

Portland Water Bureau

Columbia South Shore Well Field Wellhead Protection Business Training



March 2017

Nick Fish, Commissioner | Michael Stuhr, PE, Administrator



Portland Water System Overview

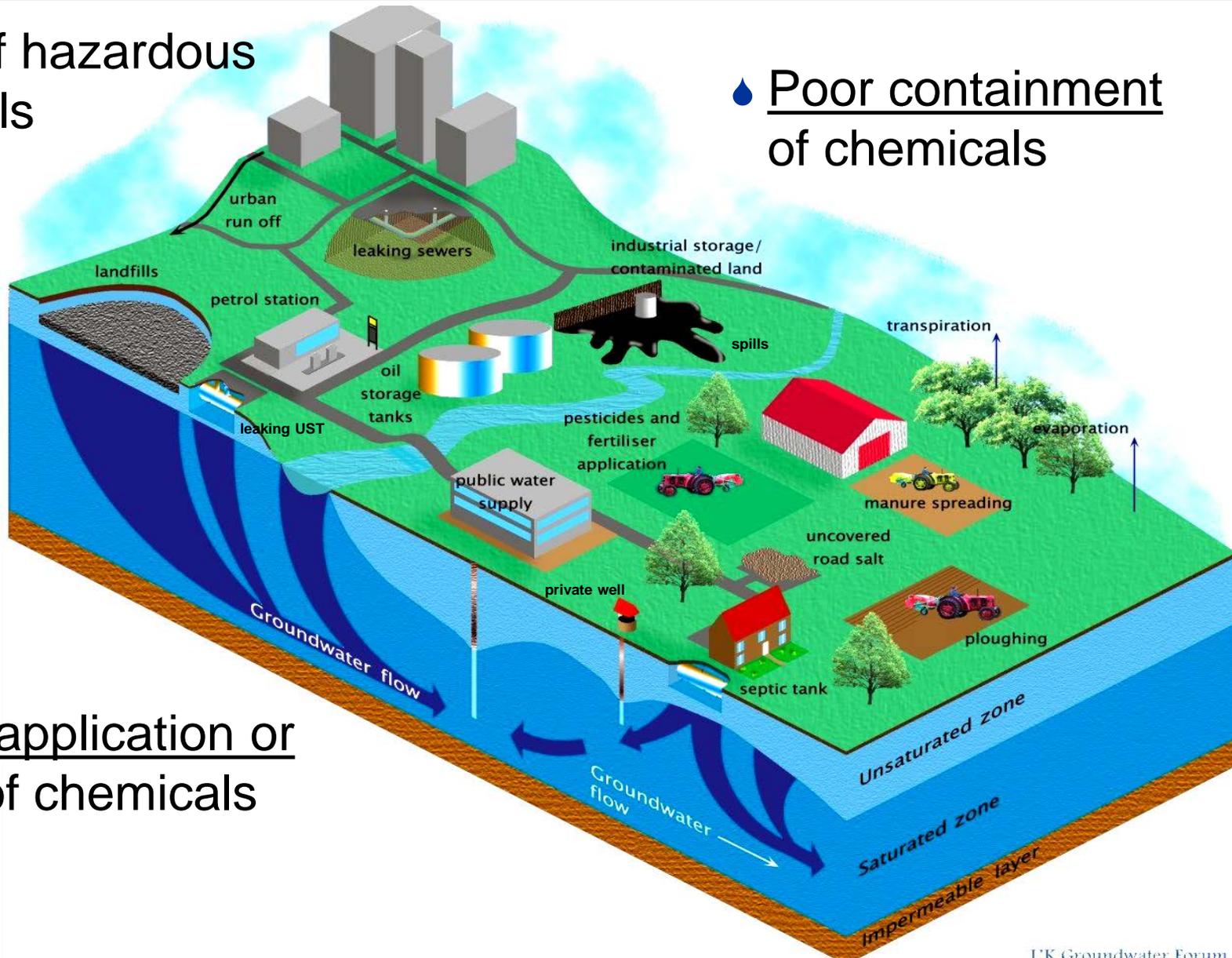
- The **green areas** are our drinking water sources
- Special water quality protections apply in these areas



