT Limitations and New Source Performance Standards) because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas on noncoal mining operations which have been released from applicable state or federal reclamation requirements after December 17, 1990] and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge stormwater contaminated by contact with or that has come in contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations. Inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction,

beneficiation, or processing of mined materials, nor sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

10xx Metal Mining

12xx Coal Mining

13xx Oil and Gas Extraction

14xx Mining and Quarrying of Nonmetallic Minerals, except Fuels (except 1411 - dimension stone; 1422 - Crushed and Broken Limestone; 1423 - Crushed and Broken Granite; 1429 - Crushed and Broken Stone, Not Elsewhere Classified; 1442 - Construction Sand and Gravel; 1446 - Industrial Sand, 1445 - Kaolin and Ball Clay; 1459 - Clay, Ceramic, and Refractory Minerals, Not Otherwise Classified; 1499 - Miscellaneous Nonmetallic Minerals, Except Fuels; must apply for the sand and gravel general permit)

4. HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES, including those operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA).
5. LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS that receive or have received any industrial wastes (waste that is received from any of the facilities described in this appendix) including those subject to regulation under Subtitle D of RCRA.
6. RECYCLING FACILITIES, facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.
7. STEAM ELECTRIC POWER GENERATING FACILITIES, including coal handling sites.
8. TRANSPORTATION FACILITIES classified under SICs below, which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations, airport deicing operations or which are otherwise identified under one of the other 11 categories of industrial activities listed in this appendix are associated with industrial activity.

40xx Railroad Transportation,

41xx Local and Interurban Passenger Transportation,

42xx Motor Freight Transportation and Warehousing (except 4221Farm Product Warehousing and Storage; 4222 Refrigerated Warehousing and Storage; and 4225 General Warehousing and Storage; see Category 11),

43xx United States Postal Service,

44xx Water Transportation,

45xx Transportation by Air,

5171 Petroleum Bulk Stations and Terminals;

9. TREATMENT WORKS treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge, that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the CWA.

10. CONSTRUCTION ACTIVITIES are not covered under the industrial stormwater general permit.

11. FACILITIES UNDER THE FOLLOWING STANDARD INDUSTRIAL CLASSIFICATIONS:

20xx	Food and Kindred Products
21xx	Tobacco Products
22xx	Textile Mill Products
23xx	Apparel and Other Textile Products
2434	Wood Kitchen Cabinets
25xx	Furniture and Fixtures
265x	Paperboard Containers and Boxes
267x	Converted Paper and Paperboard Products
27xx	Printing, Publishing and Allied Industries
283x	Drugs
285x	Paints, Varnishes, Lacquers, Enamels, and Allied Products
30xx	Rubber and Miscellaneous Plastic Products
31xx	Leather and Leather Products (except 311 Leather Tanning and Finishing, see Category 2)
323x	Glass Products Made of Purchased Glass
34xx	Fabricated Metal Products (except 3441 Fabricated Structural Metal, see Category 2)
35xx	Industrial and Commercial Machinery and Computer Equipment
36xx	Electronic and Other Electrical Equipment
37xx	Transportation Equipment (except 373 Ship and Boat Building and Repair, see Category 2)
38xx	Measuring, Analyzing, and Controlling Instruments, Photographic, Medical and Optical Goods; Watches and Clocks

39xx	Miscellaneous Manufacturing Industries
4221	Farm Product Warehousing and Storage
4222	Refrigerated Warehousing and Storage
4225	General Warehousing and Storage

D. **Facilities Subject to Stormwater Effluent Limitations Guidelines or Effluent Standards**

Any part of a facility that has a stormwater discharge subject to stormwater Effluent Limitations Guidelines, or New Source Performance Standards (NSPS) Under 40 CFR Subchapter N, or Toxic Pollutant Effluent Standards under 40 CFR Subchapter D Part 129, must apply for NPDES permit coverage in an individual or industry-specific general permit for those stormwater discharges, and not for coverage under this permit.

Below is a list of categories of industries specified in 40 CFR Subchapter N for which at least one subpart includes stormwater effluent limitations guidelines, or NSPS. Industries included in this list should review the Subchapter N guidelines to determine if they are subject to a stormwater effluent limitation guideline for activities which they perform at their site.

40 CFR 411 Cement manufacturing	40 CFR 423 Steam electric power generating
40 CFR 412 Feedlots	40 CFR 434 Coal mining
40 CFR 418 Fertilizer manufacturing	40 CFR 436 Mineral mining and processing
40 CFR 419 Petroleum refining	40 CFR 440 Ore mining and dressing
40 CFR 422 Phosphate manufacturing	40 CFR 443 Paving and roofing materials (tars & asphalt)

Below is a list of six (6) toxic pollutants which are limited by effluent standards in 40 CFR, Subchapter D, Part 129:

a) Aldrin/Dieldrin	d) Toxaphene
b) DDT	e) Benzidine
c) Endrin	f) Polychlorinated Biphenyls (PCBs)

APPENDIX #2 - DEFINITIONS

303(d) Listed Waters – see *Waterbody segments listed as Impaired - 303(d)*

Air Emission means a release of air contaminants into the ambient air.

AKART is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge.

Applicable TMDL means any TMDL which has been completed either before the issuance date of this permit or the date the permittee first obtains coverage under this permit, which ever is later.

Best Management Practices (BMPs - general definition) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In this permit BMPs are further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Benchmark means a pollutant concentration used by the permit as a threshold, below which a pollutant is considered unlikely to cause a water quality violation and above which it may. Benchmark values are not water quality criteria and site-specific conditions must still be considered to determine if an actual water quality violation exists.

Bypass means the diversion of waste streams from any portion of a treatment facility.

Capital Improvements means the following improvements which will require capital expenditures:

1. Treatment BMPs, including but not limited to: biofiltration systems including constructed wetlands; settling basins, oil/water separation equipment, and detention and retention basins.

2. Manufacturing modifications, including process changes for source reduction, if capital expenditures for such modifications are incurred.

3. Concrete pads and dikes and appropriate pumping for collection of stormwater and transfer to control systems, from manufacturing areas such as loading, unloading, outside processing, fueling and storage of chemicals, equipment, and wastes.

4. Roofs and appropriate covers for manufacturing areas.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

Constructed Wetland means wetlands intentionally created, on sites that are not natural wetlands, for the primary purpose of wastewater or stormwater treatment and managed as such. Constructed wetlands are normally considered as part of the stormwater collection and treatment system.

Construction Activity means clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, industrial buildings, and demolition activity.

Design Storm means the precipitation event that is used to design stormwater facilities. Refer to Ecology's Stormwater Management Manual for specific information on requirements for determining design storm volume and flow rate appropriate for designing stormwater treatment systems.

Design Storm Volume means the volume of runoff predicted to occur from a specified storm event. The storm event includes a time interval (e.g. 24-hours) and frequency (e.g. 6-month). Volume-based treatment BMPs use the design storm volume as their design basis. Refer to the Ecology Stormwater Management Manual for storm event and additional information.

Design Flow Rate means the flow rate at or below which a specified amount of the runoff volume will be treated. Flow rate-based treatment BMPs use the design flow rate (e.g. as estimated using an approved continuous runoff model) as their design basis. Refer to the Ecology Stormwater Management Manual to determine the appropriate flow rate and for additional information.

Detention means the temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

Director means the Director of the Washington Department of Ecology or his/her authorized representative.

Discharger means an owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology means the Washington State Department of *Ecology*.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

Equivalent Stormwater Management Manual means a manual that has been determined by Ecology as being equivalent to the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs that are intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, and sediment traps and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

Erosion and Sediment Control Plan means a document which describes the potential for erosion and sedimentation problems, and explains and illustrates the measures which are to be taken to control those problems.

Existing Facility means a facility that was in operation prior to the effective date of this permit. It also includes any facility in that is not categorically included for coverage but is in operation when identified by Ecology as a significant contributor of pollutants.

Final Stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which will prevent erosion.

"*40 CFR*" means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

General Permit means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface water body.

Illicit Discharge means any discharge that is not composed entirely of stormwater except discharges pursuant to a separate NPDES permit and discharges resulting from fire fighting activities.

Inactive Site means a facility which no longer engages in business, production, providing services, or any auxiliary operation.

Industrial Activity - See Appendix #1-Section A.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application site, surface impoundment, injection well, or waste pile.

Land Application Site means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Leachate means water or other liquid that has percolated through raw material, product or waste and contains substances in solution or suspension as a result of the contact with these materials.

Listed Waters – see *Waterbody segments listed as Impaired - 303(d)*

Local Government means any county, city, or town having its own government for local affairs.

Municipality means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

New Facility means a facility that begins activities that result in a discharge or a potential discharge to waters of the state on or after the effective date of this general permit.

Noncontact Cooling Water means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

Notice of Intent (NOI) means the application for, or a request for coverage under this *General Permit* pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S11 of this permit.

Operational BMPs means schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. Not included are BMPs that require construction of pollution control devices.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure and container from

which pollutants are or may be discharged to surface waters of the state. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means the discharge of any of the following to waters of the state: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the FWPCA nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the FWPCA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the state; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Primary Activity means the activity at an industrial facility in which the facility is primarily engaged, such as principal product or group of products produced or distributed, or services rendered. The primary extent of the activity may be determined based on revenues, production rate, or number of employees.

Process Wastewater means any water which, during manufacturing or processing, comes into direct contact or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Puget Sound Basin means the Puget Sound south of Admiralty Inlet (including Hood Canal and Saratoga Passage); the waters north to the Canadian border, including portions of the Strait of Georgia; the Strait of Juan de Fuca south of the Canadian border; and all the lands draining into these waters as mapped in Water Resources Inventory Areas numbers 1 through 19, set forth in WAC 173-500-040.

Regular Business Hours means those time frames when the facility is engaged in its primary production process, but does not include additional shifts or weekends when partial staffing is at the site primarily for maintenance and incidental production activities. Regular business hours do not include periods of time that the facility is inactive and unstaffed.

Sanitary Sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Significant Amount means an amount of a pollutant in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a pollutant that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Contributor of Pollutant(s) means a facility determined by Ecology to be a contributor of a significant amount(s) of a pollutant(s) to waters of the state of Washington.

Significant Materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

Standard Industrial Classification (SIC) is the statistical classification standard underlying all establishment-based federal economic statistics classified by industry as reported in the 1987 SIC Manual by the Office of Management and Budget.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm Sewer means a sewer that is designed to carry stormwater. Also called a storm drain.

Stormwater means rainfall and snow melt runoff.

Stormwater Discharge Associated with Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to

manufacturing, processing or raw materials storage areas at an industrial plant (see 40 CFR 122(b)(14). It may also, on a case-by-case basis, include stormwater from any portion of an industrial site subject to pollutants of a significant amount.

