



DEPARTMENT OF
ECOLOGY
State of Washington

Underground Injection Control (UIC) Program Well Assessment

*An Example for Vehicle and Metal Recyclers
(August 2011)*

March 2012
Publication no. 12-10-012

Publication and Contact Information

This report is available on the Department of Ecology's website at <http://www.ecy.wa.gov/biblio/1210012.html>

For more information contact:

Water Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Phone: 360-307-6600

Washington State Department of Ecology - www.ecy.wa.gov

- Headquarters, Olympia 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Olympia 360-407-6300
- Central Regional Office, Yakima 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

If you need this document in a format for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Underground Injection Control (UIC) Program Well Assessment

**An Example for Vehicle and metal Recyclers
(August 2011)**

by

Mary Shaleen-Hansen

Water Quality Program
Washington State Department of Ecology
Olympia, Washington

Table of Contents

	<u>Page</u>
List of Figures and Tables.....	iv
Figures.....	iv
Tables.....	iv
What are UIC Wells and Why Do We Regulate Them?	1
What is a UIC Well Assessment.....	3
What are High Threats to Ground Water Wells?.....	3
Retrofit	3
Industrial Facilities Without a National Pollutant Discharge Elimination System (NPDES) Permit (no Stormwater Discharges to Surface Water)	5
Industrial Facilities Under A National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Industrial Activities.....	7
Appendix A. Operational, Structural and Treatment Best Management Practices (BMPs).....	A-11
Operational best management practices.....	A-11
Employee training on spill prevention and response.....	A-16
Structural best management practices.....	A-17
Vehicle or metal holding yard	A-18
The processing area – vehicle dismantling and fluid removal	A-19
Fluid storage area	A-20
Vehicle or metal storage yards	A-23
Vehicle or metal crusher.....	A-23
Waste/scrap piles of metal and/or vehicle components.....	A-25
Storage of parts for sale.....	A-25
Contaminated soil.....	A-26
Erosion and sediment control (ESC)	A-27
Stormwater collection and conveyance system.....	A-27
Use treatment best management practices	A-28
References*	A-29
Appendix B. Vehicle Waste Material Management	B-31
Appendix C. Lists of Recycler and Waste Handling Businesses.....	C-33
Appendix D. Regional Treatment Centers for Petroleum Contaminated Soils	D-35

List of Figures and Tables

Page

Figures

Figure A-1 Covered battery storage.....	A-13
Figure A-2 Spill response kit.....	A-15
Figure A-3. Above ground tank storage (typically used for used oil).....	A-21
Figure A-4. Covered and bermed containment.....	A-21
Figure A-5. Container completely encloses storage tank.	A-22

Tables

Table 1. For facilities without an NPDES stormwater industrial	8
Table 2. Employee or customer parking (No industrial vehicle traffic)	9

What are UIC Wells and Why Do We Regulate Them?

Underground injection control (UIC) wells are manmade structures used to drain fluids into the ground. Examples of UIC wells are drywells, infiltration trenches with perforated pipe, drain fields, French drains and any structure deeper than wide at the land surface.

The potential for groundwater pollution from UIC wells depends upon well construction and location; quality of the fluids injected; and the geographic and subsurface settings in which the fluids drain. The UIC Program's goal is to protect groundwater quality. Implementing all known, available, and reasonable methods of prevention, control, and treatment (AKART) best management practices at your site will help you to protect your local groundwater.

AKART is required for all UIC wells

The UIC Program regulation requires all UIC wells to be operated, maintained, and closed in a way to protect groundwater quality. Providing AKART to the fluids and waste fluids discharged into the groundwater (waters of the state) will help meet the operation and maintenance rule requirements. AKART are practices that reduce the stormwater pollution, such as a spill prevention plan, regular clean out of catch basins, no dumping of vehicle fluids on the ground, pressure washing contaminated surfaces & transporting wash water off-site, and painting metal roofing.

AKART is required whether auto recycling stormwater discharges to a surface water body (NPDES permit) or UIC wells, or regardless of the age of the UIC well (old and current UIC regulations require AKART).

Appendix A of this document includes operational and structural best management practices (BMPs) that are considered AKART and are the pollution prevention tools for the auto recycling industry. In some cases, best management practices may not exist to remove or reduce a contaminant from stormwater. In this case, a UIC well would have to be closed.

Registration

If the site UIC wells are not registered yet, go to the Washington Department of Ecology's UIC website and register the wells on line at www.ecy.wa.gov/programs/wq/grndwtr/uic/UIConlineregis.html or use the Word version registration form at, www.ecy.wa.gov/programs/wq/grndwtr/uic/registration/regforms.html and complete the Underground Injection Control (UIC) Well Registration Form for Industrial or Commercial Facilities.

This page is purposely left blank.

What is a UIC Well Assessment

The purpose of a UIC well assessment is to determine if UIC wells are a high threat to groundwater. A well assessment is required for all UIC wells built and in use prior to February 2, 2006 and used to manage stormwater. Wells constructed after 2/3/2006 must be built to the current UIC Program rule, chapter 173-218- WAC UIC Program and the current Ecology stormwater management manual for the location of the well.

Well assessment requirements are organized by whether the site has a National Pollutant Discharge Elimination System (NPDES) permit or not. See the Well Assessment Requirements section to find the information that fits the site. The well assessment does not give the operator permission to pollute groundwater.

What are high threats to groundwater wells?

A UIC well is a high threat to groundwater if it receives:

- Process wastewater (including leachate) from any of the industrial activities at the site. Water used for controlling dust or from washing vehicles or equipment, steam cleaning, and/or pressure washing are examples of process wastewater.
- Domestic wastewater (sewage).
- Non-contact cooling water.
- Fluids that cannot meet the groundwater quality standards (chapter 173-200 WAC) at the top of the groundwater.

UIC wells are high threat to groundwater if the wells are:

- Located in the vehicle dismantling and fluid removal area, fluid storage area, vehicle crushing areas, vehicle recycling holding yard, and vehicle or metal storage yard. UIC wells are prohibited in these areas.
- Constructed into the groundwater. Water would be present during the dry season and when it has not received a recent discharge. The majority of UIC wells constructed in groundwater have to be closed.
- Located in the customer or employee parking lot that has no industrial traffic, if there are 100 vehicle trip ends (*trip end* is a vehicle arriving and leaving the lot) per 1000 ft. of gross building area, or > 300 total trip ends per day, and if the material around the UIC well in the subsurface has no capacity to remove pollutants.