Groundwater Vulnerability

• Spills of hazardous materials

• Poor containment of chemicals



• Improper application or disposal of chemicals

Groundwater Protection Program

Where

1. Protection area

What

2. Regulation of specific chemicals

- Threshold quantities determine if regulations apply

How

3. Functional area requirements

- Both structural & operational
- Employee Training

4. Inspections & enforcement

Why

5. Education & technical assistance

WASHINGTON

Vancouver

COLUMBIA RIVER

Government Islands

May's Lake

Slough

Columbia
Johnson Lake

MARINE DRIVE

North Channel

Upper

Columbia

Blue Lake

Fairview Lake

Salmon Creek

Troutdale

Fairview

Fairview

Wood Village

Gresham

Gresham

Portland

Portland

Maywood Park

NE HALSEY ST

NE GLISAN ST

SE STARK ST

NE 106TH AVE

NE 112TH AVE

NE 122ND AVE

NE 148TH AVE

NE 162ND AVE

NE 182ND AVE

NE 201ST AVE

NE 223RD AVE

NE 243RD AVE

NE 263RD AVE

NE 283RD AVE

NE 303RD AVE

NE 323RD AVE

NE 343RD AVE

NE 363RD AVE

NE 383RD AVE

NE 403RD AVE

NE 423RD AVE

NE 443RD AVE

NE 463RD AVE

NE 483RD AVE

NE 503RD AVE

NE 523RD AVE

NE 543RD AVE

NE 563RD AVE

NE 583RD AVE

NE 603RD AVE

NE 623RD AVE

NE 643RD AVE

NE 663RD AVE

NE 683RD AVE

NE 703RD AVE

NE 723RD AVE

NE 743RD AVE

NE 763RD AVE

NE 783RD AVE

NE 803RD AVE

NE 823RD AVE

NE 843RD AVE

NE 863RD AVE

NE 883RD AVE

NE 903RD AVE

NE 923RD AVE

NE 943RD AVE

NE 963RD AVE

NE 983RD AVE

NE 1003RD AVE

NE 1023RD AVE

NE 1043RD AVE

NE 1063RD AVE

NE 1083RD AVE

NE 1103RD AVE

NE 1123RD AVE

NE 1143RD AVE

NE 1163RD AVE

NE 1183RD AVE

NE 1203RD AVE

NE 1223RD AVE

NE 1243RD AVE

NE 1263RD AVE

NE 1283RD AVE

NE 1303RD AVE

NE 1323RD AVE

NE 1343RD AVE

NE 1363RD AVE

NE 1383RD AVE

NE 1403RD AVE

NE 1423RD AVE

NE 1443RD AVE

NE 1463RD AVE

NE 1483RD AVE

NE 1503RD AVE

NE 1523RD AVE

NE 1543RD AVE

NE 1563RD AVE

NE 1583RD AVE

NE 1603RD AVE

NE 1623RD AVE

NE 1643RD AVE

NE 1663RD AVE

NE 1683RD AVE

NE 1703RD AVE

NE 1723RD AVE

NE 1743RD AVE

NE 1763RD AVE

NE 1783RD AVE

NE 1803RD AVE

NE 1823RD AVE

NE 1843RD AVE

NE 1863RD AVE

NE 1883RD AVE

NE 1903RD AVE

NE 1923RD AVE

NE 1943RD AVE

NE 1963RD AVE

NE 1983RD AVE

NE 2003RD AVE

NE 2023RD AVE

NE 2043RD AVE

NE 2063RD AVE

NE 2083RD AVE

NE 2103RD AVE

NE 2123RD AVE

NE 2143RD AVE

NE 2163RD AVE

NE 2183RD AVE

NE 2203RD AVE

NE 2223RD AVE

NE 2243RD AVE

NE 2263RD AVE

NE 2283RD AVE

NE 2303RD AVE

NE 2323RD AVE

NE 2343RD AVE

NE 2363RD AVE

NE 2383RD AVE

NE 2403RD AVE

NE 2423RD AVE