Stormwater Drainage System means constructed and natural features which function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert stormwater.

Stormwater Management Manual (SWMM) or Manual means the technical manual prepared by Ecology for stormwater management. For BMPs implemented prior to February 2001 it is the Stormwater Management Manual for the Puget Sound Basin published in 1992. For all facilities west of the crest of the Cascade Mountains as of February 1, 2002, it is the Stormwater Management Manual for Western Washington. The Stormwater Management Manual for Eastern Washington is the applicable SWMM for all facilities east of the crest of the Cascade Mountains as of November, 2004. It also applies to any future revision of the technical manuals as they become available.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Treatment BMPs means BMPs that are intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, media filtration, and constructed wetlands.

Uncontrolled Sanitary Landfill means a landfill or open dump, whether in operation or closed, that does not meet the requirements for runon and runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act.

USEPA means the United States Environmental Protection Agency.

Water Quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waterbody segments listed as Impaired - 303(d) means the specific segment or grid of a waterbody that was listed by the State as required under Section 303(d) of the Clean Water Act. The most current list of impaired waters is the applicable list.

Waters of the State includes those waters as defined as "waters of the United States" in *40 CFR* Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in Chapter 90.48 RCW which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the state of Washington.

APPENDIX 3 - ACRONYMS

BMP	Best Management Practice
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response Compensation & Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
FWPCA	Federal Water Pollution Control Act
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
SARA	Superfund Amendment and Reauthorization Act
SEPA	State Environmental Policy Act
SIC	Standard Industrial Classification
SMCRA	Surface Mining Control and Reclamation Act
SWMM	Stormwater Management Manual for the Puget Sound Basin
SWPPP	Stormwater Pollution Prevention Plan
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality

APPENDIX 4 – EXISTING DISCHARGERS TO IMPAIRED WATERBODIES

The list of dischargers identified as discharging to impaired water bodies and associated monitoring requirements can be viewed on Ecology's WEB site at: http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html The most current list can also be obtained by contacting Ecology at:

Industrial Stormwater General Permit
Washington State Department of Ecology
P.O. Box 47696
Olympia, WA 98504-7600

Phone: (360) 407-6858
Fax: (360) 407-6426
E-mail: josm461@ecy.wa.gov

This list is based on the best information available to Ecology. There will be changes and updates to this list based on new, more accurate information. If changes or updates are made, Ecology will notify the affected permittees directly. Such changes or updates will not become effective until 30 days after the affected dischargers are notified.

This list is generated by comparing the discharge point of each individual discharger permitted under the Industrial Stormwater General Permit as of August 2004 with the 1998 list of impaired waters (the 303(d) list). The 1998 impaired waterbody list can be viewed at: http://www.ecy.wa.gov/programs/wq/303d/1998/1998-index.html

APPENDIX 5 – DISCHARGERS SUBJECT TO TMDL REQUIREMENTS

The list of dischargers identified as discharging to water bodies which have completed water quality clean-up plans or TMDLs and associated monitoring requirements can be viewed on Ecology's WEB site at: http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html

The most current list can also be obtained by contacting Ecology at:

Industrial Stormwater General Permit
Washington State Department of Ecology
P.O. Box 47696
Olympia, WA 98504-7600

Phone: (360) 407-6858
Fax: (360) 407-6426
E-mail: josm461@ecy.wa.gov

This list is based on the best information available to Ecology. There will be changes and updates to this list based on new, more accurate information. If changes or updates are made, Ecology will notify the affected permittees directly. Such changes or updates will not become effective until 30 days after the affected dischargers are notified.

This list was generated by comparing the discharge point of each individual discharger permitted under the Industrial Stormwater General Permit as of August 2004 with TMDLs which have been completed on or before the issuance date of permit (August 21, 2002) The list of completed TMDLs can be viewed at: http://www.ecy.wa.gov/programs/wq/tmdl/approved_tmdls.html

APPENDIX D

STORM WATER TASK DOCUMENTATION FORMS

JELD-WEN

Storm Water Sampling Log

Sample #	Outfall #	Date	pH Reading	Length of Storm (in hours)	Rainfall Estimate for Storm Event	Time Since Last Measurable Storm Event (0.1 inches)	Estimated Volume of Discharge	Person Taking Sample
1								
2								
3								
4								

	Buffer Solution #1	Buffer Solution #2
pH Meter Calibration: (enter buffer solution used)		

JELD-WEN

Date of Inspection:

JELD-WEN Everett

Quarterly Visual Examination of Storm Water Quality

	Outfall 002A				Outfall 006			
	Location:				Location:			
Parameters:	Yes	No	N/A		Yes	No	N/A	
Floating Materials/Foam								
Comments:								
Suspended Solids								
Comments:								
Oil Sheen								
Comments:								
Color								
Comments:								
Clarity								
Comments:								
Odor								
Comments:								
Settled Solids								
Comments:								

Location: Record location of the outfall.

Floating Materials: Record the presence, if any, of floating or suspended materials. Determine type if possible.

Oil and Grease: Record the presence or absence of oil and grease. Determine source if present.

Visible Sheen: Record presence or absence and source if present.

Color: Record actual color, if any.

Turbidity: Record turbidity, if any, and possible source.

Odor: Record presence or absence of odor. If present, determine what it is and its source.

Other Indicators: If there are any other indicators that pollutants are present in the observation, mark yes and determine source.

JELD-WEN

Date of Inspection:

JELD-WEN - Everett Facilities

Annual Visual Examination of Storm Water Quality

	Outfall 001			Outfall 002A			Outfall 003			Outfall 004	
	Location:			Location:			Location:			Location:	
Parameters:	Yes	No		Yes	No		Yes	No		Yes	No
Floating Materials/Foam											
Comments:											
Suspended Solids											
Comments:											
Oil Sheen											
Comments:											
Color											
Comments:											
Clarity											
Comments:											
Odor											
Comments:											
Settled Solids											
Comments:											

Location: Record location of the outfall.

Floating Materials: Record the presence, if any, of floating or suspended materials. Determine type if possible.

Oil and Grease: Record the presence or absence of oil and grease. Determine source if present.

Visible Sheen: Record presence or absence and source if present.

Color: Record actual color, if any.

Turbidity: Record turbidity, if any, and possible source.

Odor: Record presence or absence of odor. If present, determine what it is and its source.

Other Indicators: If there are any other indicators that pollutants are present in the observation, mark yes and determine source.

JELD-WEN

Annual Visual Examination of Storm Water Quality

Parameters:	Outfall 005 Location: Yes	Outfall 005 Location: No	Outfall 006 Location: Yes	Outfall 006 Location: No	Outfall 007 Location: Yes	Outfall 007 Location: No	Outfall 008 Location: Yes	Outfall 008 Location: No
Floating Materials/Foam								
Comments:								
Suspended Solids								
Comments:								
Oil Sheen								
Comments:								
Color								
Comments:								
Clarity								
Comments:								
Odor								
Comments:								
Settled Solids								
Comments:								

Location: Record location of the outfall.

Floating Materials: Record the presence, if any, of floating or suspended materials. Determine type if possible.

Oil and Grease: Record the presence or absence of oil and grease. Determine source if present.

Visible Sheen: Record presence or absence and source if present.

Color: Record actual color, if any.

Turbidity: Record turbidity, if any, and possible source.

Odor: Record presence or absence of odor. If present, determine what it is and its source.

Other Indicators: If there are any other indicators that pollutants are present in the observation, mark yes and determine source.

JELD-WEN

Annual Visual Examination of Storm Water Quality

Parameters:	Dry Well, South Side Location: Yes	No	Dry Well, North Side Location: Yes	No
Floating Materials/Foam				
Comments:				
Suspended Solids				
Comments:				
Oil Sheen				
Comments:				
Color				
Comments:				
Clarity				
Comments:				
Odor				
Comments:				
Settled Solids				
Comments:				

Location: Record location of the outfall.

Floating Materials: Record the presence, if any, of floating or suspended materials. Determine type if possible.

Oil and Grease: Record the presence or absence of oil and grease. Determine source if present.

Visible Sheen: Record presence or absence and source if present.

Color: Record actual color, if any.

Turbidity: Record turbidity, if any, and possible source.

Odor: Record presence or absence of odor. If present, determine what it is and its source.

Other Indicators: If there are any other indicators that pollutants are present in the observation, mark yes and determine source.

JELD-WEN

Annual Visual Inspection of Storm Water Quality

Area Inspected	Storm Water Pollution Concerns	Corrective Action Taken	Date	Responsible Person
Fueling Station				
Baghouses, Storage Silo Truck Bin and Wood Hog				
Trailer Loading & Unloading Area				
Miscellaneous Storage Area (NE Corner of Site)				
Building Perimeter				
Oil/Water Separators				
Dumpsters				
Glue Room				
Paint Kitchen				
Ash Cooling Pile				
Lumber Storage Area				
Hazardous Waste Storage				
Other (Identify)				

Date/Time:	**Weather Conditions:**
Inspected by:	**SWPPP Reviewed (Y/N)/Changes Made:**

I certify under penalty of law that the facility is in compliance with the Storm Water Pollution Prevention Plan and the permit or that incidences of non-compliance identified in this inspection report have been reviewed and an action summary has been prepared and will be submitted to Ecology as required under S5.E of the permit.

GM Signature:

Attach Action Summary Report if required.

JELD-WEN

Quarterly Visual Inspection of Storm Water Quality

Area Inspected	Storm Water Pollution Concerns	Corrective Action Taken	Date	Responsible Person
Fueling Station				
Baghouses, Storage Silo Truck Bin and Wood Hog				
Trailer Loading & Unloading Area				
Miscellaneous Storage Area (NE Corner of Site)				
Building Perimeter				
Oil/Water Separators				
Dumpsters				
Glue Room				
Paint Kitchen				
Ash Cooling Pile				
Lumber Storage Area				
Hazardous Waste Storage				

Date/Time:	**Weather Conditions:**
Inspected by:	**SWPPP Reviewed (Y/N)/Changes Made:**

I certify under penalty of law that the facility is in compliance with the Storm Water Pollution Prevention Plan and the permit or that incidences of non-compliance identified in this inspection report have been reviewed and an action summary has been prepared and will be submitted to Ecology as required under S5.E of the permit.

GM Signature:

Attach Action Summary Report if required.

JELD-WEN

Annual Dry Season Inspection
Investigation of Non Storm Water Discharges

This investigation is to be performed during dry weather. To perform the investigation, visually inspect all outfalls to determine the presence or absence of water discharge. Also inspect all roof drains, catch basins and storm water conveyances. In the event of discovery of non-storm water discharges, determine their origin. Visually inspect the discharge for odor, clarity, solids, and other potential pollutants. Determine if the discharge is allowable under the general storm water permit. If it is, the Storm Water Pollution Prevention Plan must be revised to reflect this. In the event that it is not an allowable discharge, measures must be taken (either through Best Management Practices or removal of the source) to eliminate the discharge from the storm water discharge system.

