MUNICIPAL STORMWATER INSPECTION REPORT

State of Washington Department of Ecology
3190 – 160th Avenue SE, Bellevue, WA 98008-5452

Municipal Stormwater Inspection Form

Phone: (425) 649-7000
FAX: (425) 649-7098

Section A: General Data

Inspection Date	NPDES Permit #	County	Receiving Waters	Inspector(s)	Facility Type
12/16/14	**WAR044503**	King	Duwamish River	Rachel McCrea	Municipal

Discharges to: Surface Water ☒ Ground Water (passive infiltration) ☒ | Announced Inspection

Section B: Facility Data

Name and Location of Site Inspected
Seattle City Light Duwamish Substation
10000 W Marginal Pl S
Seattle, WA 98168

Entry Time	Permit Effective Date
8:30 a.m.	8/1/2013
Exit Time	**Permit Expiration Date**
4:00 p.m.	7/31/2018

Permittee Contact(s)
Gary Lockwood, Seattle City Light, NPDES Coordinator
Echo Tremoglio, Seattle City Light, Sr. Environmental Analyst
Kate Rhoads, Seattle Public Utilities, Municipal Stormwater Specialist
Beth Schmoyer, Seattle Public Utilities, Duwamish Source Control
Pam Hamlin, Seattle City Light, Sr. Civil Engineer
Ed Richards, Seattle City Light, Duwamish Substation, Crew Coordinator
Rodney Dunlap, Seattle City Light, Duwamish Substation, Crew Chief (on-site contact)
Felipe Batayola, Seattle City Light, Duwamish Substation, Crew Chief, Trainer
Ben and Ben, Seattle City Light, Duwamish Substation, journeymen & safety watch

Additional Participants:
Mahbub Alam – Ecology
Christine Nancarrow – Leidos
Melissa Ivancevich – Leidos
Corey Wilson – Leidos

Responsible Official(s):
Nancy Ahern, Director
Utility System Management Branch
Seattle Public Utilities
PO Box 34018
Seattle, WA 98124-4018

	Yes	No
Samples Taken?	☒	☐
Photos Taken?	☒	☐

Section C: Summary of Findings/Comments

BACKGROUND

This inspection with sampling occurred as part of Ecology's efforts to control sources of pollutants to the Lower Duwamish Waterway Superfund cleanup site. Refer to Ecology Publication Number 14-09-263 for additional background. The purpose of the sampling is to evaluate pollutants present in the stormwater system on the site. Stormwater from the site enters the Duwamish River and an adjacent municipal stormwater conveyance system which discharges to the Duwamish River. Results from the sampling will be available several months following the date of inspection and sampling. A report documenting the specific locations and site conditions related to sample collection will be available at that time. City of Seattle representatives observed sample collection procedures and obtained split samples for their use.

The purposes of the inspection was to document on-site conditions and activities, and evaluate compliance with the Phase I Municipal Stormwater Permit issued to the City of Seattle, as applicable to the Seattle City Light (SCL) Duwamish Substation.

This facility required Electrical Hazard Recognition safety training and accompaniment by trained SCL journeymen. The inspection was therefore announced to accommodate planning. On the day of the inspection (12/16/14), City of Seattle representatives provided Ecology a map, entitled *Oil Containment System Drawing No D-35108 (Rev No. 6)*, showing the stormwater drainage system configuration. The map was later provided electronically.

This facility is regulated under 40 CFR 112 and has a Spill Prevention, Control and Countermeasure (SPCC) plan. SPCC plan contents were not reviewed and evaluated.

INSPECTION/OBSERVATIONS

Vegetation Management – SCL vegetation management crews (not on-site) conduct vegetation management practices at the periphery of the facility. Additional weed control in the substation gravel area is conducted as needed. SCL representatives indicated such activities were performed with torching and herbicides where necessary.

PCB-containing Oil Handling – Transformers receive routine maintenance, including oil checks and oil changes. Oil changes involve use of off-site specialty trucks and onsite best management practices.