NE 2443RD AVE

NE 2463RD AVE

NE 2483RD AVE

NE 2503RD AVE

NE 2523RD AVE

NE 2543RD AVE

NE 2563RD AVE

NE 2583RD AVE

NE 2603RD AVE

NE 2623RD AVE

NE 2643RD AVE

NE 2663RD AVE

NE 2683RD AVE

NE 2703RD AVE

NE 2723RD AVE

NE 2743RD AVE

NE 2763RD AVE

NE 2783RD AVE

NE 2803RD AVE

NE 2823RD AVE

NE 2843RD AVE

NE 2863RD AVE

NE 2883RD AVE

NE 2903RD AVE

NE 2923RD AVE

NE 2943RD AVE

NE 2963RD AVE

NE 2983RD AVE

NE 3003RD AVE

NE 3023RD AVE

NE 3043RD AVE

NE 3063RD AVE

NE 3083RD AVE

NE 3103RD AVE

NE 3123RD AVE

NE 3143RD AVE

NE 3163RD AVE

NE 3183RD AVE

NE 3203RD AVE

NE 3223RD AVE

NE 3243RD AVE

NE 3263RD AVE

NE 3283RD AVE

NE 3303RD AVE

NE 3323RD AVE

NE 3343RD AVE

NE 3363RD AVE

NE 3383RD AVE

NE 3403RD AVE

NE 3423RD AVE

NE 3443RD AVE

NE 3463RD AVE

NE 3483RD AVE

NE 3503RD AVE

NE 3523RD AVE

NE 3543RD AVE

NE 3563RD AVE

NE 3583RD AVE

NE 3603RD AVE

NE 3623RD AVE

NE 3643RD AVE

NE 3663RD AVE

NE 3683RD AVE

NE 3703RD AVE

NE 3723RD AVE

NE 3743RD AVE

NE 3763RD AVE

NE 3783RD AVE

NE 3803RD AVE

NE 3823RD AVE

NE 3843RD AVE

NE 3863RD AVE

NE 3883RD AVE

NE 3903RD AVE

NE 3923RD AVE

NE 3943RD AVE

NE 3963RD AVE

NE 3983RD AVE

NE 4003RD AVE

NE 4023RD AVE

NE 4043RD AVE

NE 4063RD AVE

NE 4083RD AVE

NE 4103RD AVE

NE 4123RD AVE

NE 4143RD AVE

NE 4163RD AVE

NE 4183RD AVE

NE 4203RD AVE

NE 4223RD AVE

NE 4243RD AVE

NE 4263RD AVE

NE 4283RD AVE

NE 4303RD AVE

NE 4323RD AVE

NE 4343RD AVE

NE 4363RD AVE

NE 4383RD AVE

NE 4403RD AVE

NE 4423RD AVE

NE 4443RD AVE

NE 4463RD AVE

NE 4483RD AVE

NE 4503RD AVE

NE 4523RD AVE

NE 4543RD AVE

NE 4563RD AVE

NE 4583RD AVE

NE 4603RD AVE

NE 4623RD AVE

NE 4643RD AVE

NE 4663RD AVE

NE 4683RD AVE

NE 4703RD AVE

NE 4723RD AVE

NE 4743RD AVE

NE 4763RD AVE

NE 4783RD AVE

NE 4803RD AVE

NE 4823RD AVE

NE 4843RD AVE

NE 4863RD AVE

NE 4883RD AVE

NE 4903RD AVE

NE 4923RD AVE

NE 4943RD AVE

NE 4963RD AVE

NE 4983RD AVE

NE 5003RD AVE

NE 5023RD AVE

NE 5043RD AVE

NE 5063RD AVE

NE 5083RD AVE

NE 5103RD AVE

NE 5123RD AVE

NE 5143RD AVE

NE 5163RD AVE

NE 5183RD

Regulated Chemical Thresholds

Wellhead protection regulations apply if a facility handles more than these amounts:



Halogenated Solvents – 10 gal



DEQ Hazardous Wastes – 30 gal



EPA's 'List-of-Lists' Substances – 50 gal

(There is a searchable version on our website)



Petroleum-Based Liquid Fuels – 50 gal

(reporting only for non-fuel petroleum)

Perspective

How many gallons of water can be contaminated by ONE gallon of trichloroethylene (TCE)?