Type of Investigation: VISUAL

Date of Investigation:

	Is Water Present (Y/N)?	If Yes, Source	Is It An Allowable Discharge?	If No, Corrections Made	Date of Corrections	Inspector
Outfalls						
Roof Drains						
Catch Basins						
Storm Water Conveyances						
Other						

Certification

I certify that the separate storm sewer system has been evaluated for the presence of non-storm water discharges and that the discharge of non-permitted, non-storm water does not occur.

_____ _____

General Manager *Date*

SO3-000158D

INDUSTRIAL STORMWATER GENERAL PERMIT
DISCHARGE MONITORING REPORT

MONITORING PERIOD for (year/quarter): _____ year ☐ **Jan/Feb/Mar** ☐ **Apr/May/Jun** ☐ **Jul/Aug/Sep** ☑ **Oct/Nov/Dec**

Facility/Site Information

JELD-WEN INC DBA JELD WEN EVER+NOR
Location: 300 W MARINE DR
County: SNOHOMISH
Primary SIC Code: 2431

Mailing Information

JELD WEN INC
PO BOX 1329
KLAMATH FALLS OR 97601

You must send a Discharge Monitoring Report (DMR) to Ecology **every quarter**. If there was **no discharge** *or* you have **suspended sampling** because of consistent attainment of benchmark values, mark the appropriate boxes and send the DMR to Ecology. Please read the instructions before completing the DMR.

Discharge Point __Outfall #002_____

☐ There was no qualifying storm event this quarter so no values are entered below (see explanation)

Quarterly Monitoring		AVERAGE	MAXIMUM	UNITS	Sample Type	Events Sampled
Turbidity	☐ Consistent Attainment			NTU		12/6/04
pH	☐ Consistent Attainment			Standard Units		12/6/04
Zinc (total)	☐ Consistent Attainment			µg/L		12/6/04
Oil & Grease	☐ Consistent Attainment			mg/L	**Grab**	12/6/04
Copper	☐ Consistent Attainment			µg/L		12/6/04
Lead	☐ Consistent Attainment			µg/L		12/6/04
Hardness	Not Applicable – Discharge to marine	**NA**	**NA**	mg/L (as $CaCO_3$)		
BOD5	☐ Consistent Attainment			mg/L		12/6/04

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC § 1001 AND 33 USC § 1319. ***(PENALTIES UNDER THESE STATUES MAY INCLUDE FINES UP TO $10,000.00 AND OR MAXIMUM IMPRISONMENT OF BETWEEN SIX MONTHS AND FIVE YEARS.)***

Jay Swanson, General Manager
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER (TYPED OR PRINTED)

DATE: MO DAY YEAR

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

(425) 259-9292
TELEPHONE NUMBER

COMMENTS / EXPLANATIONS

JELD-WEN

Form #10301.0136

Weekly Condensate Line Inspections

Date	Inspector	Location	Deficiencies Noted	Date Corrected	Employee Initials

JELD-WEN

Form #10301.0133

Spill Kit Inspection

Date	Inspector	Spill Kit Location	Deficiencies Noted	Date Corrected	Employee Initials

APPENDIX E

HOW TO DO STORM WATER SAMPLING

How To Do Stormwater Sampling
A guide for industrial facilities

Washington State
Department of Ecology

December 2002

Publication #02-10-071

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

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Table of Contents

Introduction

The purpose of this guide is to help those who operate facilities do their own sampling.

The *Industrial Stormwater General Permit* requires that your facility conduct quarterly visual monitoring and sampling of stormwater and report the sampling results to Ecology. These requirements are outlined in the permit under *Section S4. MONITORING REQUIREMENTS*. This guide supports the sampling portion of the general permit but does not substitute for it.

The purpose of this guide is to help those who operate facilities do their own sampling by more fully describing the steps and procedures to be followed. This guidance will lead you to be able to sample in a way that will provide you and Ecology with meaningful results.

Sources of pollutants that may enter surface water, sediments, or ground water can be identified by sampling stormwater discharges. The results of sampling will be helpful when developing your Stormwater Pollution Prevention Plan (SWPPP), determining if your existing plan is adequate, and when implementing or assessing Best Management Practices (BMPs).

Some effort is required up front to prepare for sampling in a way that will meet requirements and provide useful data. What follows is a step-by-step procedure of what you need to do to gather and report data that will represent the quality of stormwater leaving your facility. The steps are organized to guide you through the process from start to finish of stormwater sampling.

This guide to stormwater sampling was developed by Ecology's Environmental Assessment Program for the Water Quality Program. We in the Water Quality Program are indebted to Norm Glenn and Steve Golding for their hard work, technical knowledge, writing talent, and perseverance. Thank you Norm and Steve.

Advance Planning for Stormwater Sampling

Deciding What To Sample

Before beginning your quarterly sampling, you'll need to determine the specific pollutants (water quality parameters) you are required to sample and test for. Ecology has listed these parameters on your permit cover sheet. Your parameters are based on:

- the standard set of parameters for all facilities,
- your facility's primary Standard Industrial Code (SIC Code),
- whether your facility discharges to an impaired (303 (d) listed) water body, and
- any requirements that apply to water cleanup plans (TMDLs).

All facilities must monitor for turbidity, pH, zinc, and oil and grease. Oil and grease are grouped together as a single parameter tested in the lab with a single analysis. Turbidity can be measured directly in the field using a handheld meter, or sampled and analyzed in the lab. pH must be measured in the field using either a calibrated pH meter or pH paper. You can get pH paper from a distributor of scientific/laboratory supplies or through the same laboratory that will be doing your sample analysis. Zinc, oil and grease and other parameters required by the permit (other than turbidity and pH) are measured by sending bottled samples to a laboratory for analysis.

Selecting a Laboratory to Test Your Sample

Having identified the parameters you will need tested, the next step is to select a laboratory to perform the tests. You are required to select a lab accredited by Ecology. Accreditation assures Ecology that the lab is able to do quality testing using the analytical methods specified under Monitoring Requirements in your permit. A list of labs can be found on Ecology's website: www.ecy.wa.gov/programs/eap/labs/lablist.htm.

Contacting the Lab in Advance

You should contact the lab well ahead of time. They will be providing you with the sampling bottles you'll need. For some water quality parameters, such as oil and grease, it is not only desirable but necessary to collect the sample directly into a specially-cleaned container, so you will need to have bottles from the lab on hand before you sample. You can also ask your lab to send pH paper along with your sample bottles.

Discuss with the lab the analytical methods they will use, as specified in the sample parameter tables included in S4. C of the general permit. The lab will provide you helpful information and explanations that go beyond the scope of this guide. If you must meet discharge limits listed in S3, Discharge Limitations, you should carefully review them with the lab.

All facilities must monitor for turbidity, pH, zinc, and oil and grease.

Contact the lab well ahead of time.

Ask questions - your lab can help you.

Issues you may want to cover with the lab include:

The type and size of bottle that will be supplied for each water quality parameter to be sampled and tested.

How full to fill the bottle.

Any safety concerns with materials supplied by the lab.

What you need to know about preserving your samples: Make a note of the parameters for which bottles will have preservative inside. (For some tests, a preservative is necessary. The preservative is a substance that stabilizes certain chemicals at the time of sampling so that a valid test can be done later. It is critical that you use the correct bottles because tests requiring preservative will not be valid without the correct preservative. In some cases, the wrong preservative will interfere with a test. It is important not to lose the preservative that comes in the bottles supplied by the lab.

The kind of labels the lab will supply for the bottles and how the labels should be filled out. The labels or tags you use to identify the samples you take must be waterproof, and if you write on them, the writing must be waterproof also.)

A description of forms or other paperwork to submit to the lab with the samples and how to fill them out.

Whether the lab will supply pH paper as well as sample bottles, tags or labels for the bottles, and blank forms.

How bottles and other supplies from the lab will be delivered to you.

The holding times for each water quality parameter to be sampled and tested. A holding time is the maximum time allowed between taking the sample and doing the lab analysis. If you exceed holding time, the sample analysis is not acceptable.

How and when you will deliver samples to the lab. Plan with the lab how you will get the samples to them in time to begin analysis before the parameter with the shortest holding time reaches that holding time. The fastest way to deliver samples to the lab may be to do so in person, but it may be possible to ship samples (cooled in picnic coolers) and still meet holding times. If you deliver samples in person, you can pick up bottles and supplies for the next quarter at the same time.

The table (left) shows typical sampling information for the four water quality parameters that must be monitored under the Industrial Stormwater General Permit. The information you obtain from your lab may differ somewhat from this:

In many cases, the preservatives listed above come pre-measured in the sampling bottles and there is no need to check pH. Ask your lab about this.

Sampling requirements tend to use scientific words and units of measure. Temperature is measured in degrees Celsius, "C". Thermometers that we typically use in the United States measure temperature in Fahrenheit, "F" and 4° C is about 39° F. But for your purposes, "Cooling to 4° C" means putting the samples on crushed ice or packed with blue ice in

Typical Sampling Information

Parameter	Bottle Type	Minimum Sample Required	Holding Time	Preservation
Turbidity	500 mL wide-mouthed poly	100 mL	48 hours	Cool to 4° C
Total Zinc	1liter (L) bottle cleaned according to protocol	500 mL	6 months	HNO_3 to pH<2 Cool to 4° C
Oil and Grease	1L glass jar	750 mL (jar ¾ full)	28 days Jar preserved in lab within 24 hours of arrival to lab.	HCL to pH<2 Cool to 4° C

an ice chest so they will be kept just above freezing. Metric units are used to measure weight, volume and distance. Liquid volumes do not use "quarts" and "cups" but use measures such as liters, "L" and milliliters "mL". Chemicals use their own scientific notation. Nitric acid for example is HNO_3. Be sure to have the lab explain any words or expressions that you do not understand.

Deciding How You Will Take The Sample

Section S4.A.1 of the Industrial Stormwater General Permit states that a grab, time-proportionate, or flow proportionate sample may be taken. A grab sample is a single sample "grabbed" by filling up a container, either by hand or with the container attached to a pole. It is the simplest type of sample to collect and it is expected that most Permit holders will choose to collect grab samples. The general permit requires that grab samples be collected within the first hour after stormwater discharge begins.

As we will discuss in the next section, oil and grease samples *must* be collected as grab samples. Some Permit holders may choose to better represent water quality parameters other than oil and grease by collecting time-proportionate or flow-proportionate samples. These samples consist of a number of subsamples taken at intervals rather than a single grab sample. The general permit states that time-proportionate and flow-proportionate samples may be for a two-hour period but must be started within the first 30 minutes after discharge begins.