Fencing – Perimeter fencing will soon be replaced. Consider non-pollution generating fencing materials to minimize potential stormwater pollution to the adjacent Duwamish River.

Materials Storage Area (south side of site) – This area is used for indoor and outdoor storage of materials, including historic lamp posts, solid (and/or potentially hazardous) waste and scrap metal. Facility does not have a SWPPP.

Power Washing – Periodic power washing of the substation equipment occurs at this facility. It has been undergoing a steady repainting project over the last couple years; only one block of transformers (BUS D) remains unpainted.

Pavement Staining – The presence of pavement staining beneath substation equipment suggests potential pollution generating materials and/or processes that occur over time (e.g., copper parts may leave green staining on the BUS pads).

Primary Gravel Surface – For electrical safety, the gravel base of a substation is made of thick uncompacted special gravel with no fine particles; this may result in lower particulate generation than would be expected of a gravel surface.

Septic – This facility is on a septic system (last pumped in 2014). Drain field is located north of drain line H.

Stormwater System Operations and Maintenance

- This facility has automatic shut off valves (float switch operated) and manual shutoff valves in each of the 6 stormwater discharge locations. These valves are designed to plug the discharge location/outfall in case of an oil spill. The automatic shutoff valve located in storm drain line G was observed to be closed and SCL staff indicated that system was malfunctioning during their routine inspection of stormwater facilities. An SCL representative manually opened the valve during the inspection.
- Two or more catch basins have concrete pipe "plugs" that may interfere with routine catch basin maintenance.
- The map showing stormwater drainage did not identify all stormwater structures and was not up to date (drainage from one of the former oil circuit breakers is now capped).

Drainage System Configuration (*outfall numbers per 2014 LDW Source Control Outfall Inventory):

- **Storm drain line I** discharges to the Duwamish River at Outfall DuwSD#3* – This drains a small impervious surface area at the north end of the facility that receives vehicular traffic, including access route to the loading bay as well as runoff from BUS B and BUS C capacitors that does not otherwise infiltrate.
- **Storm drain line H (including below ground tunnel drainage)** discharges to the Duwamish River at Outfall 2099* – This drains an impervious surface area used for vehicle parking and pedestrian access to the Control Building, roof runoff from the Control Building, and pumped water from an automatic sump pump located in the basement of the control building which conveys groundwater seepage from inside the tunnels to storm drain line H. Stormwater may also enter a grate into a transformer vault and then be collected in the tunnel drainage system. Note that a smaller sump pump located in the BUS C tunnel pumps accumulated water to the ground surface.
- **Storm drain line G** discharges to the Duwamish River at Outfall 2098* – This drains impervious surface area associated with the perimeter access roadway only.
- Storm drain lines A and B discharge to the Duwamish River through a municipal stormwater system not owned or operated by City of Seattle. According to SCL representatives, the City of Tukwila owns this outfall (unconfirmed).
    - **Storm drain line A** drains impervious surfaces at the site's northern access location.
    - **Storm drain line B** drains impervious surfaces associated with the access roadway in the west-central portion of the site.
- **Storm drain line F represents the site's largest drainage basin**. Storm drain lines C, D and E connect to line F to discharge to the Duwamish River through a municipal stormwater system not owned or operated by City of Seattle. Storm drain line F has an oil/water separator (approx. volume 3180 gallons) prior to discharge off-site. Drainage from a limited area of access roadway enters this line, as well as substation area drainage as follows:
    - Three trench drains are located in three containment pads, each associated with a large transformer bank. Each trench drain feeds to an isolated conveyance line with independent automatic shutoff valves prior to conveyance to the oil/water separator (lines C, D and E).
    - Three impermeable liner systems are located beneath two oil circuit breakers and one spare parts storage area. Drainage from the impermeable liners is conveyed on an isolated line to the oil/water separator.