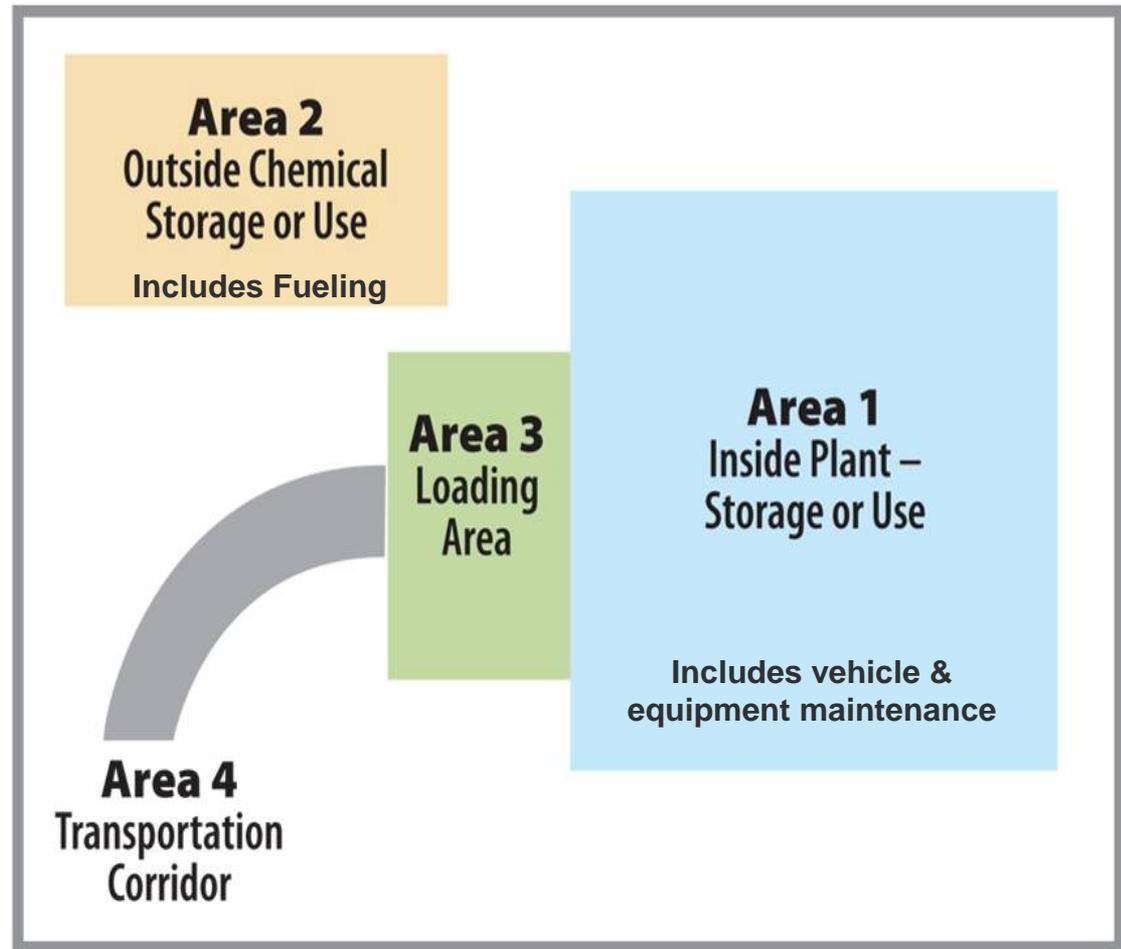
(TCE is a solvent typically used to clean metal parts)

292 million gallons



Structural Requirements

- Impervious Surfaces
- Secondary Containment
- Spill Control



Area 5 - Public Right-of-Way

Area 1 – Indoor Storage

- Meet Oregon Fire Code spill control and containment requirements
- Impermeable surfaces required
- Floor drains connected to sewer or plugged