A time-proportionate sample is one made up of a number of small samples (subsamples) of equal volume collected at regular time intervals combined into a single large sample. A flow-proportionate sample is one made up of a number of subsamples where each subsample is collected in such a way as to represent a given amount of stormwater discharge. Time-proportionate and flow-proportionate samples provide the advantage of including a number of smaller samples (subsamples) in the sample so that the stormwater discharge is better represented than with a grab sample. Time-proportionate and flow proportionate samples can be collected either by hand or with automated equipment. Collecting them by hand is somewhat difficult and collecting them with automated equipment involves additional expenses. Additionally. flow-proportionate sampling requires some knowledge of how to measure fluid flow. A reference for automatic stormwater sampling is the book *Automatic Stormwater Sampling Made Easy* (Thrush and De Leon, 1993) published by the Water Environment Federation. It can be purchased at *www.wef.org*.

Collecting Oil and Grease Samples

The general permit requires that oil and grease samples be collected by all permit holders. Because of the particular way oil and grease samples must be collected, this requirement may govern your overall approach to sampling.

For some parameters other than oil and grease, it is possible to sample in difficult situations by filling a container and transferring it to the sample bottle to be sent to the lab. Oil and grease samples, however, must be collected from the stormwater source directly. The sample cannot be transferred from another container because oil and grease tends to stick to the inside surfaces of containers. Since you must sample directly into the oil and grease bottle (grab sample), taking grab samples may be the easiest way to collect additional samples for the other parameters. Take samples by collecting stormwater directly from the discharge into the bottles supplied by the lab, filling each bottle one after another.

Oil and grease samples must be collected directly into the bottle you send to the lab.

Because oil and grease samples cannot be transferred between containers, a sample cannot be formed from separate grab samples combined together. If more than one oil and grease sample is desired from a sampling site during a storm event, additional oil and grease grab samples must be collected and analyzed separately.

Because oil and grease samples must be collected directly and not through the tubing of an automatic sampler, those using automatic samplers will still have to grab oil and grease samples by hand.

Determining which Discharges to Sample

The first step in selecting sampling points is to consider the areas draining your facility. The site map in your SWPPP should show the drainage areas. Areas of particular concern are those where raw materials or finished product are exposed to rainfall and/or runoff, and areas where leaking fluids such as petroleum products and hydraulic fluids have the potential to enter stormwater runoff.

The next step is to determine where the runoff from each drainage area is discharged from your facility. If there are separate drainage areas with separate discharge points, stormwater sampled at one discharge sampling point may not represent the facility's stormwater quality overall.

Section S4.A.5 of the Industrial Stormwater General Permit describes the requirements for selecting sampling points:

"Sampling must be conducted to capture stormwater with the greatest exposure to significant sources of pollution. Each distinct point of discharge offsite must be sampled and analyzed separately if activities and site conditions that may pollute the stormwater are likely to result in discharges that will significantly vary in the concentration or type of pollutants. Where pollutant types do not vary, the Permittee may sample only the discharge point with the highest concentration of pollutants. However, the SWPPP must include documentation on how these determinations were made and in the description of each point of discharge, including the relative quantity (volume) of discharge and pollutants likely to be found."

If your facility discharges stormwater collected over areas that are used for similar activities and have similar site conditions, and there is reason to believe pollutant types will be similar in such areas, a single sampling point can be used to represent several discharge points. For example, if a facility has separate discharge points but the industrial activities are similar, you can sample at just one of the discharge points. The site chosen must be the one where there is reason to believe the pollutant concentration is highest (the "worst case.") For example, select the discharge that drains an area with greater use and/or more equipment activity. Determining where to sample can be approached as a logical deduction, or you may want to take samples at multiple sites and use the results to determine sampling location. Documentation of how sampling sites were chosen is required in the SWPPP, as described above in the general permit.

If your facility has multiple discharge points from areas with different uses or activities, you need to determine if that will result in significant differences in the type of pollutants that may be discharged. For example, if one portion of the site is used to store raw materials and discharges separately from another portion of the site where finished product is stored, it may be necessary to take separate samples. Some initial sampling and analysis may be necessary to make this determination. Ecology expects that most facilities will be able to choose a single sample location for their site.

Making a determination of whether a discharge is likely to have stormwater quality that differs from other discharges and require separate sampling requires a review of the site map in the SWPPP with consideration to sources of pollutants in each drainage area. This should be followed up with an on site assessment of activities, sources and quantities of pollutants in each drainage area. This information will help you document your decision as to whether two or more drainage areas can be represented by a single sample site.

Selecting Sampling Points

◆ Pipes discharging your facility's stormwater offsite

◆ Ditches carrying your facility's stormwater offsite.

◆ Manhole access to storm sewer's carrying your facility's stormwater, so you can lower a sample bottle attached to a pole into the manhole. In general, manhole access on your property may be simpler and safer than access off property and more readily verifiable as carrying only your facility's stormwater.

These three types of sampling points are not too difficult to access and the flow within them tends to be fast enough, with enough turbulence, to allow you to collect well mixed, representative samples. In some cases, portions of industrial stormwater runoff leave a site as sheet flow. Specific approaches to sampling of pipes, ditches, manholes, grated storm drains, and sheet flow will be covered in the final section of this guide manual.

Make sure your sampling points will provide for sampling only the stormwater that comes from your facility. If the stormwater in a pipe (storm sewer) contains other discharges, move your sampling point upstream to a point where the flow is from your facility only. Also check to see that there is no baseflow in the storm sewer during dry periods. Report in your SWPPP the presence of any base flow and measure or estimate its flow rate. If it is not possible to sample only flow from your facility, document the reason for this and provide information concerning the source of the flow you are sampling.

If possible, the stormwater your facility samples should not be a mixture of your facility's stormwater with other water. Some examples of situations where a sample would be of a mixture of water sources, situations in which you should **not** sample:

Examples of mixed water sources situations in which you should not sample:

A ditch that carries additional stormwater from properties upstream. In this case, the stormwater from your facility is mixed with other water and you should find a location or locations where your facility's stormwater alone can be sampled.

A stormwater sewer or pipe (culvert) discharges to a creek or other receiving water, the pipe being partially submerged where it discharges into the receiving water. In this case, this final discharge point will not be able to be used as a sampling point because the stormwater flow is mixed with the receiving water.

A manhole that carries stormwater, not only from your facility but from other stormwater sources as well. If you are grabbing a sample from a manhole but from the point where a storm sewer from your facility ends at a municipal manhole, make sure that the flow in that pipe is entirely from your facility, that the pipe is not submerged or partly submerged and that you are otherwise not prevented from collecting stormwater from your facility only. If you are not sure that a storm sewer carries only flow from your facility, the municipality may

Base flow here refers to any water in the ditch that is not a direct result of stormwater runoff. Ground water seepage into the ditch, for example, would add base flow.

*Manhole access can be a good sample point if it can be accessed safely and the stormwater is solely from your facility. Do **not** climb into the manhole. Use a sample bottle attached to a pole to take the sample.*

Practice sampling before you do the real thing.

Take time to get ready for sampling.

have storm sewer plans to help you determine this. Contact the municipality beforehand to discuss sampling from the manhole and associated safety issues, particularly for manholes in areas with vehicular traffic.

It is important to sample flow from only your facility if possible because otherwise it cannot be determined what the sample actually represents. If you discharge stormwater to a stormwater conveyance system that includes stormwater from other sources, you need to sample before your stormwater commingles with stormwater from other sources. However, if stormwater runs onto your property in an uncontrolled fashion (for example, sheet flow) from adjacent property, into areas of industrial activity on your site so that it becomes a part of the stormwater discharge from your site, this should be included in your sample of stormwater discharge. If you are concerned about this offsite source, you may want to sample that stormwater where it enters your property. If the results show significant pollution, you may want to provide Ecology with a narrative description of the contributing site and sample results to document the relative contribution of the other property or upstream source.

It is a good idea to observe the sampling point(s) you have chosen during actual stormwater runoff conditions to see how readily stormwater can be sampled there. Keep in mind that changing tides and flow conditions in receiving waters, including flood stages may occur during storm events. This may cause a pipe that is discharging your facility's stormwater to become submerged or partly submerged, preventing you from sampling during some conditions.

Obtaining Supplies for Sampling

The supplies you will want to have on hand before sampling include:

- Sampling bottles from the lab, including a few extra of each type.
- When needed, a pole to hold sample bottles and filament strapping tape.
- Powder-free disposable nitrile or latex gloves (sold by medical and laboratory suppliers). Do not use powdered gloves as the powder may contain metals that could contaminate metals samples such as zinc.
- Foul-weather gear
- One or more picnic coolers (depending on the number of samples to be stored and transported or shipped).
- A bound notebook to serve as a field book for keeping records concerning sampling. Notebooks with waterproof pages are available for these field notes at office supply stores. The information to be included in the notes will be described in the "Keeping Records" section of this guide.

Planning Just Prior to Stormwater Sampling

Now that the bulk of the planning for sampling is complete, there are a few things to keep in mind before deciding to actually begin sampling.

Being Prepared

it is important to assemble everything that will be needed for the sampling event ahead of time because opportunities to sample during storm events often come with little advanced notice. Complete the identification tags and Lab Services Required form. Place the tags, lab form, field notebook, permanent ink pen, meter, and pH paper in the cooler with the sample bottles. Have re-sealable plastic bags or other means on hand to keep the pH paper dry. If you are using a turbidity meter or pH meter, be prepared to protect them from the rain. Have foul-weather gear ready and available. It will be necessary to keep sufficient ice on-site or plan to purchase ice that day.

Choosing the Storm Event

Now you are ready to sample. Successful sampling is first and foremost a matter of being at the right storm event at the right time. What follows is some guide on how to do that.

The general permit states that the storm event to be sampled must meet the following two conditions:

1. be preceded by at least 24 hours of no measurable precipitation.

2. have an intensity of at least 0.1 inches of rainfall (depth) of rain in a 24-hour period.

Storm events that meet these two criteria are not uncommon and a number of them may occur at your facility during a quarter year. Success in collecting grab samples during one of these events requires being ready to go as soon as the decision is made to sample during a particular storm event. It is especially important to be at-the-ready because the permit requires that grab samples be collected during the first hour of stormwater discharge. Preferably, though not stated in the permit, samples will be collected during the first 30 minutes of discharge. Note that the permit requires that the sample be taken within the first hour after *discharge* from your facility to a point off site, not from when *rainfall* begins.

Because the second criterion (rainfall intensity) is a condition of the permit, considerable effort could be wasted by sampling without evaluating the strength of a storm beforehand. You will increase your chances of meeting the criterion for intensity at a minimum of effort if you evaluate weather forecasts before deciding whether or not to sample a particular rain event.

Sample during a hard (intense) rain event.

Check weather forecasts.

