



**EUGENE WATER & ELECTRIC BOARD  
STORM EVENT WATER QUALITY MONITORING  
HEALTH AND SAFETY PLAN**

PREPARED BY: Karl A. Morgenstern

DATE: November 6, 2001

MONITORING WORK APPROVED: YES [ ] NO [ ]

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

**A. GENERAL INFORMATION**

PROJECT NAME: Storm event monitoring of urban runoff, Thurston area in Springfield.

MONITORING LOCATIONS: The following monitoring locations will be sampled on a periodic basis:

- ? 72<sup>nd</sup> Street storm sewer outfall culvert (SE corner of Weaver and Thurston);
- ? 69<sup>th</sup> Street storm sewer channel downstream from outfall culvert (NW corner of Thurston and 69<sup>th</sup>);
- ? 64<sup>th</sup> Street storm sewer pipe (manhole #101 on Thurston Middle School);
- ? 42<sup>nd</sup> Street stormwater channel culvert (culvert that extends beneath Weyerhaeuser dike downstream of Weyerhaeuser outfall); and,
- ? 52<sup>nd</sup> Street stormwater channel (approx. 75 feet south of milepost 8.9, east bound lanes of Hwy 227), Springfield, Oregon.

SITE DESCRIPTION: The five monitoring sites are associated with the City of Springfield storm sewer system. Automated samplers will be set up with flow meters for the 72<sup>nd</sup>, 69<sup>th</sup>, 64<sup>th</sup> Street storm sewer locations and the 42<sup>nd</sup> Street channel. The 52<sup>nd</sup> Street channel will be sampled using a manual pump with a flow meter. For all locations except the 42<sup>nd</sup> Street channel, the equipment will be housed in a subsurface concrete utility vault with a conduit pipe from the vault to the storm sewer pipe, channel, or culvert. The sample intake tubing and flow meter cable will be inside the conduit. The 64<sup>th</sup> Street location is behind Thurston Middle School in a grass field and the automated sampler will be collecting stormwater runoff from the storm sewer pipe. The 69<sup>th</sup> Street location is located in a residential gravel parking area. The sample will be pulled from an adjacent stormwater channel. The 72<sup>nd</sup> Street location is on the South side of Thurston Road behind a fence on a flat gravel area (culvert is under this location). The samplers will collect water from the culvert beneath the equipment vault. The 42<sup>nd</sup> Street location is at a culvert that passes through a dike constructed on Weyerhaeuser property. The sample will be

collected from the culvert. The 52<sup>nd</sup> Street location is south of Hwy 227 at milepost 8.9. The area is well off the highway in a small clump of trees. The banks of the 52<sup>nd</sup> Street channel are fairly steep.

**SCOPE/OBJECTIVE OF WORK:** Several objectives were identified for the stormwater and urban runoff monitoring program:

- § To determine the water quality characteristics of urban drainage basins with confluences upriver of EWEB's drinking water intake;
- § To measure the amount of pollution entering the McKenzie River watershed in order to estimate the contribution from this source;
- § To evaluate trends in water quality and pollution loadings from urban drainage basins over time as land use in the area changes and implementation of watershed protection and conservation strategies take place; and,
- § To evaluate and measure the relative health of these urban drainage basins over time to determine the effectiveness of watershed protection and conservation programs.

To accomplish these objectives, the following field activities will be conducted:

1. Recon monitoring sites to enhance access and collect preliminary flow and water quality data.
2. Prior to the precipitation runoff event to be monitored, set up automated samplers, flow meters, and water quality probes. Calibrate and program instruments to begin monitoring flow and general water quality parameters.
3. During storm event, samplers will need to be checked and bottles changed out. Submit storm water samples for chemical analysis (TPH, PAHs, SVOCs, Pesticides/Herbicides, nutrients, metals, bacteria, and other water quality parameters).
4. Collect and decontaminate equipment.

**SITE VISIT DATES(s)/HOURS:** Five major storm events per year (Sept./Oct., Nov./Dec., Feb./March, May/June, July/August) during precipitation events following at least 72 hours of dry weather. Sampling will not occur between 11pm and 5am.