Area 2 – Outdoor Storage



- Impervious area
- Covered
- Secondary containment



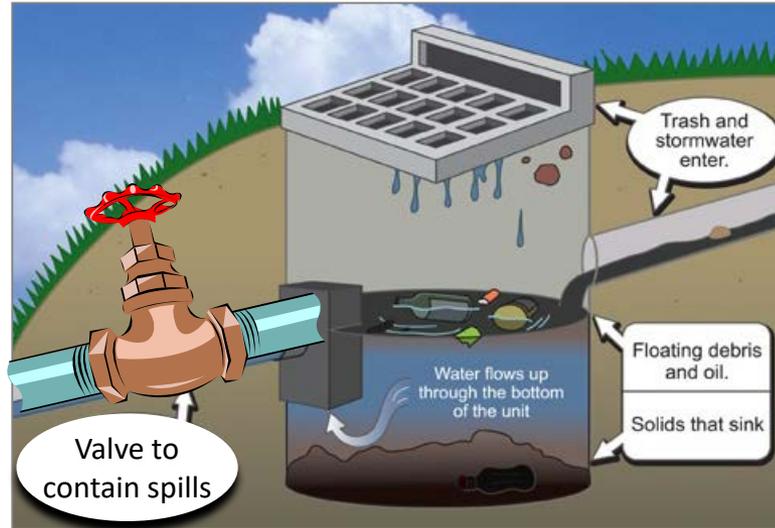
Area 3 – Loading Area



- Impervious area with spill containment & response
- Covered or contained to prevent stormwater run-off
 - Uncovered may be permitted with City inspection & approval



Area 4 - Site Transportation Routes



- Routes must be paved (except rail)
- Must provide spill containment
- Facilities may satisfy requirement by transporting hazardous materials in secondary containment