If your facility is located in an area that is covered by a standing snow pack for days at a time during a year of normal precipitation, you may alternatively sample a snowmelt event during the winter or spring quarter. The snowmelt event must meet the following conditions:

1. It must be preceded by at least 24 hours of no measurable *rainfall.*

2. The snowmelt must be generated by a rainfall or warm weather melt-producing event on a standing snow pack of at least one inch in depth.

3. The sample must be collected during the first hour of discharge from your facility that was produced by the melting snow.

Keeping up with the weather forecast and planning so that sampling can be carried out on short notice are the keys to successful sampling.

Local forecasts, including televised satellite and radar images can give an indication of the expected intensity of coming storms. The National Weather Service is an excellent source of information on upcoming storms. It also includes local current radar and satellite images. Their website: *http://www.wrh.noaa.gov/seattle.* A number of commercial websites, such as *http://www.weather.com/* and *Yahoo* also provide weather information and forecasts.

When evaluating a weather forecast, consider indications of expected intensity, for example "90% chance" rather than "50% chance" and "rain" rather than "showers." Over the telephone, National Weather Service personnel can often provide estimates of anticipated rainfall amounts. In addition to intensity, consider the predicted duration of the storm. It will be very helpful to spend time observing rain events at your site with attention to how rain intensity relates to stormwater discharges from your site, before you begin sampling.

Once the decision has been made to attempt to sample a storm event, the personnel who will be sampling should be notified and they should prepare to sample. If it does rain, they should be at the sampling sites before stormwater begins discharging so they can document the time of discharge and be ready to sample.

Conducting Sampling at Your Facility

After you have selected a storm event and it begins raining, the personnel conducting the sampling should prepare their equipment and go to the sampling site(s). They will be collecting grab samples at the sampling site(s), placing the samples in picnic coolers containing ice, and keeping notes in a field book

Sampling for the first time may require working out some difficulties, but after performing these duties once, future sampling will not be difficult..

Checklist for Sampling

Because stormwater sampling is not a daily part of the workload of a facility, it is a good idea to keep a checklist of things to have prepared before sampling and to do during sampling. You can make the checklist by jotting down the things you did for the first sampling event to remember for subsequent sampling events. Update this checklist, if necessary, based on the experience you gain with each sampling event.

How to Fill Sample Bottles

This section and an illustrated appendix at the end of this guide describe how to collect a sample properly. Collecting a grab sample can be as simple as holding a bottle under the stormwater falling from a pipe and filling the bottle properly. Still, the person doing the sampling must use care in applying the principles outlined below so that the sample will be representative of the water being sampled.

Simple principles of good grab sample collection:

Wear disposable powder-free gloves when sampling

Grab samples with the stormwater entering directly into bottles supplied by your lab rather than by transferring the samples from a container that may not be clean. Metal contamination of ordinary containers is common and household detergents often contain phosphorus, a tested parameter for some industries. Again, transferring the sample from another container is not an option for oil and grease samples under any circumstances.

When holding the sample bottle your lab has provided, keep your hands away from the opening in order to prevent contaminating the sample.

Always hold the bottle with its opening facing upstream (into the flow of water) so that the water enters directly into the bottle and does not first flow over the bottle or your hands.

Sample where the water has a moderate flow and, if possible, some turbulence, so that the stormwater discharge will be well-mixed and the sample will be representative. Sampling in still water should be avoided. Include in your field book a note about the sample location and how briskly the water appears to be moving.

Sample from a central portion of the stormwater flow, avoiding touching the bottom of channels or pipes so as not to stir up solid particles.

Have your sampling kit ready to go.

Take notes! Writing down your observations at the time of sampling is importatnt.

Do not rinse or overfill the bottles. The bottles supplied by your lab for some parameters (ammonia and phosphorus) will include small amounts of liquid preservative (generally a few drops). Fill the bottle to about ½ inch of the top (not quite full) to ensure that no preservative is lost.

As soon as the sample is collected, cap the bottle and label it. It is important that the bottles are labeled correctly so that the lab will be able to identify samples by sample site and ensure proper preservation for each parameter. It is a good idea to place sample bottles in re-closable bags. Place the samples in a picnic cooler partially filled with ice. Plan to maintain ice in the picnic cooler until the samples arrive at the lab. Remember to make certain that the samples will be delivered to the lab soon enough for the lab to meet holding times.

Oil and grease sampling raises additional concerns:

Oil and grease floats on water so sampling it requires special attention. Oil and grease samples must be collected directly into the sample bottles supplied by the lab because oil and grease tends to stick to the sides of containers. Do not rinse the sampling bottles beforehand or pour the sample from another container. Do not fill the bottle completely and do not pour out some of the sample if the bottle is overfilled by mistake. If you do overfill a bottle, use a new bottle instead to collect your sample. Because you only get one try at filling an oil and grease bottle, it is a good idea to have plenty of extra bottles on hand.

Oil and grease samples should be collected as the stormwater falls from a pipe or from a running, turbulent stream of flow when possible so the source will be well mixed. When the samples must be collected from a water surface, the person holding the bottle should plunge it below the surface in a sweeping arc and then bring it upwards through the water surface again, so the water surface is broken twice by the mouth of the bottle. Be sure to note in your field book how you collected your samples as this is especially important for the oil and grease sample.

Keeping Records

Section S5. of the general permit specifies requirements for reporting and recordkeeping. In order to comply with the requirement that lab reports include sampling date and sampling location, you will need to supply this information to the lab when submitting samples. You can do this by using the sample location as the field station identification on your labels or sample tags.

You should purchase a notebook for use in the field. Water resistant "rite in the rain" notebooks serve the purpose well. Information is available at www.riteintherain.com.

Section S5.C. requires that you record the date, exact place, method, and time of sampling or measurement, and the individual who performed the sampling or measurement (the section also specifies some requirements for lab record keeping). Record these in your field book:

- Time rainfall began
- Sampling location (when there is more than one)
- Date of sampling
- Time of sampling (and time you completed sampling if different)
- How you collected the sample (for example, "from a ditch by hand" or "from a manhole with the bottles on a pole")
- name of the sampler(s)
- number, types (parameters) of samples collected

◆ field measurement results (such as pH)

◆ unusual circumstances that may affect the sample results.

Entries in the field book should be made with ink. If you make an error in the field book, cross it out rather than whiting out or erasing. Number the pages of the field book consecutively. To ensure that the bound field book is a complete record, do not rip out pages from it.

It is desirable in addition, though not required by the general permit, to record the following information for each storm event sampled:

◆ number of dry days before the day the sample was collected, or a statement that there was at least one day of no measurable precipitation before sampling.

◆ inches of rain during a 24-hour period

◆ time of sampling as well as date

◆ date and time the rainfall began

◆ date and time the discharge began at the sampling site

◆ duration of the storm in hours

◆ inches of rainfall during the storm

The information you record for the first two items above (number of preceding days of no measurable precipitation and inches of rain during a 24-hour period) will serve to document that you met those criteria for sampling specified in the general permit.

Determining if the Sampled Storm Event Met Criteria

Section S4.A. requires that the storm event be preceded by at least 24-hours of no measurable precipitation. During times of clear weather, it may be obvious that this criterion has been met. When it is cloudy, you can verify that there has been no precipitation (including overnight) by installing a simple, inexpensive rain gauge at your site.

The same section of the permit also requires that the storm have a rainfall intensity of at least 0.1 inches of rain in a 24-hour period. This does not mean that the rainfall must last for a full 24 hours, only that from the time it begins raining to the time you stop sampling, the rainfall be of the required intensity or greater. To determine this, you should observe and record the time it began raining as well as the time you stopped sampling. What the storm does after you stop sampling is of no concern. In addition to the times rainfall began and sampling ended, your rain gauge will give you all of the information you need to easily calculate the rainfall intensity.

An example rainfall intensity calculation:

Rainfall begins at 9:35 AM (you empty the rain gauge beforehand)

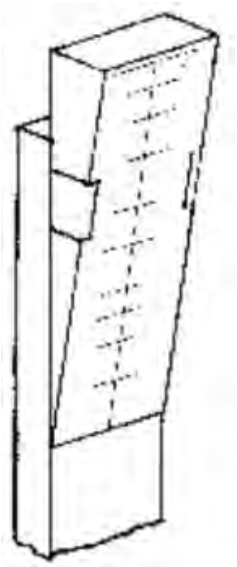
Stormwater Discharge at your sampling site begins at 10:05

You complete sampling at 10:30

Your rain gauge shows 0.01 inches of rain when you stop sampling

Rain intensity
= 0.01 inches / 55 minutes
= 0.00018 inches/minute
= 0.00018 inches/minute
x 60 min/hr
x 24 hrs/24 hrs
= 0.26 inches/ 24 hours

The criterion for rain intensity is 0.1 inches / 24 hours. 0.26 is greater than 0.1, so the storm event you sampled meets the criterion.



A simple, inexpensive rain gauge mounted on a post. A rain gauge such as this one provides accurate readings at the low rainfalls often associated with the period from the beginning of rainfall to the end of sampling. The gauge can be removed and the water that has collected in it dumped out between rains.

Get the best sample you can.

If you do not have a rain gauge, you will have to rely on rainfall data from other sources. The National Oceanographic and Atmospheric Administration (NOAA) posts daily rainfall records on their website: *http://www.wrcc.dri.edu/state_climate.html.* (Note that there is an underline between "state" and "climate," but no space, in this web address). The data posted is only for the previous day, so you will have to make sure you don't miss the internet posting. A disadvantage of relying on this data is that it is a measure of nearby rainfall but not that from your site. A further disadvantage is that it gives you only daily (24-hour) rainfall data and, while this may indicate a rainfall of less than 0.1 inches in some cases, you may have had sufficient rainfall intensity at your site to meet the requirements of the general permit, had you measured it with a rain gauge.

When the Sampled Storm Doesn't Meet Criteria

There may be times when you start to sample but the rainfall intensity turns out not to meet the criterion of the general permit. When this happens it may be best to dispose of the samples to save unnecessary lab expenses and to sample again during another storm event.

If despite your best efforts, you are unable to collect grab samples during the first hour of a storm event that meets the criteria for preceding dry conditions and rainfall intensity, the general permit states that your facility may submit the sample results but must include an explanation with the monitoring report identifying what criteria were not met and why.

Special Sampling Considerations

Safety should be the primary consideration in sampling. Samples should never be collected in a way that compromises the safety of the sampler. In cases where a physical hazard such as a trip hazard or when sampling near deep water bodies, samplers should work in pairs. Do not wade in water where the estimated depth in feet times the velocity in feet per second is equal to or greater than 8, as swift currents can lead to drowning accidents. Be aware of the slip hazard common near the banks of water bodies and decide whether a bank is too steep to negotiate safely. Safety comes down to individual judgement. Never put yourself in a position you consider to be unsafe.