Retrofit

A schedule to retrofit any high threat wells to groundwater is part of the assessment. The well retrofits must occur in a reasonable period. Retrofitting a UIC well should reduce or remove the stormwater pollution draining to the UIC well.

For example, if a UIC well receives stormwater in an industrial area, and oil sheen or other vehicular waste product is visible in the dry well, then the operator needs to do one of the following:

- Add operational BMPs to reduce the oil going to the well, such as good housekeeping practices and preventative maintenance BMPs (see Appendix A) and observe that these changes are sufficient.
- If a treatment BMP is not part of the drainage system add an Ecology-approved treatment BMP for the type of pollution.
- If a treatment BMP is already part of the drainage system and oil is still present in the dry well, then the operator needs to review the use of the treatment BMP to see if increased cleaning would help, if a different BMP is necessary, or if well closure is appropriate.

UIC wells are prohibited in the vehicle dismantling and fluid removal area, fluid storage area, vehicle crushing areas, vehicle recycling holding yard, and vehicle or metal storage yard. In these cases the retrofit option is closure.

You will find the following information in the appendices:

- Appendix A: Retrofit options - well closure and best management practices.
- Appendix B: Vehicle waste material management.
- Appendix C: lists of recycler and waste handling businesses.
- Appendix D: Regional treatment centers for petroleum-contaminated soils and contact information on handling different types of wastes.

Questions?

For contact information on technical issues relating to UIC well assessment please see the last page of Appendix A of this document.

For questions on this document or the UIC Program contact

Mary Shaleen Hansen
Water Quality Program
WA State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
360-407-6143
Mary.Shaleen-Hansen@ecy.wa.gov

Industrial Facilities Without a National Pollutant Discharge Elimination System (NPDES) Permit (no Stormwater Discharges to Surface Water)

To complete the UIC well assessment for a site without a NPDES Permit:

1. Review the land use of the area that drains to the UIC well, such as:
 - Industrial activity that is exposed to rain, snow or snowmelt and the stormwater drains to a UIC well.
 - In customer and employee parking lots. The number of vehicles that visit your site per day (average daily traffic) determines the pollutant load. For example, a parking lot with > 100 trip ends (trip end is arriving and leaving of one vehicle) per 1000 square feet of gross building area, or > 300 total trip ends per day would be a high pollutant load classification (see Table 1).
2. Determine if the UIC wells are constructed in groundwater. Water would be present in the well during the dry season and when it has not received a recent discharge. Retrofit is required for UIC most wells constructed in groundwater.
3. Determine if the UIC well is in a groundwater protection area, an area that contributes groundwater to a water supply well. If the site is located over an area that contributes groundwater to a water supply well, and if pollutants from the site travel to groundwater, they may pollute the water supply. The operator should call their local Department of Health and ask if the site is in a wellhead protection area or a [critical aquifer recharge area](#). The local government may have additional requirements for the affected UIC wells.

Washington State Department of Health also has a web tool at <https://fortress.wa.gov/doh/eh/dw/swap/maps/> that shows each county and the wellhead protection area. An operator or owner can register, then go on line and view the county your site is in by clicking on the map (several times). Click on the wellhead area boxes on the left and then click on “redraw map”. If an operator does not have access to the internet they can call Ecology’s UIC Coordinator for assistance at 360-407-6143.
4. Use the Tables 1 and 2 in this document to help determine if the UIC wells are a high threat to groundwater.
5. Write up a retrofit schedule for any high threat to groundwater wells. Use the best management practices listed in Appendix A to determine retrofit options. Retrofit is required for UIC wells constructed in groundwater. Well closure is required for UIC wells in the following areas: vehicle dismantling and fluid removal area, fluid storage area, vehicle crushing areas, vehicle recycling holding yard, and vehicle or metal storage yard.

This page is purposely left blank.

Industrial Facilities under a National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Industrial Activities

1. To complete the UIC well assessment for a site under an NPDES permit: Apply the appropriate NPDES permit best management practices (BMPs) to the UIC wells to reduce the stormwater pollutant load draining to the wells. This includes source control and treatment BMPs. Stormwater sampling is not required unless required in the NPDES permit. Appendix A lists the best management practices for the vehicle recycling industry.
2. Determine if the UIC wells were constructed in groundwater. If water is present in the UIC well during the dry season, and it has not received a recent discharge, then it is a high threat to groundwater and needs to be retrofitted.
3. Determine if the UIC well is in a groundwater protection area, an area that contributes groundwater to a water supply well. If the site is located over an area that contributes groundwater to a water supply well, and if pollutants from the site travel to groundwater, they may pollute the water supply. The operator should call their local Department of Health and ask if the site is in a wellhead protection area or a [critical aquifer recharge area](#). The local government may have additional requirements for the affected UIC wells.

Washington State Department of Health also has a web tool at <https://fortress.wa.gov/doh/eh/dw/swap/maps/> that shows each county and the wellhead protection area. An operator or owner can register and go on line to the county and location of the UIC wells by clicking on the map (several times). Click on the wellhead area boxes on the left and then click on “redraw map”. If an operator does not have access to the internet, they can call Ecology’s UIC Coordinator for assistance at 360-407-6143.

4. Complete Table 2 (in this document) to help determine if the UIC wells located in the site’s customer and employee parking lot are a high threat to groundwater.
5. Write up a retrofit schedule for any high threat to groundwater wells. Retrofit is required for UIC wells constructed in groundwater. Well closure is required for UIC wells in the following areas: vehicle dismantling and fluid removal area, fluid storage area, vehicle crushing areas, vehicle recycling holding yard, and vehicle or metal storage yard.