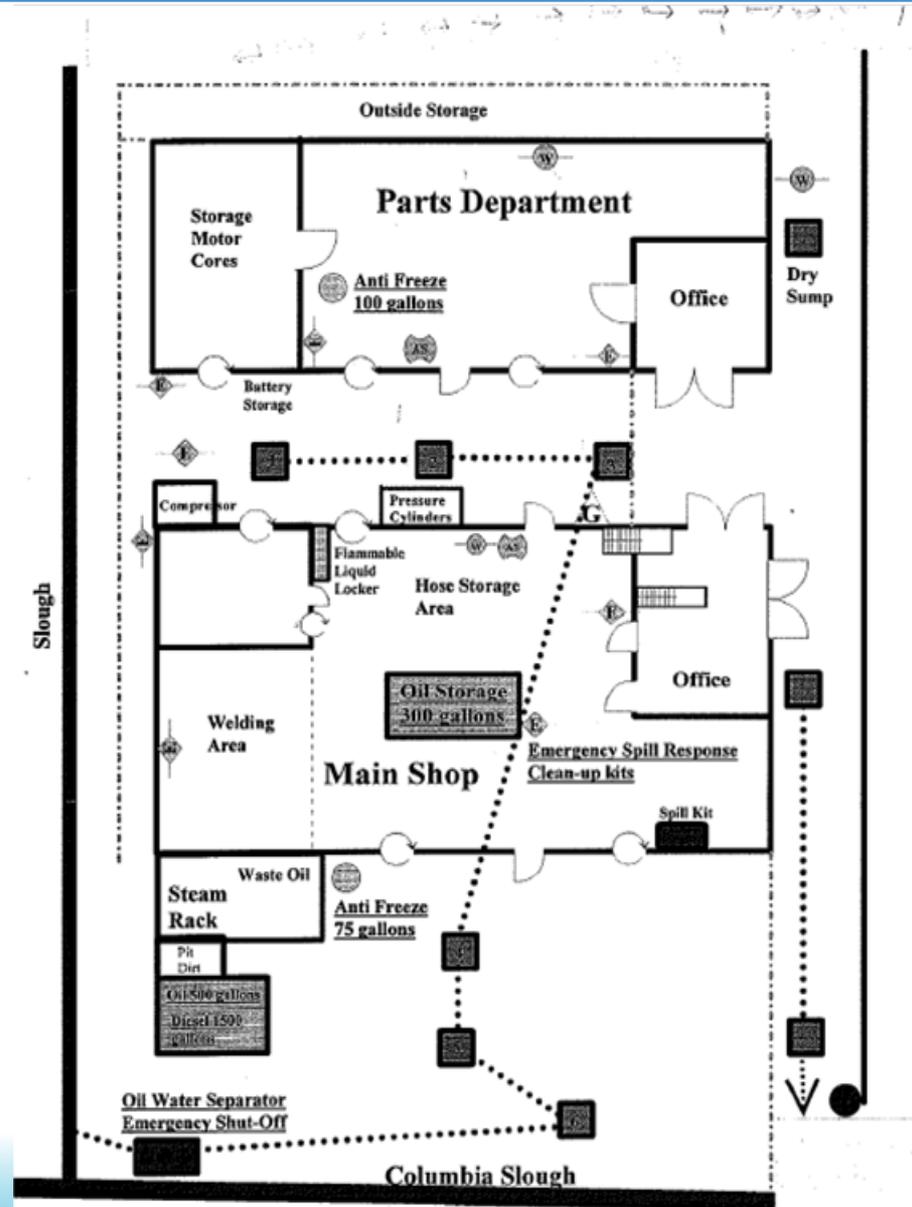
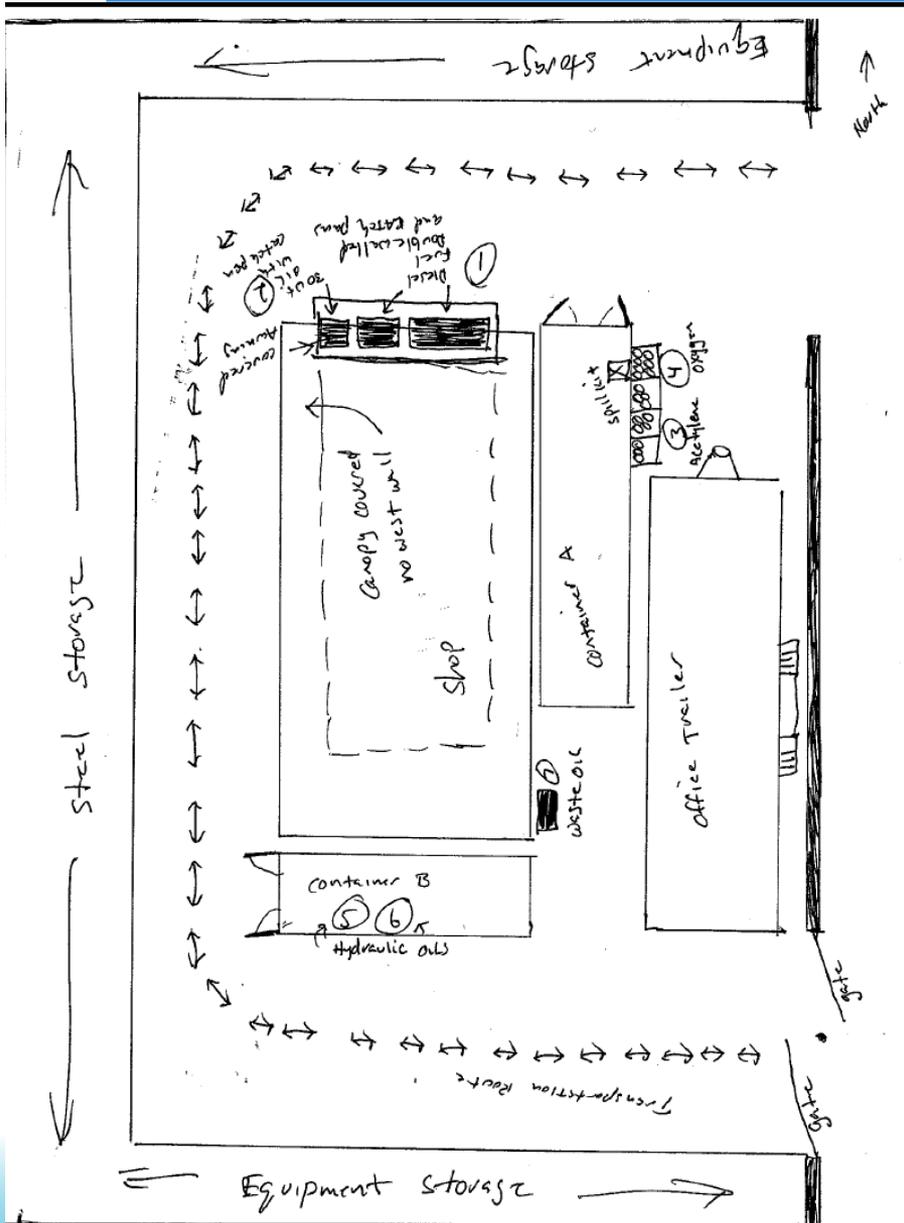
Operational Requirements