Sampling Locations and Observations – Ecology representatives, with the help of SCL staff, evaluated potential sampling locations (i.e., catch basins, inlets, manholes, oil water separator, and transformer bank trench drains) for sufficient storm drain solid material to allow collection and analysis. None of the deep catch basins/manholes nor the oil water separator had enough accumulated solids for sampling. Ecology noted solids visible on some structures inside manholes (see Photos 16 and 17). SCL representatives offered no explanation of source of the material or relationship to a recent cleaning activity. In absence of solids material, Ecology collected a water sample from the oil water separator. We collected a composite solids

sample from the trench drains of the containment pads for the three large transformer banks. Enough solids material was found in these trench drains, which are connected to the downgradient oil/water separator in storm drain line F. Additionally, some of the catch basin inlets had enough volume for solids sampling, and Ecology collected two solids samples from I3 and H1 locations.

Section D: Compliance/Recommendations

1. This site handles PCB-containing products (e.g., PCB-containing oils). This site is located adjacent to the Duwamish River. This site's stormwater drainage system and oil containment system are one and the same system; a spill of oil will enter the stormwater system. Oil containment relies on automatic shutoff valves and additional manually-operated shutoff valves in the event of a large spill. These conditions suggest the Duwamish Substation may need special attention for source control to the up-river reach of the Lower Duwamish Waterway superfund site.

2. Ensure policies and procedures are implemented, including site-specific BMPs where appropriate, to prevent and/or minimize stormwater pollution. Relevant activities include, but are not limited to, power washing, vegetation management, outdoor storage of potentially pollution generating materials, stormwater system/oil containment system maintenance, and operations and maintenance activities conducted in the underground tunnels which could impact the quality of water being pumped into the storm drain system. Consider using tools (such as checklists and forms) to assist with documentation of stormwater BMP-related activities and/or inspections. Consider pollution prevention in facility-related purchases.

3. Evaluate whether this facility meets the definition of a "heavy equipment maintenance or storage yard" and/or "material storage facility" (permit definitions excerpted below).
   - "Heavy equipment maintenance or storage yard" means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long term basis.
   - "Material Storage Facilities" means an uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

4. Ensure comprehensive mapping and identification of all drainage-related structures, active and historical. Coordinate with inter-connected municipal stormwater system owners/operators to ensure an accurate understanding of drainage from the Duwamish Substation. Ecology was not able to identify the off-site outfall (for storm drain lines A, B and F) as belonging to the City of Tukwila; Tukwila did not confirm ownership.

5. At least two catch basins included structures (capped pipes) that might interfere with routine catch basin cleaning, and one automatic shut-off valve (Line G) was malfunctioning. Consider whether capital projects are needed to improve drainage system conditions and maintenance.

6. The Phase I Municipal Stormwater Permit requires notification of any stormwater monitoring or stormwater-related studies that occurred over the previous calendar year (Appendix 12 Annual Report question 72, Special Condition S8.A). In upcoming annual report(s), describe any analysis of the City's split samples from the 12/16/14 inspection.

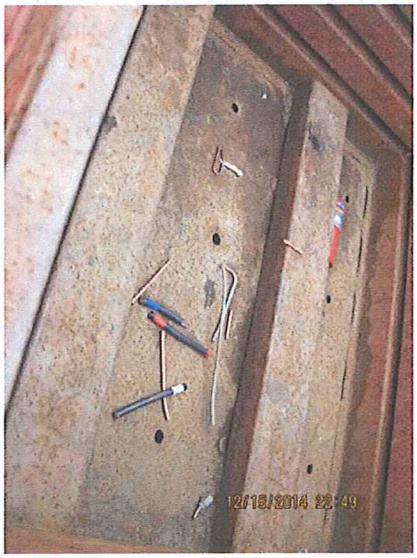
For questions related to this report or any technical assistance please contact Rachel McCrea at: (425) 649-7223 or rmcc461@ecy.wa.gov.

The Department of Ecology has the authority to issue formal enforcement actions including issuance of orders and civil penalties of up to $10,000 per day per violation for violations of your NPDES permit and/or state laws and regulations.