Collecting grab samples of stormwater is basically a simple process but an important one since getting good results depends on proper sampling. Samples can be collected easily in some locations, but not all stormwater discharges are as readily sampled as the flow in a ditch or from a pipe falling into a receiving water. Below are some situations you may encounter and suggested approaches for handling them. Because oil and grease samples must be collected directly into the bottle supplied by the lab we will consider only methods for collecting samples directly by hand or with a bottle attached to a pole. When sampling in these or other situations, keep in mind the steps outlined in the section, *How to Fill Sample Bottles*.

Sampling as Stormwater Discharges from a Pipe into a Receiving Water

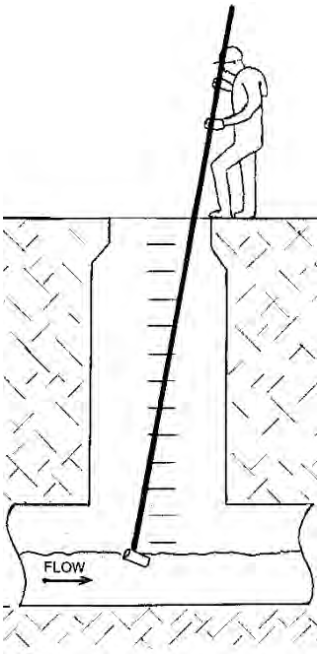
If stormwater is being discharged from your facility through a pipe into a ditch, creek, or other receiving water, it can be readily sampled as it falls from the pipe before it reaches the receiving water if the discharge pipe is safely accessible and not submerged. Hold the bottles with the bottle opening facing upstream (into the flow and be sure not to overfill them. You may need to fasten the collection bottles to a pole to reach the pipe. Attaching a bottle to a pole is described in the section below, *Sampling from a Manhole*.

Sampling from a Manhole

When sampling from the manhole of a municipal storm sewer, remember to contact the municipality beforehand. Discuss sampling being sure to cover safety concerns. Open a manhole with a hook or pick axe, exercising care not to drop the manhole cover on hands or feet. **You should not, under any circumstances, enter the manhole unless trained to safely enter confined spaces**, but you can sample the flow in a manhole from above ground by taping the sampling bottles, one at a time, to a pole and lowering the pole into the manhole.

Each bottle can be fastened to the pole by holding the bottle against it and wrapping tape tightly around the bottom and the top of the bottle as you hold the bottle firmly to the pole. Filament strapping tape works well for this purpose as it is waterproof and strong. If the flow in the storm sewer is shallow, the bottle may have to be positioned horizontally with the bottle's opening somewhat higher than its bottom. When sampling in a manhole, be

Don't take risks - know how to sample safely.



When sampling from a manhole, use a pole to safely sample from above ground. Avoid touching the sides of the manhole or pipes with the bottle to prevent contamination. Place the opening of the bottle upstream so that the flow enters the bottle directly.

careful not to scrape the bottle against the sides of the pipe to avoid picking up extras solids in your sample.

Collecting into bottles with oil and grease samples with a pole is done by plunging the bottle on the pole below the water surface and back upwards. This must be done as a single motion and only once. Because you only get one try at getting a good oil and grease grab sample, it may take some practice and extra bottles to collect the amount of sample you need without overfilling the bottle. Collecting samples other than oil and grease into bottles with preservative can be done by quickly plunging the pole into the flow repeating if necessary until the bottle is most but not all of the way full. If you overfill the bottle, remove it, tape a clean bottle the pole, and try again. Be sure, when collecting samples with a pole, to follow clean principles by keeping the pole downstream of the bottle while sampling.

Sampling from a Drainage Ditch or Swale

If a drainage ditch carries stormwater flow from your facility offsite, and if it carries no flow other than the flow from your facility, you can sample the water in the ditch simply by placing the bottle where the flow is free, with the bottle opening facing upstream. If you cannot reach a freely flowing portion of the ditch by hand, you may need to attach the bottles, one at a time, to a pole for sampling. Follow the procedure outlined in the section, *How to Fill Sample Bottles*.

If the flow is carried in a small ditch or swale, you can install a barrier device in the channel or deepen a small area so you can gain enough depth of flow to sample directly into the bottles. Make sure to allow for sufficient time after disturbing the bottom so that the solids resulting from muddying the water will not become part of your sample.

Sampling Sheet Flow

It is not always possible to sample stormwater runoff in locations such as ditches or pipes where the flow is concentrated. Sometimes the permittee has no choice but to select sample locations for which sheet flow is sampled before it becomes concentrated. Approaches to sampling sheet flow are described below and illustrated in the figures that follow.

In some cases, a stormwater discharge from a facility is not concentrated at any point and leaves the property in the form of sheet flow as it runs off a work area or driveway or grassy area. In this case the flow may be too shallow for the collection bottle to be filled with sample. It is often possible to find a way to collect the stormwater runoff in these situations.

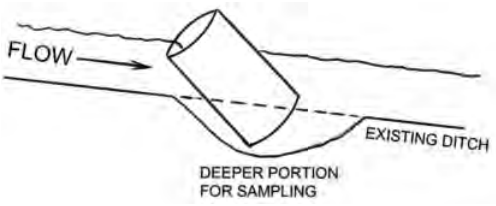
One way to concentrate sheet flow is to excavate a small basin in an existing ditch or other location where stormwater runoff flows. Another approach is to install a barrier device or trough, gutter, or ditch to intercept and concentrate stormwater flow. As with other sample sites, the flow should be moving and somewhat turbulent so the samples will be well-mixed. Be sure that any excavation you do does not expose the stormwater to be sampled to newly worked soil surfaces that the runoff may erode, increasing the solids in your samples. You may want to consider lining the trough, gutter, or ditch with plastic. Be sure not to introduce materials (such as metals that include zinc) that may contaminate the samples. Sheet flow on paved areas can be concentrated and collected by constructing small bumps, similar to speed bumps.

Another way to collect samples from sheet flow is to use a special peristaltic hand pump to pump samples from shallow surface flows. This method is of limited use for collecting the samples required by the general

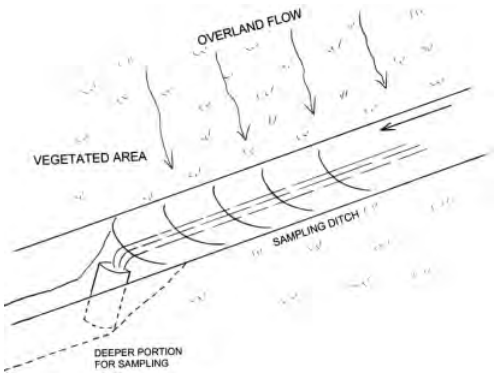
permit as it cannot be used to collect oil and grease samples.

Roger Bannerman of the Wisconsin Department of Natural Resources has developed simple devices to grab samples of sheet flow from paved areas, rooftops, and lawns. Though the devices are intended to be used for simple, automatic sampling, pouring a container of collected sample into other sample bottles, the ways in which they intercept and concentrate flows can be adopted for direct grab sampling.

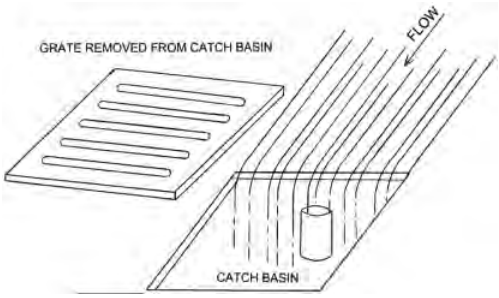
The following figures illustrate the methods of sampling sheetflow discussed above:



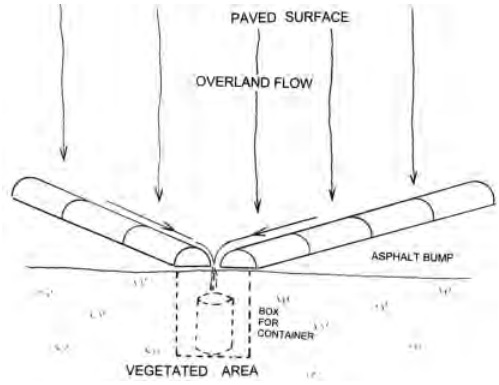
Deepening an existing ditch can allow samples to be collected directly into bottles in some cases. Be careful not to stir up solids from the sides or bottom of the ditch.



Runoff entering a catch basin can sometimes be collected directly into bottles by removing the grate and allowing the runoff to fall into the bottles.



Overland flow from vegetated areas can be sampled by constructing a shallow ditch to intercept the runoff and a deepened area to place bottles to catch the runoff.



Overland flow on paved areas can be sampled by constructing asphalt or concrete bumps to collect and concentrate the flow. A box positioned below ground surface in the paved area or the edge of an unpaved area can provide a place tocollect samples directly into bottles.

Sampling from a Stormwater Detention Pond or other BMP

When stormwater from a facility discharges after flowing through a detention pond or other treatment system, sample as the stormwater flows out at the discharge point. Ponds may hold stormwater for a time before discharge begins. Sample within the first hour, preferably 30 minutes from when the pond begins to discharge.

Ecology Wants to Hear from You

If you have suggestions on how Ecology can improve this guidance document, have developed innovative sampling techniques, or just want to comment on stormwater sampling, please contact

Joyce Smith:

Email *(preferred):*

josm461@ecy.wa.gov

Telephone:

(360) 407-6858

Mail:

Washington State Dept of Ecology

PO Box 47600

Olympia WA 98504-7600

Appendix - Proper and Improper Methods of Sampling

Do not *touch openings of bottles. Keep bottles clean to prevent contamination.*

Do not *allow bottle lids to touch ground. Keep lids clean to prevent contamination.*

Do not *sample in stagnant areas with Little flow*. Do not *stir up bottom sediments or allow foreign materials to enter the sample bottle. (*Do *be careful to grab a clean sample in cases where stormwater runoff is shallow.) If the runoff is so shallow that it is not possible to sample without the sample being contaminated in the process, then find an alternative way to sample.*

Do *attach a bottle to a pole for sampling in manholes or when a hand sample would be in stagnant water. A boathook is used in this example and the bottle is attached to it with filament strapping tape.*

If the water is too shallow to sample with the bottle upright on the pole, try taping it on sideways, but tilted up slightly.

Do not *sample with the bottle opening facing downstream, when using a pole or sampling by hand. Water flowing past your container, pole, or hand and into the container can be contaminated by such contact.*

Do *sample with the opening of the bottle facing upstream, into the flow so the water will enter directly into the bottle. This is true when sampling either by hand or with a pole.* Do *sample water that is rapidly flowing rather than stagnant.*

Do not *allow water to overfill the bottle, particularly not for sample bottles with preservative. Oil and grease samples should be collected from water falling into the bottle when possible, or otherwise in a single swoop.*

Do *collect samples without overfilling the bottles.*

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APPENDIX F

SPILL PREVENTION RESPONSE, REPORTING AND CLEANUP PLAN

JELD-WEN
EVERETT FACILITIES

1. EMERGENCY SPILL RESPONSE, REPORTING AND CLEAN UP PROCEDURES

A spill may occur despite the implementation of spill preventive measures. In the event of a spill, the safety of personnel and the community is of paramount importance. The threat to human health depends on the nature, quantity and location of the material spilled. Every spill or slug discharge is unique, and there is no substitute for sound, professional onsite assessments.