## **B. EMERGENCY INFORMATION**

**HOSPITAL LOCATION:** McKenzie-Willamette Hospital, 1460 G Street, Springfield (Figure 1)

**PHONE NUMBERS:** Hospital: (541) 726-4444 (Emergency/Urgent Care) Ambulance: 911

**SITE CURRENTLY ACTIVE:** Yes  No

**BUDDY SYSTEM:** Yes  No

**EWEB SITE ORGANIZATION:**

Karl Morgenstern – Project Manager/Site Safety Officer  
Kari Duncan – WQ Specialist/ Sampler / Decon

COMMUNICATIONS: Each EWEB employee will carry a pager and a cellular phone during storm event sampling. In addition, the EWEB vehicle has a short wave radio.

SITE INGRESS/EGRESS ROUTES: The following are brief descriptions of the ingress/egress associated with the five monitoring locations:

- ? The 42<sup>nd</sup> Street monitoring location is adjacent to Weyerhaeuser property and approximately 50 feet east of 42<sup>nd</sup> Street. Ingress/egress is via 42<sup>nd</sup> Street along the Weyerhaeuser dike and follow a small trail approx. 15 feet east of the culvert to gain access to the culvert area.
- ? The 52<sup>nd</sup> Street channel is accessed by driving on the grass from 52<sup>nd</sup> Street west along Hwy 126 (MP 8.9).
- ? 64<sup>th</sup> Street sewer manhole is found on Thurston Middle School beyond the east gate. Access is via a maintenance road. Need to check in with school security prior to driving to the monitoring location.
- ? 69<sup>th</sup> Street monitoring point is on the north side of Thurston Avenue along the east side of a residential gravel driveway (6898 Thurston Ave). Residents are aware of EWEB's activities at this site.
- ? 72<sup>nd</sup> Street monitoring point is on the south side of Thurston Avenue in culvert.

At the sound of a vehicle horn blast (repetitive for at least 20 times) all site personnel will muster to the EWEB vehicle.

### C. EXPOSURE INFORMATION

ROUTE OF EXPOSURE:

Inhalation [ ] Dermal [x] No exposure expected [ ]

OVERALL CHEMICAL EXPOSURE:

Serious [ ] Low [x]  
Moderate [ ] Unknown [ ]

Description of Chemical Exposure: Stormwater may contain low levels of various pollutants associated with urban runoff. This may include petroleum hydrocarbons, pesticides/herbicides, nutrients, metals, and bacteria. Due to the nature of the storm event runoff, it is unlikely that significant chemical exposure would occur during monitoring activities.

OVERALL PHYSICAL HAZARD:

Serious [ ]                      Low [ ]  
Moderate [x]                      Unknown [ ]

Description of Physical Hazard: Due to the fact that storm event sampling will be conducted during rainfall events and possibly during night or dark conditions, there are a number of physical hazards that should be discussed and properly addressed prior to and during fieldwork. The following is a summary of those hazards:

- ? *Traffic Hazard.* Monitoring locations are adjacent to major streets and highways. Care should be taken to make sure workers are visible to approaching traffic, the monitoring vehicle is pulled off the main street, and staff are extra careful getting into and out of vehicles. Fortunately, all the monitoring locations are away from the actual street, so the main threats are associated with vehicle accident while going in and out of monitoring locations. 72<sup>nd</sup> Street is the only monitoring location that has any potential for physical injury while getting in and out of the vehicle and/or loading/unloading equipment from the vehicle. Traffic cones and reflective vests or rain gear should be used at this location.
- ? *Slip and Fall.* Due to working during rainfall and dark conditions, slip and fall hazards become more likely. All monitoring locations (except 64<sup>th</sup> Street) are associated with stormwater channels that have fairly steep banks and can become slippery during rainfall.
- ? *Night Work.* Care should be taken to make sure adequate light is established for a work area prior to beginning the monitoring activities. Vehicle spot lights and head lamps should be used to make the work area more visible.

#### **D. HAZARD EVALUATION INFORMATION**

##### CHEMICAL HAZARD(s):

Table 1 summarizes those chemicals most likely to be encountered in the stormwater runoff. The list of potential chemicals are based on stormwater studies in the Northwest and represent only those pollutants that have been found at high enough levels in urban runoff to pose a slight risk to workers.

##### PHYSICAL HAZARD(s):

- Confined space [ ] Note: requires confined space entry permit
- Noise [ ] Direct Push Probe and auguring
- Heat/cold stress [ ]
- Water [X] Sampling will be collected in stormwater channels.
- Other [X] Specify: Trip and fall, slip, traffic.