- Pollution Prevention Team
- Good Housekeeping Practices
- Spill Prevention and Clean-up
- Inspections and Record Keeping
- Process and Product Changes
- Training
- Annual Reporting and Site Plan

Facility Information Report – Site Plan

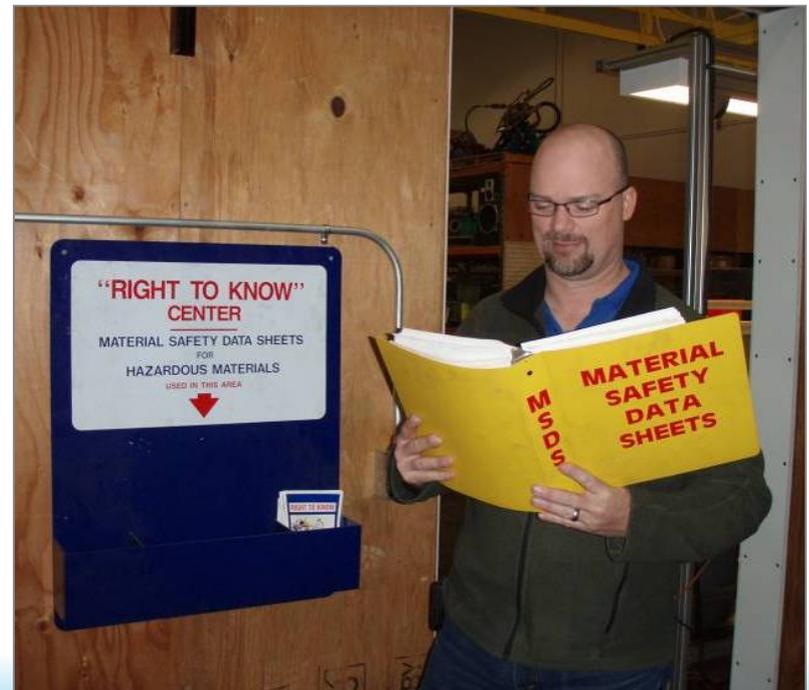
- Areas where hazardous materials are stored or used
- Transportation routes
- Storm drains and drainage area
- Dry wells or sumps
- Spill containment devices (e.g. shut off valve)
- Emergency spill containment and clean-up kits

Site Plan Examples



SDS – Safety Data Sheets

- Keep in central location – designated computer, file cabinet, etc
- Make sure new staff and contractors know where they are and how to read them
- OSHA - Keep for 30 years



Spill Response

IN THE EVENT OF A SPILL

1. Cover and isolate nearby drains or turn off drain valve located at _____
2. Call the supervisor _____
3. If a spill reaches a drain, water or soil, call **503-823-7180** anytime.
For Police, Fire or Medical Emergencies call 911

If you are cleaning up a spill:

- Wear protective gear
- Keep unauthorized vehicles and people out of spill
- Use the spill kit:
 - Seal off drains
 - Set up a berm to contain the spill
 - Cleanup with absorbent materials