Rachel McCrea 1/26/15	Reviewed and approved by: Raman Iyer 1/29/15
Rachel McCrea Date Lead Water Quality Planner for the Lower Duwamish & Municipal Stormwater Specialist Water Quality Program	Raman Iyer Date Compliance & Technical Assistance Unit Supervisor Water Quality Program

PHOTO LOG – DUWAMISH SUBSTATION

01 **DESCRIPTION:** MATERIALS STORAGE



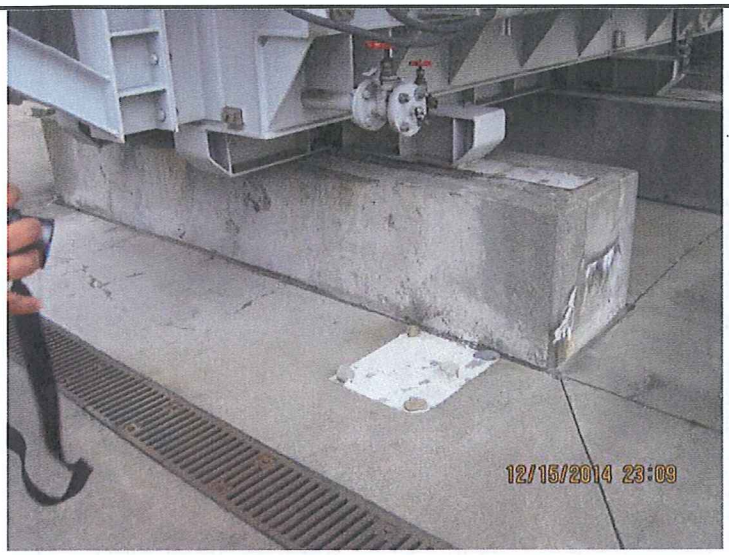
02 **DESCRIPTION:** OPEN METAL BIN FOR MATERIALS STORAGE

03 **DESCRIPTION:** MATERIALS STORAGE

04 **DESCRIPTION:** PAVEMENT STAINING BENEATH TRANSFORMERS

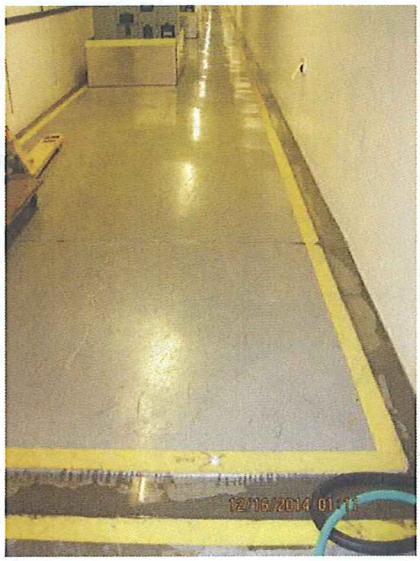
05 **DESCRIPTION:** ARROWS SHOW EDGES OF IMPERMEABLE LINER TO PREVENT INFILTRATION OF SPILLS FROM ADJACENT OIL CIRCUIT BREAKER

06 **DESCRIPTION:** LARGE TRANSFORMER CONTAINMENT PAD (CONCRETE CURBED), WEATHERED ABSORBENT PAD UNDER VALVE, PAVEMENT STAINING