Table 1. For facilities without an NPDES stormwater industrial permit

UIC wells in industrial areas of your site

UIC well identification	<i>Example, Drainfield in storage area</i>			
A. Activities in drainage area around UIC well (i.e. metal crushing or dismantling, battery storage).	<i>i.e. dismantle vehicles</i>			
B. List structural treatment devices in place to treat stormwater or none.	<i>Yes, oil water separator</i>			
C. Oil sheen during visual inspection? If sampling completed, is the groundwater quality standards (GWQS) criteria met?	<i>oil sheen in dry well no sampling done</i>			
Retrofit required if: <ul style="list-style-type: none"> • Visual sheen present in stormwater on ground surface, in catch basin, or in discharge leaving structure; or • Sampling results DO NOT meet bench marks, or If no treatment device installed. 	<i>High threat well, retrofit required, close well</i>			
D. Is water present in the UIC well during the dry season and when fluids have NOT been recently discharged?	If water is present, then the well needs to be retrofitted.	If water is present then the well needs to be retrofitted	If water is present then the well needs to be retrofitted	If water is present, then well needs to be retrofitted

Table 2. Employee or customer parking (No industrial vehicle traffic)

Well identification	<i>Example, Drywell 1, front customer pk lot</i>			
A. Is the well in a high pollutant load classification (HPLC), 100 vehicle trip ends (trip end is a vehicle arriving and leaving the lot) per 1000 ft. of gross building area or > 300 total trip ends per day, If NO go to D below.	Yes			
B. Certain sediments can remove pollutants from stormwater. What type of natural sediment is below the ground surface that surrounds your UIC well and is not in the groundwater? See Guidance for UIC Wells that Manage Stormwater, tables 5.2-5.4, at www.ecy.wa.gov/biblio/0510067.html . See instructions at the end of this table.	<i>No treatment, all gravel</i>			
C. If you answered YES to A of this table, and NO treatment to B , then your well is a high threat to groundwater well and retrofit is required.	High threat well, add retrofit to schedule Oil and solids BMP required			
D. Is water is present in the UIC well during the dry season and the well has NOT received recent fluid discharges?	If water is present in the UIC well, then well has to be retrofitted.	If water is present in the UIC well, then well has to be retrofitted.	If water is present in the UIC well, then well has to be retrofitted.	If water is present in the UIC well, then well has to be retrofitted.

On the internet, go to *Guidance for UIC Wells that Manage Stormwater*, Publication Number 05-10-067 at, www.ecy.wa.gov/pubs/0510067.pdf.

This page is purposely left blank.

Appendix A. Operational, Structural and Treatment Best Management Practices (BMPs)

The following operational, structural and treatment best management practices are from the *Vehicle and Metal Recyclers. A Guide for Implementing the Industrial Stormwater General National Pollutant Discharge Elimination System Permit Requirements*, publication no.94-146, Revised March 2011, www.ecy.wa.gov/biblio/94146.html.

All known, available, and reasonable methods of prevention, control, and technology (AKART), best management practices (BMPs), are required for permitted and unpermitted facilities. The following BMPs can be used to reduce the pollution potential associated with vehicle and metal recyclers and to retrofit your high threat to groundwater wells.

UIC wells are prohibited in the vehicle recycling holding yard, vehicle dismantling and fluid removal area, fluid storage area, vehicle crushing areas, and vehicle or metal storage yards.

Operational best management practices

BMPs are activities and procedures implemented to prevent and reduce stormwater pollution. Operational BMPs are any managerial practices used to prevent pollutants from entering stormwater.

BMPs selected for the site must be consistent with Ecology's most recent stormwater manuals or other local government stormwater guidance that has been approved as equivalent to Ecology stormwater manuals.

A stormwater pollution prevention plan (SWPPP) is **not** required for recycling facilities **not** under an Ecology discharge permit, but it is strongly recommended.

The best operational BMP is to cover all portions of your property where processing or storage will take place. If that is not possible, frequent sweeping with a vacuum sweeper will provide a significant level of pollutant control.

Additional detail on Operational Source Control BMPs is included in Volume IV, Chapter 2.1 of the *Stormwater Management Manual for Western Washington* and Chapter 8.3.1 of the *Stormwater Management Manual for Eastern Washington*.

Create a pollution prevention team. Pollution prevention can be a cheaper alternative than remediating your soil or groundwater.

Practice good housekeeping

- Include BMPs that define ongoing maintenance and cleanup of areas that may contribute pollutants to stormwater discharges. Include the schedule/frequency for completing each housekeeping task, based on sampling results and observations made during inspections.

- Vacuum paved surfaces with a vacuum sweeper (or a sweeper with a vacuum attachment) to remove accumulated pollutants a minimum of once per quarter.
- Identify and control all on-site sources of dust to minimize stormwater contamination from the deposition of dust on areas exposed to precipitation.
- Do not hose down pollutants from any area to the ground, storm drain, conveyance ditch, or receiving water.
- Keep all dumpsters under cover or fit with a lid that must remain closed when not in use.
- Remove and properly dispose of debris, oil, and sludge from all treatment BMP systems, such as oil/water separators or settling/detention basins, as frequently as necessary to ensure that proper operational efficiency of these systems is maintained. Determine, by lab analysis, if sludge is a dangerous waste.
- Promptly repair or replace all substantially cracked or otherwise damaged paved process areas and other impervious containment areas that can be contaminated by pollutant fluid leaks or spills.
- Immediately clean up chemical and petroleum spills.

Preventative maintenance

- Include BMPs to inspect and maintain the stormwater drainage, source controls, treatment systems (if any), and plant equipment and systems that could fail and result in contamination of stormwater. Include the schedule/frequency for completing each maintenance task.
- Clean catchbasins (sumps) if the depth of debris reaches 60% of the sump depth. Keep the debris surface at least 6-inches below the outlet pipe.
- Inspect all equipment and vehicles during site inspections for leaking fluids such as oil or antifreeze. Take leaking equipment and vehicles out of service or prevent leaks from spilling on the ground until repaired.
- Immediately clean up spills and leaks (using absorbents and vacuuming, etc.) to prevent the discharge of pollutants.
- Prevent the discharge of pollutants to storm drains, groundwater, and surface water.
- Transfer fluids from the vehicles and parts to storage tanks or containers that are located in a covered impervious contained area. Pump fluids from cars. Always use drip pans. Empty drip pans immediately after fluids are collected using appropriate funnels. Replace drain plugs in fluid-containing parts after draining fluids.
- Construct impervious maintenance areas using Portland cement concrete or equivalent. Chemically resistant asphalt can be used for battery storage. Do not pave over contaminated soil.
- Batteries cannot be stored outside in the open.
- Discard empty oil and fuel filters, oily rags, and other oily solid waste into appropriately closed and properly labeled containers. If oil filters are removed, drain the oil for 24 hours before disposal. Puncture hole in top of filters to help draining. Recycle your drained filters with your oil.