**Table 1**  
**Summary of Chemical Exposure Information**

<u>Compound</u>	<u>PEL/TLV STEL</u>	<u>Route of Exposure</u>	<u>Acute Symptoms</u>	<u>Odor Threshold</u>	<u>Odor Description</u>
Petroleum Hydrocarbons	300ppm gasoline	Inhal. Ing. Derm. Eye	Irritation Dermal	NA	Aromatic
PAHs	0.2 mg/m <sup>3</sup> coal tar	Inhal., ing., Derm. Eye	Nausea, vom., adom. Pain, skin reddening	N/A	Hydrocarbon creosote
Arsenic	0.01 mg/m <sup>3</sup>	Inh, Ing, Abs, Con	Resp Distress, diarr, kidney dmg, tremor	N/A	N/A
Chromium	0.5 mg/m <sup>3</sup>	Inhal. Ing.	Fibrosis of lungs respiratory sys	NA	NA
Copper	0.1 mg/m <sup>3</sup>	Inhal. Ing.	Chills, Fever, head ache, dry mouth	NA	NA
Nickel	1 mg/m <sup>3</sup>	Inh, Ing, Con	Verti, cough, weak, headache, vomit	N/A	N/A
Lead	0.05mg/m <sup>3</sup>	Derm. Inhal	Weak, eye irrit. Abdom pain.insom	NA	NA
Bacteria (e-coli)	Variable	Eye, Derm, Ing	Gastrointestinal distress, bleeding	N/A	N/A
PCBs	0.05mg/m <sup>3</sup>	Inh. Ing. Derm	Irrit eyes.	NA	Hydrocarbon

### E. CONTROL MEASURES

PERSONAL PROTECTIVE EQUIPMENT:

Level: A  B  C  D

RESPIRATOR: 1/2 mask  Full-face APR  Escape  SCBA   
Cartridge Type: N/A

BODY: tyvek  saranex  other  Specify: Raingear

HEAD: hardhat  goggles  faceshield  earplugs

GLOVES: yes  no : outer  inner  Type: Surgical gloves

FOOTWEAR: safety shoes  rubber boots  booties

OTHER PHYSICAL HAZARD PRECAUTIONS: Steps (using concrete pavers) have been installed at the locations with steep banks. In addition, rope will be used to assist samplers during ingress and egress to monitoring locations that may have slipper conditions. Head lamps and vehicle spot lights will be used to illuminate work area. Traffic cones and vehicle yellow warning light will be used to make work area more visible to nearby traffic. Workers will wear reflective clothing (reflective vests or rain gear) during fieldwork.

DECONTAMINATION PROCEDURES: Sampling equipment and rubber boots will be washed with an alconox soap solution, followed by tap water rinse and final deionized water rinse. Hands and other exposed skin areas will be promptly washed with soap after sample collection.

Dry  wet  stationary

AIR MONITORING EQUIPMENT: N/A

Hnu	<input type="checkbox"/>
Photovac Tip	<input type="checkbox"/>
Combustible gas indicator	<input type="checkbox"/>
Oxygen meter	<input type="checkbox"/>
Gastech	<input type="checkbox"/>
Four way gas meter	<input type="checkbox"/>
Radiation meter	<input type="checkbox"/>
Detector tubes	<input type="checkbox"/> Specify:

OTHER EQUIPMENT (Specify): Water quality probes will be used to get real time data for pH, conductivity, DO, and turbidity.

SPECIAL PROCEDURES/LIMITATIONS: If storm conditions are too severe or visibility is too limited the sampling effort will be postponed.

OTHER SAFETY MEASURES: The following is a checklist for general site safety precautions associated with fieldwork.

- ? The **Health & Safety Plan (HSP)** will be posted in an easily accessible location;
- ? **first aid kit and eyewash kit** will be readily available on site;

- ? The **emergency brake** will be set and chock blocks in place prior to probing;
- ? Each **personnel's responsibilities** will be known;
- ? **Physical and chemical hazards** have been identified and are summarized in this Health & Safety Plan;
- ? All personnel will have **proper levels of protection** and equipment;
- ? **Heat and cold stress hazards** will be identified and discussed;
- ? Personnel will wear OSHA approved **steel-toed boots and hard hat**;
- ? The vehicle **exhaust system is hot** and may present a fire hazard when operating a vehicle over dry grass or combustibles; therefore **a fire extinguisher must be stationed nearby**;

**Health & Safety Sign-up Sheet**

All site personnel have read the above plan and are familiar with its provisions.

	Name	Signature
Site Safety Officer	_____	_____
Project Manager	_____	_____
Other Site Personnel	_____	_____
Other Site Personnel	_____	_____
Other Site Personnel	_____	_____
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