All spills of hazardous substances, no matter how small, require appropriate response and clean up. Spills of substances containing ingredients that are potentially harmful to human health or the environment are of particular concern and must be assessed, contained, cleaned up and potentially reported in a systematic, professional and legal manner. Examples of substances that are of particular concern are those that are considered to have toxic, corrosive, flammable, or similar characteristics. More specific examples include petroleum products, wood treat chemicals, resins, solvents, inks, acids and bases.

Determining whether a spill must be reported can be confusing. A spill or release may require reporting under several federal, state and local laws. These include:

- Resource Conservation and Recovery Act (RCRA);
- Toxic Substances Control Act (TSCA);
- Hazardous Materials Transportation Act (HMTA);
- Clean Water Act (CWA);
- Comprehensive Environmental Response Compensation and Liability Act (CERCLA);
- Superfund Amendment Reauthorization Act (SARA) Title 3;
- Specific state reporting requirements such as storm water and Community Right-To-Know; and
- Specific local requirements, such as an unpermitted discharge to a municipal sanitary system or storm sewer system.

The Congressional intent is to have the Reportable Quantity (RQ) of a hazardous material be the same under all the Acts. However, there may be a lag time before RQ levels are made uniform under all the Acts. Also, chemicals appearing on one Act's list may not be found on another. For example, 130 of the 370 SARA Title 3 extremely hazardous substances may not be found in the CERCLA hazardous substance list of 721 chemicals that have reportable quantities in case of a spill.

The remaining 240 extremely hazardous substances not found on the CERCLA list have a reportable quantity level and, in the case of spills, must be reported under Title 3. If an emergency coordinator referred to the CERCLA list and did not find the chemical listed with a reportable quantity, the coordinator would be in compliance with CERCLA by not reporting the spill. However, the coordinator would be in non-compliance with emergency notification requirements under Title 3 provisions.

As mentioned above, different reporting requirements may apply depending on the type, location and size of a spill. For this facility, specific reporting requirements are detailed in Section 1.1. Sections 1.2 and 1.3 specify response and cleanup procedures for small spills (those not requiring a coordinated response) and large spills (those that require coordinated response). Section 1.4 describes emergency response equipment that is available on site.

1.1 REPORTING REQUIREMENTS

If a spilled substance reaches lands or waters, immediately contact the Environmental Compliance Manager assigned to your facility at (541) 885-7420. The Environmental Compliance Manager will help to determine if the spilled substance has to be reported to State or Federal authorities because "reportable" quantities have been released to lands or waters. For example, if a spill of oil or petroleum substances reaches waters of the State, any quantity of oil that would produce a slick or sheen must be reported. As mentioned, there are also reportable quantities for many individual chemicals.

The Environmental Compliance Manager will also help to determine the proper agencies to receive the report. The assigned Field Service Manager may also be contacted.

If reporting to Local, State or Federal authorities is required, this must be done immediately upon discovery of the spill unless a 24-hour reporting period is specified. The reporting step may be assigned to someone else while other steps are being completed to ensure that reporting obligations are met. In most instances, reporting the spill to the federal National Response Center at 1-800-424-8802 will suffice for most environmental programs including oil, hazardous waste, hazardous substances, hazardous materials, toxic pollutants, Community Right-To-Know, etc. However, there may still be local and state specific reporting that is necessary.

A listing of agency and emergency phone numbers specific to this site follows this section. It is designed for copying and posting on site.

When reporting a spill the following information should be known prior to placing the telephone call:

- Type of spill;
- Street address of facility;
- Date and time of spill;
- Material discharged;

- Amount discharged;
- Discharge location (oil storage room on west side of plant, etc.) and where the discharge went (stream name, municipality, ground, etc.);
- Type of containment in place;
- Current response efforts;
- Hazard evaluation (fire, explosive, fumes, corrosive); and
- Personnel safety concerns (both exposure and structural).

A copy of the MSDS for the spilled material should be readily available when reporting.

A Slug/Spill Notification Log Sheet has been created to coordinate the information needed for spill response and reporting. It is located at the end of this document along with further state specific reporting information.

REPORTING PHONE NUMBERS

JELD-WEN Compliance Manager, Bonnie Basden
Office: (541) 885-7420
Cell: (541) 281-4181
e-mail: BonnieB@jeld-wen.com

JELD-WEN Field Safety/Field Service Manager, Bill Reinhard
Office: (541) 885-7420
Cell: (541) 331-4932
e-mail: billre@jeld-wen.com

Federal Spill Reporting Response Center: (800) 424-8802

Washington Division of Emergency Management: (800) 258-5990

Yakima County Regional DOE Office: (509) 575-2490

Everett Surface Water Management:
(for spills or accidental discharges to the sanitary sewer system)
(425) 257-8800

NWFF Environmental Spill Response Contractor: (800)-942-4614

EMERGENCY PHONE NUMBERS

Police: 9-911

Fire: 9-911

Ambulance: 9-911

JELD-WEN / Millwork Manufacturing [Everett]

Facility Environmental Coordinator, Steve Pfister
Emergency Number: (360) 387-4806

General Manager, Dan Young
Emergency Number: (360) 474-1177

Maintenance Manager, Dave DeVries
Emergency Number: (425) 347-9708

JELD-WEN / Premium Wood Doors [Everett]

Facility Environmental Coordinator, Steve Pfister
Emergency Number: (360) 387-4806

General Manager, Scott Wilcox
Emergency Number: (206) 919-0869

JELD-WEN / IWP Interior Doors [Everett]

Facility Environmental Coordinator, Stephen Federico
Emergency Number: (425) 737-5202

General Manager, Tim Jewell
Emergency Number: (425) 353-7288

Production Manager, Jason Evans
Emergency Number: (206) 779-5019

Poison Control Center: (800) 222-1222

1.2 SMALL SPILLS OF HAZARDOUS SUBSTANCES (THOSE THAT DO NOT REQUIRE A COORDINATED RESPONSE)

Small spills of hazardous substances that do not require a coordinated response are generally defined as incidental spills at or near a workstation where a worker(s) with specific hazardous communication (HazCom) training for the substance can clean up the substance without unnecessary risk.

There is no exact quantity that defines a "small" spill; it is associated with the nature, hazards and characteristics of the spilled substance and whether it is a quantity that lends itself to clean up by HazCom trained workers who have specific knowledge and training on the particular substance as a result of job and HazCom training requirements.

Most small spills will, on the average, be five gallons or less. However, the type and hazards of the spilled substance should be considered before applying this rule of thumb. For instance, stricter procedures must be followed in the event of a spill of extremely hazardous substances (EHS) or flammable liquids. Response and clean up for extremely hazardous materials may require 40 hour HAZWOPER training for even small amounts.

The following procedures are recommended for responding to small spills.

1. **Administer First Aid**. If necessary and safe to do so, immediately follow first aid procedures as specified by the MSDS. This may include tasks such as eye washing, removing contaminated clothing or removing the affected person to fresh air, among others.
2. **Facility Manager Notification.** Immediately notify your supervisor. Review the MSDS for the substance to understand all hazards, spill release and containment information, Personal Protective Equipment (PPE) and cleanup actions. The supervisor will immediately notify the Environmental Coordinator and/or the General Manager.
3. **Employee Evacuation/Ventilation**. If necessary, evacuate the spill area and restrict access to the area as specified by the MSDS. Ventilate as necessary and possible. Do not touch the spilled substance or come in contact with any potentially harmful vapors, etc.
4. **Fire Prevention**. If product is flammable, extinguish all sources of ignition. Avoid sparks, flames, heat and smoking.
5. **Defensive/Containment Action**. Using proper PPE, take necessary defensive/containment actions as specified by the MSDS to stop the substance from spilling or prevent the spilled substance from reaching floor drains, land, storm drains or water. The person taking the defensive action must have received sufficient training as part of the OSHA Hazard Communication Standard and the OSHA Respiratory Protection Program (if the MSDS calls for Respiratory Protection). If possible, even with PPE, do not touch the spilled substance or come into contact with potentially harmful vapors. The Environmental Coordinator or General Manager has the option of calling in spill response help

for defensive actions or cleanup using a 40 hour HAZ-MAT contractor for even a small spill. JELD-WEN has contracted with Northwest Fire Fighters (NWFF) Environmental (1-800-942-4614) but other qualified contractors may also be used.

6. **Spill Reporting**. See Section 1.1 for specific spill reporting requirements.
7. **Cleanup.** Once defensive measures have been taken, cleanup of the spill can proceed. Procedures outlined in the MSDS must be followed and PPE requirements must be met. The person(s) cleaning up the spill must have received sufficient OSHA Hazard Communication Standard Training and OSHA Respiratory Protection Program training (if respirators are required), unless the MSDS directly or indirectly requires persons with 24 hour or 40 HAZWOPER training. The MSDS could specify that Self Contained Breathing Apparatus or other higher level PPE is required rather than eye protection, skin protection, etc., and that may indirectly necessitate the need for a person who has a higher level of HAZWOPER response training.
8. **Cleanup Materials Packaging, Labeling and Disposal**. Contain and properly label all spill residues for appropriate disposal. Contact your assigned Environmental Compliance Manager (541-885-7420) to assist with proper waste coding and disposal requirements. All contaminated PPE and cleanup tools should be either properly decontaminated or disposed of with spill residues.
9. **Restocking Spill Kit**. Restock spill kit if necessary.

1.3 LARGER SPILLS OF HAZARDOUS SUBSTANCES (THOSE THAT REQUIRE A COORDINATED RESPONSE)

Larger spills of hazardous substances are generally defined as spills of quantities that require a coordinated response to respond to and cleanup the spill. For these emergency type spill situations a coordinated effort must be used because of the potential threat to human health or environment, the quantity of the substance, the methods and techniques needed to contain or clean it up, and because of the nature, hazards and characteristics of the spilled substance.

If a spilled substance is toxic, corrosive or flammable, serious consideration needs be given to whether it should be contained and cleaned up using the procedures below even if it is a relatively small volume. For example, a relatively small volume of sulphuric acid may require a coordinated response due to the hazards and risks associated with the substance. "Larger" spill response procedures include:

1. **Administer First Aid**. If necessary and safe to do so, immediately follow first aid procedures as specified by the MSDS. This may include tasks such as eye washing, removing contaminated clothing or removing the affected person to fresh air, among others.
2. **Facility Manager Notification.** Immediately notify your supervisor. Review the MSDS for the substance to understand all hazards, spill release and containment information, Personal Protective Equipment (PPE) and cleanup actions. The supervisor will immediately notify the Environmental Coordinator and/or the

General Manager. The Environmental Coordinator or General manager will safely assess the character, source, amount and hazards associated with the spill and identify any needed response actions. The Environmental Coordinator or General Manager assessing the spill situation must have a minimum of a four (4) hour HAZWOPER training course.