Clean all oily parts inside a building or on a covered impervious contained area, such as a diked/bermed concrete pad. Check for visible sheen on the contained stormwater and consider use of floating sorbent pads or booms before discharge. *Wash water should not go directly into a stormwater drain or septic system.*



- Store fluids in steel or plastic drums that are rigid and durable, resistant to corrosion from the weather and fluid content, nonabsorbent, water tight, rodent-proof, and equipped with a close-fitting cover. Place drums in covered *impervious containment areas*. Use *containers, piping, tubing, pumps, fittings, and valves* that are adequate for the fluid and intended use. Waste haulers for used oil and dangerous materials often provide safe containers.
- Label all containers and tanks clearly to prevent mixing wastes. Mixed wastes are considered dangerous wastes. Batteries should be stored in a covered plastic bin or in a covered building.
- Scrap metal cuttings or turnings containing residual cutting oils or coolants must be covered or stored in dumpsters or bins with lids.

Figure A-1. Covered battery storage

- Use dumpsters, garbage cans, drums, or other suitable containers for disposal of solid wastes contaminated with fluids and other pollutants. These containers must be durable, corrosion resistant, nonabsorbent, non-leaking, and have a solid cover.
- Use only water or local and state government approved materials for dust control.
- Stencil warning signs such as “Dump No Waste” at stormwater catchbasins and drains.
- Use a licensed recycler to collect fluids.
- Post stormwater pollution prevention signs at fluid removal and storage areas. You can obtain a poster from Ecology’s Hazardous Wastes and Toxics Reduction (HWTR) Program or prepare your own as in the following suggestion:

**HELP PREVENT STORMWATER POLLUTION
BY FOLLOWING THESE INSTRUCTIONS:**

1. Do not dump any vehicle fluid or other pollutant down any storm drain.
2. Prevent all outside spills and leaks of fluids, especially when transferring fluids.
3. Keep all paved areas clean of debris that could contaminate stormwater.
4. Use oil spill booms for containment and dry absorbents to clean up spills and leaks of pollutant fluids.
5. Notify management of any outside leak or spill of any fluid or any situation that can cause groundwater or stormwater contamination.
6. Notify your management if an ongoing or recurring visible oil sheen is observed in stormwater discharge(s) or receiving water.
7. Notify management if any stormwater pollution control system is not operating well.

You must immediately place calls to the following three locations to report a spill:

- National Response Center: 1-800-424-8802
- Washington Emergency Management Division: (including Emergency Release Notification) 1-800-258-5990 -OR- 1-800-OILS-911
- Ecology regional office listed below:
 - Bellevue (NWRO) 425-649-7000
 - Olympia (SWRO) 360-407-6300
 - Yakima (CRO) 509-575-2490
 - Spokane (ERO) 509-329-3400

Spill prevention and emergency cleanup plan (SPECP)

- Include BMPs to prevent spills that can contaminate stormwater and specify BMPs for material handling procedures, storage requirements, cleanup equipment and procedures, and spill logs, as appropriate.
- Store all chemical liquids, fluids, and petroleum products on an impervious surface that is surrounded with a containment berm or dike that is capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater.
- Prevent precipitation from accumulating in containment areas with a roof or equivalent structure or include a written plan on how you will manage and dispose of accumulated water if a containment area cover is not practical.
- Block, plug, or cover storm drains and UIC wells that receive runoff from areas where fueling occurs, during fueling.
- Use drip pans or equivalent containment measures during all petroleum transfer operations.
- Locate materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas).

- Drain fluids from equipment and vehicles prior to on-site storage or disposal.
- Use drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible. Drain fluids from equipment and vehicles prior to on-site storage or disposal.
- Do not lock shut-off fueling nozzles in open position. Do not “top-off” tanks being refueled.
- Maintain a spill log that includes the following information for chemical and petroleum spills: date, time, amount, locations, and reason for spill, date/time clean-up completed, notifications made, and staff involved.
- Identify areas of the site where oil, toxic material, hazardous material, or other pollutant spills are likely to occur and their drainage points.
- Ensure that employees are aware of spill response procedures, including material handling and storage requirements. Provide access to appropriate spill cleanup equipment. (See References 8 and 9).
- Stop, contain, and clean up all spills immediately upon discovery. Do not flush absorbent materials or other spill cleanup materials into a storm drain or to surface water. Collect the contaminated absorbent material as a solid, place in appropriate disposal containers, and provide disposal according to state and local regulations.
- If you spill oil or other hazardous materials to state waters, the ground, or the air, you must report it — regardless of the size of the spill. Take reasonable steps to minimize any adverse impacts to waters of the state and to correct the problem. After you call in the spill report, follow up with written documentation covering the event within 30 days unless Ecology waives or extends this requirement.



Figure A-2. Spill response kit

- Place and maintain emergency spill containment and cleanup kits at all areas where there is a potential for fluid spills. Provide appropriate types and amounts of cleanup materials in cleanup kits. Kits should be readily accessible to personnel.
- Locate spill kits within 25 feet of all stationary fueling stations, fuel transfer stations, and mobile fueling units.

Note: Ecology recommends that the spill kits include the following:

- Salvage drums or containers.

- Polyethylene disposal bags.
- An emergency response guidebook.
- Safety gloves/clothes/equipment, shovels, and oil containment booms and absorbent pads – all stored in an impervious container.
- Oil absorbents capable of absorbing 15 gallons of fuel.
- A storm drain plug or cover kit.
- A non-metallic shovel.
- A non-water containment boom, a minimum of 10 feet in length with a 12 gallon absorbent capacity.
- Two five-gallon buckets with lids.

Employee training on spill prevention and response.

Inspections

Conduct and document visual inspections to achieve the following

- Verify that all BMPs are adequate.
- Update the site map to reflect current conditions.
- Look for signs of illicit discharges, such as industrial waste fluids, oil or other vehicle fluids, draining to your UIC wells.