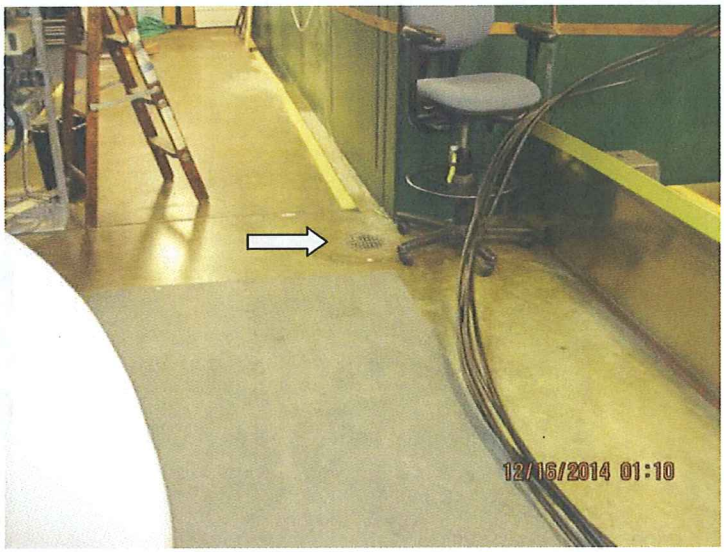


07 **DESCRIPTION:** WEATHERED ABSORBENT PAD UNDER VALVE IN PROXIMITY TO TRENCH DRAIN

08 **DESCRIPTION:** TRENCH DRAIN INSIDE LARGE TRANSFORMER CONTAINMENT PAD

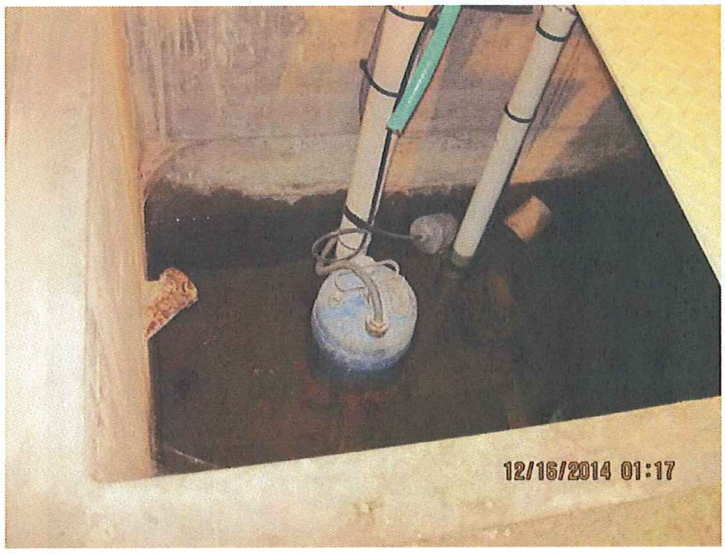


09 **DESCRIPTION:** CONTROL HOUSE BASEMENT SEEP DRAIN CHANNELS

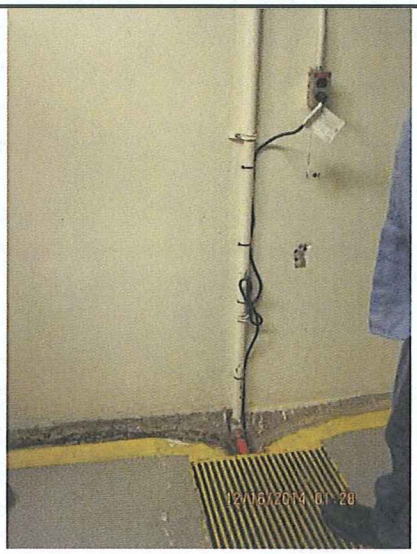


10 **DESCRIPTION:** CONTROL HOUSE BASEMENT SEEP DRAIN CHANNEL TO FLOOR DRAIN

11 **DESCRIPTION: :** CONTROL HOUSE BASEMENT SUMP PUMP TO STORMWATER SYSTEM (CLOSED)



12 **DESCRIPTION**: CONTROL HOUSE BASEMENT SUMP PUMP TO STORMWATER SYSTEM (OPEN).



13 **DESCRIPTION**: CONTROL HOUSE BASEMENT SECONDARY SUMP PUMP

14 **DESCRIPTION**: DRIED ALGAE IN SEEP DRAIN CHANNEL

15 **DESCRIPTION**: CATCH BASIN EQUIPPED WITH AN AUTOMATIC SHUTOFF VALVE (FLOAT SWITCH OPERATED)

16 **DESCRIPTION**: SOLIDS MATERIAL ON TOP OF STANDPIPE INSIDE OIL WATER SEPARATOR MANHOLE (DRAINAGE AREA F)

17 **DESCRIPTION**: SOLIDS MATERIAL ON TOP OF SHUTOFF VALVE INSIDE A MANHOLE IN DRAINAGE AREA F