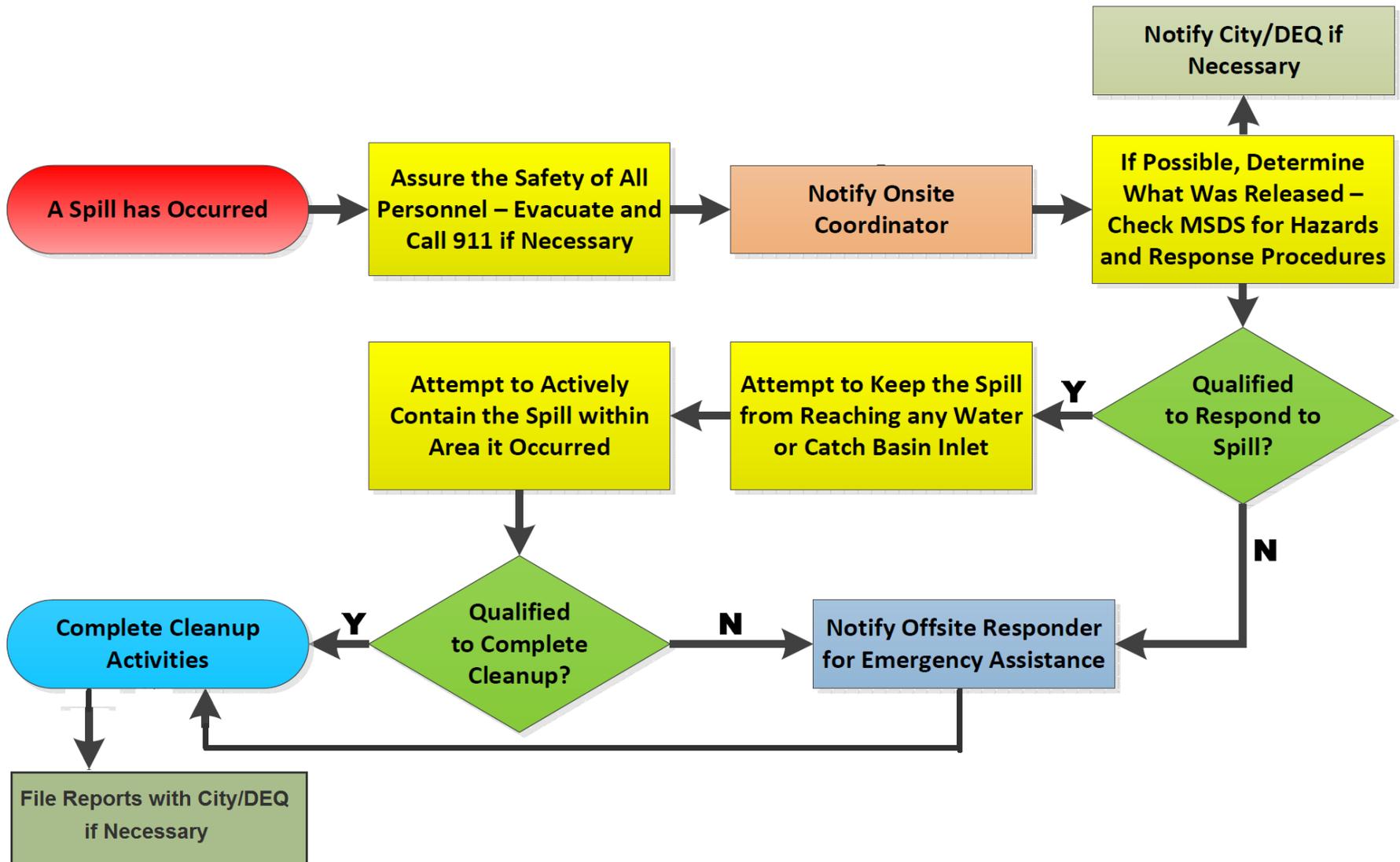
HELP PROTECT DRINKING WATER. You are standing over Portland's Columbia South Shore Well Field - a regional drinking water source from groundwater.

Chemical Transfer Procedures

Refer to the unloading procedures located _____

- Identify Responsible Staff
 - Free signs available
- Safety first, 911 if emergency
- Consult SDS
- Use spill kit, drain covers, etc.
- Use Common Sense

Simple Response Diagram



Resources and Contact Info

- **Columbia Corridor Association**
 - Corky Collier and Jeff Dresser – 503-287-8686
 - Corky@columbiacorridor.org
 - www.columbiacorridor.org/wellfield/
- **City of Portland**
 - Doug Wise – 503-823-7473 douglas.wise@portlandoregon.gov
 - www.portlandoregon.gov/water/groundwater
- **City of Gresham**
 - Clay Walker – 503-665-6825
 - clay.walker@greshamoregon.gov
- **City of Fairview**
 - Paul Pongracz– 503-674-6234 pongraczp@ci.fairview.or.us