Illicit discharges

- An illicit discharge contains process wastewater (including leachate) from any of the industrial activities at your site, domestic wastewater (sewage), or non-contact cooling water. Water used for controlling dust or from washing vehicles or equipment, steam cleaning and/or pressure washing is considered process wastewater.
- During a site inspection, look for signs of prohibited discharges, especially during dry weather. Site inspection should include:
 - Observations made at locations and areas where stormwater associated with industrial activity occurs.
 - Observations for the presence of floating materials, visible oil sheen, discoloration, turbidity, odor, etc. in the stormwater discharging to your drywells, drainfields, French drains or trenches.
 - Observations for the presence of domestic wastewater (sewage), noncontact cooling water, or process wastewater (including leachate).
 - Observations for any fluids draining from crushing or shredding operations.
- Identify and eliminate the discharge of process wastewater, domestic wastewater, and other illicit discharges to your UIC wells. Eliminate it within 30 days.
- The owner/operator must not allow process wastewater to comingle with or infiltrate stormwater or enter UIC wells. The owner/operator must collect the process wastewater in a tank for off-site disposal or discharge it to a sanitary sewer with written approval from the local sewage authority.

Structural best management practices

Structural BMPs are physical, structural, or mechanical devices or facilities designed to prevent pollution from entering stormwater.

BMPs must be consistent with Ecology's most recent stormwater manuals or other local government stormwater guidance that has been approved as equivalent to Ecology stormwater manuals.

Additional detail on Structural Source control BMPs is included in Volume IV, Chapter 2.2 of the *Stormwater Management Manual for Western Washington* and Chapter 8.3.2 of the *Stormwater Management Manual for Eastern Washington*.

Construction BMPs discussed in Volume II, Chapter 4 of the *Stormwater Management Manual for Western Washington* and Chapter 7.3.1 of the *Stormwater Management Manual for Eastern Washington* can also be used where appropriate.

In general, include BMPs to minimize the exposure of processing and material storage areas to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings.

- Use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, crushing, shredding, and fueling operations).
- Perform all cleaning operations indoors, under cover, or in bermed areas that prevent stormwater runoff and run-on and that capture any overspray.
- Ensure that all washwater drains to a collection system that directs the washwater to the sanitary sewer (with proper approval) or a closed-loop system, and not to the stormwater drainage system.

The following is a list of typical areas that produce pollutants and their associated best management practices. Following these best management practices is the best way to keep your vehicle or metal recycling yard in compliance.

Property entrance

Definition

The **property entrance** is where vehicles entering or leaving the recycling site travel on paved surfaces not under the control of the site owner.

Property entrance BMPs for paved sites:

- Provide power-washing of pavement daily (or more frequently, as required). Collect and treat process water before it discharges off site. Send process water to the sanitary sewer (if approved by local authority).
- Sweep the entrance frequently with a vacuum sweeper to minimize the amount of dirt and pollutants that could be carried off site by vehicles.

Property entrance BMPs for unpaved sites:

Quarry Spall Entrance

- Quarry spall entrance design and installation specifications
 - Install a layer of quarry spalls (4” to 8” thick) at the entrance to your site. The quarry spalls should extend the full width of your entrance.
 - A separation geotextile must be placed under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile must meet the following standards:
 - Grab Tensile Strength (ASTM D4751) 200 psi min.
 - Grab Tensile Elongation (ASTM D4632) 30% max.
 - Mullen Burst Strength (ASTM D3786-80a) 400 psi min.
 - AOS (ASTM D4751) 20-45 (U.S. standard sieve size).

Whenever possible, the entrance must be constructed on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance.

Vehicle or metal holding yard

Definition

The **vehicle holding yard** is where a wrecked or used vehicle is temporarily stored on pervious (soil) or impervious paved surfaces (concrete, asphalt, etc.) prior to the dismantling.

Vehicle or metal holding yard BMPs

- Use grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas.
- Ensure that all washwater drains to a collection system that directs the washwater to the sanitary sewer (with proper approval) or a closed-loop system, and not to the stormwater drainage system.
- Inspect all vehicles arriving at the holding area for leakage or potential leakage of fluids immediately upon arrival. Promptly fix and clean up any leaks from the vehicles. Drain fluids from equipment and vehicles prior to on-site storage or disposal.
- Do not dismantle fluid-containing components in the holding area. Parts that do not contain fluids (such as fenders, hoods, and seats) may be removed in the holding area.
- Move vehicles with leakage to the process/dismantling area immediately. Remove the fluids from the leaking components. Use drip pans under leaking components as needed.
- Examine the holding area, at least monthly, for contamination of holding yard paved and soil surfaces. The inspection date, location, observations, and the inspector’s signature need to be recorded on the monthly inspection report or checklist.
- Sprinkle or wet down soil or dust with water as long as it does not result in a discharge.
- Scrap metal cuttings or turnings containing residual cutting oils or coolants must be covered or stored in dumpsters or bins with lids.

The processing area – vehicle dismantling and fluid removal

Definition

The **processing area** is where all dismantling work is done on vehicle components that contain fluids. Processing may involve:

- Draining of fuel or other fluid from a single leaking component.
- Removing part or all of the fluid containing components.
- Water or steam cleaning of parts, vehicles, and equipment.

Parts that do not contain fluids (such as fenders, hoods, and seats) and sealed units (such as spicer axle assemblies, shock absorbers, and bumper shocks) may be removed outside the processing area.

Processing area BMPs

- Design the processing area to retain all fluids that may be spilled or released so they do not disperse and pollute stormwater or groundwater. Refer to the cover and containment options that follow.
- Use drip pans or containers under parts or vehicles that drip or are likely to drip liquids.
- Design the processing area to prevent the runoff of stormwater from the non-processing area into the processing area.
- *Sumps in the processing area must be blind or dead sumps.*
- *Wastewater (wash water from vehicle, equipment, and parts washing or steam cleaning) discharges from the processing area must be:*
 - *Conveyed to sanitary sewer with sewer authority approval and proper pretreatment needed.*
 - *Treated and reused in a closed-loop zero-discharge system.*
- Remove fluids to prevent spillage in the processing area by using drip pans or other devices to collect fluids.
- Remove fluids from fluid-containing components prior to any partial or total dismantling of the component.
- Close engine hoods after parts and/or fluid removal.