3. **Employee Evacuation/Ventilation**. If necessary, evacuate the spill area and restrict access to the area as specified by the MSDS. Ventilate as necessary and possible. Do not touch the spilled substance or come in contact with any potentially harmful vapors, etc.
4. **Fire Prevention**. If the product is flammable, extinguish all sources of ignition. Avoid sparks, flames, heat and smoking. If warranted, contact the local fire department and other emergency response agencies.
5. **Defensive/Containment Action**. Using proper PPE, take necessary defensive/containment actions as specified by the MSDS to stop the substance from spilling or prevent the spilled substance from reaching floor drains, land, storm drains or water. If possible, even with PPE, do not touch the spilled substance or come into contact with potentially harmful vapors. The person taking the defensive action must have received sufficient training as part of the OSHA Hazard Communication Standard and the OSHA Respiratory Protection Program (if the MSDS calls for Respiratory Protection) AND at least the eight hour HAZWOPER operations training. Eight hour trained personnel performing defensive/containment functions need to do so in such a manner that they will not come in contact with the spilled substance or come into contact with potentially harmful vapors, etc., of the substance. The Environmental Coordinator or General Manager has the option of calling in spill response help for defensive actions or cleanup using a 40 hour HAZ-MAT contractor. JELD-WEN has contracted with NWFF Environmental (1-800-942-4614) but other qualified contractors may also be used.
6. **Spill Reporting**. See Section 1.1 for specific spill reporting requirements.
7. **Cleanup.** Once defensive measures have been taken, cleanup of the spill can proceed. MSDS procedures must be followed and OSHA (29 CFR 1910.120) requirements must be met. If the spilled substance has not migrated offsite, the persons cleaning up the spill must have received sufficient OSHA Hazard Communication Standard Training, OSHA Respiratory Protection Program Training and, at a minimum, the 24 hour HAZWOPER training, unless the MSDS directly or indirectly requires persons with the 40 hour HAZWOPER training. The MSDS could specify that Self Contained Breathing Apparatus or other higher level PPE is required, and that may indirectly require person(s) who have 40 hour HAZWOPER response training, current refresher course, fit testing, etc.).
8. **Hiring Spill Response Contractor.** In most instances, JELD-WEN facilities will not have personnel onsite who have proper 24 or 40 training as needed to clean up the spill. If this is the case, a properly trained spill response 40 hour HAZ-MAT contractor must be called to clean up the spill. JELD-WEN has contracted with NWFF Environmental (1-800-942-4614) but other 40 hour HAZ-MAT contractors may be used.

9. **Cleanup Materials Packaging, Labeling and Disposal**. Contain and properly label all spill residues for appropriate disposal. Contact your assigned Environmental Compliance Manager (541-885-7420) to assist with proper labeling and disposal requirements. All contaminated PPE and cleanup tools should be either properly decontaminated or disposed of with spill residues.
10. **Restocking Spill Kit**. Restock spill kit if necessary.

1.4 EMERGENCY RESPONSE EQUIPMENT

Each JELD-WEN facility has an Emergency Preparedness Plan developed. The Emergency Preparedness Plan contains, at a minimum:

- Layout of the facility with evacuation routes marked;
- Location of fire extinguishers and other emergency response equipment; and
- Contact information for reporting incidents.

A copy of this facility's Emergency Preparedness Plan is located at the end of this section.

An internal communication system has been established for reporting emergencies and providing immediate emergency instruction to facility personnel. This procedure is outlined in the Emergency Preparedness Plan.

Spill containment materials are located throughout the facility at the major oil storage locations such as the fueling station, the maintenance area, and the oil storage room. Each spill kit contains protective clothing, absorbent material, a shovel, a broom and a dustpan.

Spill kits are inspected at least quarterly to ensure that they are stocked adequately. All inspections are documented using Form #10301.0133, Spill Kit Inspections.

In responding to an emergency spill, employees should take precautions to ensure that as much skin is covered (protected) as possible. Fire resistive clothing will not only prevent chemical burns but will also protect skin during a fire. Examples of protective clothing available in the facility's spill kits include:

- Rubber gloves;
- Apron;
- Goggles/face mask; and
- Hardhat.

In addition, depending on the nature of the emergency, the use of self-contained breathing apparatus may be necessary. All employees involved in response procedures have access to breathing apparatus, if its use is indicated, and are adequately trained in the use of this equipment. For response activities requiring more than Hazardous Communications levels of training, contact the JELD-WEN Environmental Engineering

Department at 541-885-7420. Personnel with 40-hour response training will be sent to the site.

First aid kits are immediately available for use if necessary. First aid kits are located throughout the facility. Their locations are noted in the Emergency Preparedness Plan. A list of fire extinguishers and their locations are also located in the Emergency Preparedness Plan.

APPENDIX G

STORM WATER TRAINING MATERIALS

JELD-WEN

Form #10301.0120D

Storm Water Best Management Practices Plan
Training Material

(35 minutes)

Background (5 minutes)

This facility is required to have a NPDES permit. It regulates rain or snow that falls onto the plant site and then flows off the property. If facility does not have a permit, it's a $27,500 per day fine for every day the facility discharges without a permit.

Laboratory testing is often required for pollutants that leave the premises. (oil and grease, TSS sawdust, pH) Any spilled substance, sawdust, oil from a leaky piece of machinery or car which mingles with storm water and flows off the property causes a problem with the lab testing.

How does this apply to employees? Each is responsible for cleaning up spills, keeping premises clean and reporting leaky equipment to supervisor. These good housekeeping measures are also call Best Management Practices (BMP)

The facility is required to implement Best Management Practices (BMP's).

The BMP's, which are the responsibility of each employee, are explained below.

Good Housekeeping (5 minutes)

⇒ Maintain a clean and orderly work environment.
⇒ Inspect machinery for leaks, both inside and outside of plant.
⇒ Inspect autos and trucks in parking lot to see if they are leaking excessively.
⇒ Inspect hydraulic hoses on company equipment for leaks.
⇒ Inspect loading/unloading areas for spills or leaks
⇒ Inspect barrel storage area for leaks, make sure all barrels are closed and in good condition.
⇒ Avoid storing raw materials or finished product outside.
⇒ Cover salt piles used in deicing parking lots.
⇒ Minimize exposure of raw materials, especially those containing Section 313 chemicals (e.g. glycol ethers, isocyanates).
⇒ Clean out storm water ditches and ponds.
⇒ Schedule routine plant clean up operations.
⇒ Sweep dust away from truck dump and pick up, **don't** use a water hose to spray it off the parking lot and into storm drain.
⇒ Consider using a dumpster with a lid.

Take questions from the audience.

Show video: "Storm Water Regulations: Just Passing Through" (18 minutes)
EXCAL Visual Communications
PO Box 19094
Boulder, CO 80308-2094
303-413-0847
(Request this video from Risk Management)

Administer Storm Water quiz and go through correct answers. (7 minutes)

JELD-WEN

Form #10301.0121

SWPPP and SPCC Spill Prevention
and
Response Training Program

The following employees have been trained in the Storm Water Pollution Prevention Plan and Spill Prevention and Response Program.

The training program consisted of:
1. identifying areas where potential spills can occur and their accompanying drainage point,
2. proper spill response and clean up,
3. procedure to properly report spill to a supervisor and if appropriate local/state emergency response personnel,
4. routine maintenance of spill response/clean up materials and equipment, and
5. good housekeeping.

Employee Name (Printed)	**Employee Name** (Signature)	**Date**

JELD-WEN

Form #10301.0120B

STORM WATER
Just Passing Through
EMPLOYEE QUIZ

Name:_____

Dept.:_____**Date:**_____

The following questions all have multiple choice or True/False answers. Please circle the appropriate letter for your answer.

1. In general, the rain water and snow melt that runs off from industrial facilities eventually:

    a. Evaporates
    b. Becomes mixed in with the surface waters in rivers, lakes and streams
    c. Is processed and treated at the city or county sanitation facility

1. Which of the following natural resources can be damaged by storm water pollution?

    a. Water recreational areas
    b. Endangered aquatic species
    c. Drinking water sources
    d. All of the above

1. The written plan that describes how your facility will comply with the storm water discharge regulations is called the

    a. Emergency Response Plan
    b. Storm Water Pollution Prevention Plan (SW3P)
    c. Spill Prevention and Countermeasures Plan
    d. Evacuation Plan

1. Effective protection of storm water in industrial facilities is the responsibility of

    a. The company environmental or safety director
    b. Plant and facilities supervisors
    c. Operators who handle materials outdoors
    d. Outdoor vehicle and equipment operators
    e. All of the above

1. Which of the following is **not** a Best Management Practice (BMP) for storm water protection?

    a. Prompt and thorough cleanup of spills
    b. Keeping accurate records of spills and accidents
    c. Maintaining a well equipped spill response locker
    d. Cleaning an oil/water separator
    e. Wearing safety goggles

1. Which of the following substances used outdoors are usually considered potential sources of storm water contamination?

    a. Raw materials
    b. Solid wastes
    c. Lubricating oil
    d. Used rags
    e. All of the above

1. If a spill of a raw material occurs, the Storm Water Pollution Prevention Plan requires all of the following actions **except**

    a. Notifying your supervisor or environmental department
    b. Prompt and thorough cleanup
    c. Ordering more material
    d. Determining if better material handling procedures are needed in order to prevent future spills

1. If you noticed a leak of an unknown liquid outdoors, which of the following actions should you take?

    a. Notify your supervisor
    b. Locate the nearest storm drain
    c. Stop the leak if you can do so safely
    d. All of the above

1. Which of the following practices are prohibited under storm water regulations?

    a. Washing down a spill of lime into a storm drain
    b. Moving boxes of raw material on a forklift
    c. Dispensing lube oil from a 55 gallon steel drum
    d. Fueling a forklift from an underground storage tank

1. When fueling a vehicle which of the following actions are Best Management Practices?

    a. Position the vehicle as close to the pump as possible
    b. Stay with the vehicle while fueling
    c. Do not overfill the tank
    d. Handle the hose and nozzle in a vertical position
    e. All of the above

1. Any drain valve attached to a secondary containment device such as a basin around a steel tank should normally be kept in the open position?

    a. True
    b. False

1. Which of the following observations would not normally have to be reported to your supervisor?

    a. A spill of diesel fuel outdoors
    b. A storm drain clogged with leaves and debris
    c. A leaking drum
    d. A small amount of clear water in secondary containment