Processing area cover and containment BMPs:

1. Enclosed building
An enclosed building with a contained impervious floor, such as Portland cement concrete, or other impervious surface that is chemically resistant to all vehicle fluids. There must be no floor drainage to the outside other than connections to sanitary sewers authorized by the local sewer authority. There must be no discharge to a storm drain, UIC well or to surface water.
2. Containment with a roof
Install an impervious contained pad, Portland cement concrete, or other impervious surface, under a roof.

3. No discharge option (only for eastern Washington)
A “no stormwater discharge” option from uncovered contained processing areas is acceptable only in those areas of eastern and central Washington with low rainfall. Low rainfall areas have an annual average precipitation of 15 inches a year or less. A “no stormwater discharge” option means that no stormwater is allowed to flow from the processing area. Any stormwater in the area must be small enough in volume to be collected for separate treatment or disposal. Stormwater may be disposed of in a sanitary sewer if local authorities allow it. Check with your local sewage plant operator for information on discharge limits and to how to obtain a discharge permit (if required).

Processing area flooring BMPs

- Construct the impervious pad with Portland cement concrete that is chemically resistant to gasoline or other vehicle fluids that may leak or spill—or equivalent impervious containment. Do not use gravel as the pad material because it allows water and fluids to flow through it.
- The pad must have a perimeter dike, berm, dead-end sump, inward sloping, or other physical barrier to contain spills and leaks. The dike or berm should prevent stormwater from running onto the pad from other areas and running off the pad into adjacent areas. Construct the dike, berm, or inward slope to allow mobile equipment access to the processing area.

Fluid storage area

Definition

The **fluid storage area** is the area(s) where solvents, fuel, oil, coolants, liquid chemicals, and other fluids from vehicles are stored prior to use, resale, recycle, treatment, or disposal.

Fluid Storage area cover and containment BMPs

1. Enclosed building
An enclosed building with a contained impervious floor, such as Portland cement concrete, or other impervious surface that is chemically resistant to all vehicle fluids. There must be no floor drainage to the outside other than connections to sanitary sewers authorized by the local sewer authority. There must be no discharge to a storm drain or to surface water unless authorized by an Ecology wastewater discharge permit.

Store all chemical liquids, fluids, and petroleum products on an impervious surface that is surrounded with a containment berm or dike that is capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater.
2. Containment with a roof
 - Install an impervious contained pad, Portland cement concrete or other impervious surface, under a roof.
 - Prevent precipitation from accumulating in containment areas with a roof or equivalent structure, or include a plan on how it will manage and dispose of accumulated water if a containment area cover is not practical.
3. No discharge option (only for eastern and central Washington)
A “no stormwater discharge” option is acceptable only in those areas of eastern and central Washington with low rainfall. Low rainfall areas have an annual average precipitation of 15

inches a year or less. A “no stormwater discharge” option means that no stormwater is allowed to flow from the area. Any stormwater in the area must be small enough in volume to be collected for separate treatment or disposal. Stormwater may be disposed of in a sanitary sewer if local authorities allow. Check with your local sewage plant operator for information on discharge limits and how to obtain a discharge permit (if required).

BMPs for tank storage (typically used for waste oils) and container storage (typically 30 or 55 gallon drums):

- Label each container/tank with its contents. For on-site reusable fluids, label as follows: “Useable Antifreeze,” “Useable Gasoline,” etc.
- Use impervious secondary containment of tanks (Figures 4 and 5) or double-walled tanks. Double-walled tanks do not need additional containment but should be Underwriters Laboratory (UL) approved.

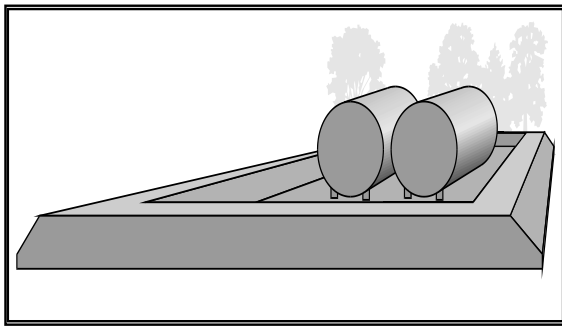


Figure A-3. Above ground tank storage
(typically used for used oil)

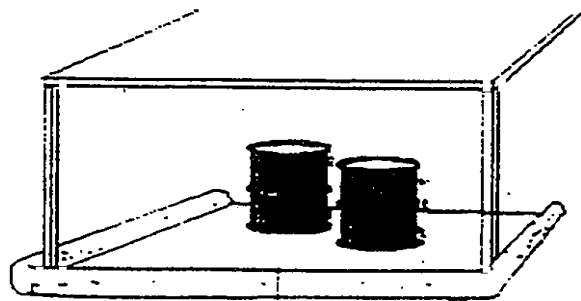


Figure A-4. Covered and bermed containment

- The secondary containment area must be:
 - Paved, or equivalent.
 - Free from cracks and gaps.
 - Impervious to contain leaks and spills.
 - Enclosed with walls or dikes sufficient to contain 10% of the total volume of all the containers/tanks or 110% of the largest container/tank stored in the containment area, whichever is greater.
 - Covered, or you must have a written plan for handling accumulated stormwater.
- Inspect the tank containment areas regularly to identify problem components such as fittings, pipe connections, and valves for leaks/spills, cracks, corrosion.
- Include tank overflow protection to prevent spills during filling of the tanks.
- In low rainfall areas, uncovered secondary containment areas for tanks may slope to a drain to discharge uncontaminated stormwater only. The drain must have a valve to stop any fluids from being released. The drain valve should be kept closed unless emptying uncontaminated stormwater.
- The stormwater drain outlet may have a dead-end sump for the collection of small spills. If a dead-end sump is used, slope the floor toward the sump and the sump must include a locked

drainage valve or plug. Keep the valve or plug in the closed position to prevent releasing fluids. Clean the sump weekly, or as needed, to prevent the accumulation of fluids.

- Uncovered containment structures must have a written plan for proper handling and disposal of accumulated stormwater.
- Examine entire fluid storage areas monthly for fluid spills or leaks. Clean up any accumulated fluids promptly and repair leak and spill sources. Record inspection date, location, observation, correction measures, and signature by a member of the Pollution Prevention Team.
- Locate spill pallets under cover and on level and stable surfaces. An example is a commercially available plastic tray that holds four 55-gallon drums with a cover to keep out the rain (See Figure 6).
- Handle and store dangerous wastes, including anti-freeze solutions, solvents, degreasers, spent lead acid batteries, and battery acids in accordance with Ecology's hazardous waste handling requirements (see Reference 3).
- Do not mix incompatible materials such as oils, antifreeze, windshield washer fluids, and brake fluids with solvents (Appendix B).
- Store reactive, ignitable, or flammable liquids in compliance with applicable uniform fire code requirements and hazardous waste regulations (Chapter 173-303 WAC).
- Recycle, treat, or dispose of all fluids in accordance with applicable state and local government requirements (References 4 and 5).

Note: If windblown rain at lean-to and/or covered storage facilities with open sides for containers cause, or can cause the discharge of contaminated stormwater (with significant amount of pollutants), use proper containment and treatment.

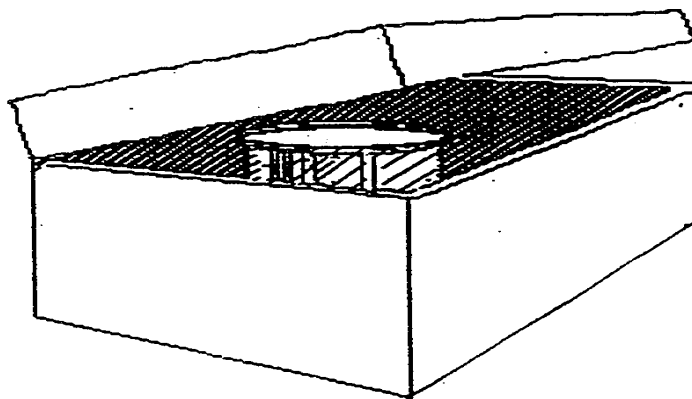


Figure A-5. Container completely encloses storage tank. *This applies only to fluid storage in low rainfall areas. It is applicable for battery storage everywhere.*

Vehicle or metal storage yards

Definition

The **vehicle or metal storage yard** is generally an outdoor area on a pervious surface such as soil or rock, used to store vehicles in various stages of dismantling, or metal waiting further processing or shipment.

Storage yard BMPs

- Remove all fluids and batteries in the vehicle process area prior to transfer to the yard, with the exception of sealed units such as spicer axle assemblies, shock absorbers, and bumper shocks.
- Do not remove fluids, dismantle, or remove vehicle components in the vehicle storage yard. This may result in a release of hazardous liquids to the environment.
- Remove windshield washer fluid. Recycle or reuse the washer fluid.
- Immediately clean up any fluid leaks found in the storage yard.
- Use drip pans to temporarily contain drips/leaks of fluids from the stored vehicles or use plastic sheets to cover oily parts until the vehicle is transferred back to the process area.
- If the stormwater runoff from the vehicle storage yard contains a significant amount of oil, use additional operational and source control BMPs and/or direct the contaminated stormwater to an oil/water separator or equivalent oil removal system until the benchmark value for oil is no longer exceeded.
- Employees must continually watch for spills or releases while attending to their normal work activities. Employees must immediately report any spill or releases of materials that may contaminate stormwater to the appropriate person or persons identified in the SWPPP (preferably a lead person). This person(s) must order a prompt cleanup of the spilled or released materials.
- Devise a system for identifying which vehicles have been drained of fluids and which have not. This will help ensure that all vehicles have been drained before entering the storage yard and ensure that only drained vehicles are going to the crusher.

Vehicle or metal crusher

Definition

A **vehicle crusher** is a mechanical device that reduces the volume of vehicle hulks prior to transporting to a scrap metal yard. It can be either portable (mobile) or stationary. A crusher is a source of stormwater and/or soil contamination when fluid containing parts are crushed.

Stationary vehicle crusher cover and containment BMPs

1. Impervious surface with cover

Crush the vehicles on an impervious concrete or asphalt pad that is resistant to the fluids and sloped to drain away from the perimeter. This area should have a dike or other physical barrier around the perimeter and a roof or cover. Otherwise, it must be located inside a building.

2. Impervious surface without cover (only for eastern and central Washington)
Containing the crusher in an area without cover is acceptable only in those areas of eastern and central Washington with low rainfall. Low rainfall areas have an annual average precipitation of 15 inches a year or less. Crush vehicles on an impervious concrete or asphalt pad that is resistant to the fluids. The containment area should have a dike or other physical barrier around the perimeter.

Mobile vehicle crusher cover and containment BMPs

1. Containment with cover
Crush the vehicles on an impervious concrete pad that is resistant to the fluids and sloped to drain away from the perimeter. This containment area must have a dike or other physical barrier around the perimeter and a roof or cover. Otherwise, it must be located inside a building.
2. Containment without cover
Crush vehicles on an impervious concrete pad that is resistant to the fluids. The containment area must slope away from the perimeter and have a dike or other physical barrier around the perimeter.
3. On pervious surfaces (only for eastern and central Washington)
Crushing on pervious surfaces is acceptable only in those areas of eastern and central Washington with low rainfall. Low rainfall areas have an annual average precipitation of 15 inches a year or less. All vehicles must be completely drained of fluids prior to crushing. Crushing shall take place during dry weather and on sites where the maximum annual groundwater table is greater than 5 feet below the ground surface and soil will not be contaminated.

Vehicle crusher BMPs:

- Crush only vehicles that have had fluids removed from all components except the sealed units such as spicer axle assemblies, shock absorbers, and bumper shocks.
- Remove fluids only in the process area.
- Angle crushers to allow fluids to flow out of crusher. All fluids should be collected in a labeled container that has secondary containment. If crushing on a pervious surface, place a tarp under the collection container.
- Check fluid collection container regularly to ensure fluids do not reach top of container.
- Empty fluid collection container when it is 75% full and crusher is not in operation. You must handle fluids released during crushing as hazardous waste.
- The use of self-contained crushers designed to collect leaks within the crusher unit is recommended.
- Clean up all fluid leaks and spills promptly.
- After each crushing operation, clean area around crusher. Dispose of all wastes and any contaminated soil appropriately.

Ecology requires removal of all mercury switches and other mercury containing components from the vehicles prior to crushing. Most vehicle shredders require that all mercury switches be removed from the vehicles.

Waste/scrap piles of metal and/or vehicle components

Definition:

Scrap engines, transmissions, and other scrap parts stored outside can cause pollution of surface water and contamination of soil.

Waste/scrap pile BMPs:

- Remove fluids from all scrap components prior to transfer to outside storage except for sealed units such as spicer axle assemblies, shock absorbers, and bumper shocks.
- Store all batteries separately in a non-leaking covered container or under a roof area with containment.
- Scrap metal cuttings or turnings containing residual cutting oils or coolants must be covered or stored in dumpsters or bins with lids.

Waste/scrap pile cover and containment BMPs:

1. Containment pad under cover (preferred)

Store the scrap components on an impervious concrete containment pad under a roof or waterproof tarp. To prevent stormwater run-on and runoff, install a dike, berm, or other physical barrier around the perimeter, and/or an inward sloping of the pad to a sump with appropriate outside grading.

2. Uncovered containment pad (minimally acceptable)

Ensure that all fluids have been drained from parts. Store parts on an uncovered impervious concrete or chemically resistant asphalt pad with inward sloping (with appropriate outside grading to prevent runoff), a dike, or other physical barrier for containment.

Direct the stormwater runoff from the pad to an oil/water separator or other appropriate treatment system if the stormwater drainage from the containment contains a significant amount of oil or any other pollutant.

3. No discharge to surface water (only for eastern and central Washington)

A “no stormwater discharge” option is acceptable in those areas of eastern and central Washington with low rainfall. Low rainfall areas have an annual average precipitation of 15 inches a year or less. A “no stormwater discharge” option means that no stormwater is allowed to flow from the area. Any stormwater in the area must be small enough in volume to be collected for separate treatment or disposal. Stormwater may be disposed of in a sanitary sewer if local authorities allow. Check with your local sewage plant for information on discharge limits and to obtain a discharge permit if required.

Storage of parts for sale

Definition:

The parts storage area is where parts removed from vehicles are stored for resale.

Storage of Parts for Sale BMPs:

You may choose one of the following BMPs to help meet permit requirements:

1. Storage in building (preferred)
Store parts in a building without floor drainage to the outside other than approved connections to sanitary sewers.
2. Storage under cover (preferred)
Store parts on an impervious concrete or chemically resistant asphalt pad with inward sloping or dike or other physical barrier under a roof. If you use inward sloping, the grading outside and adjacent to the pad must be sufficient to prevent the run-on of stormwater.
3. Storage on uncovered impervious containment
Store parts on an uncovered impervious concrete pad with inward sloping (with appropriate outside grading to prevent run-on), or dike, or other physical barrier for containment.
4. Storage on uncovered ground areas
Remove fluids from all parts before being stored, except sealed units such as Spicer axle assemblies, shock absorbers, and bumper shocks. Replace all plugs/caps/seals intended to retain fluids before storing the parts. Use drip pans, as needed, to contain remaining drips of fluids. Use appropriate cover, such as a roof or tarp, for storage of all oily parts that are not steam cleaned.

If the stormwater discharge from an uncovered parts storage area contains oil sheen or greater than a benchmark value of oil and grease—or any other pollutant—then appropriate corrective action steps must be taken. Action steps include identification and elimination of the source of the oil and may include use of an oil/water separator or other appropriate system for treatment prior to discharge to surface water.
5. For storage in low rainfall areas
In those areas of eastern and central Washington with low rainfall, a “no stormwater discharge” option is acceptable. Low rainfalls can be defined as those areas that have an annual average precipitation of 15 inches a year or less. A “no stormwater discharge” option means that no stormwater is allowed to flow from the area. Any stormwater in the area must be small enough in volume to be collected for separate treatment or disposal. Stormwater may be disposed of in a sanitary sewer if local authorities allow it. Check with your local sewage plant for information on discharge limits and to obtain a discharge permit if required.

Contaminated soil

Definition:

Contaminated soil is any soil that has been exposed to a pollutant.

All areas of a vehicle recycler site that have exposed soil may have contaminated soil. The severity of the contamination will depend on factors such as: the toxicity of the pollutant, waste fluid control method, total cumulative fluid volume lost, and spill cleanup procedures.

Contact Ecology’s regional office for spills of dangerous or hazardous waste such as gasoline, diesel, strong acids or bases, and mercury if:

- The material is released into the environment. (Small spills on impervious surfaces are not considered a release to the environment.)
- The spill is a threat to human health or the environment. (If it takes more than a shovel full of soil to clean up the spill, it is a threat.)

BMPs for contaminated soils

- Control the source.
- Contain the spilled material.
- Clean up the soil.

Collect the contaminated soil in appropriate containers, analyze it, and contact Ecology's Toxics Cleanup Program to determine proper disposal technique. You may move it to an on-site covered impervious containment area for temporary storage or cleanup or arrange to transport it to a waste treatment site (see Appendix D).

- Prevent contact with stormwater
 - Place the contaminated soil in drums or containers and place on an impervious surface under a fixed cover or cover the contaminated soil with a durable plastic cover, or equivalent, to prevent contact with rainwater.
 - Divert stormwater around the covered contaminated soil to prevent the contamination of stormwater.
- Collect and treat the stormwater
 - Contain, collect, and treat any stormwater runoff from the contaminated soil site with an oil/water separator or other appropriate treatment if it contains a significant amount of oil or other pollutant.

Erosion and sediment control (ESC)

During heavy storms and high runoff conditions, soil that is loose from heavy site activity or poor soil stabilization can erode. The areas likely to be affected by soil erosion are drive lanes and sloped yard areas with exposed soil. Erosion and sediment control BMPs are those 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.

If you discover soil erosion or a potential for soil erosion then use the following BMPs:

- Drive lanes - Construct the drive lanes through the storage yard with 3/4 inch crushed rock or equivalent stable surface.
- Other areas - Install crushed rock, gravel, or other erosion control techniques such as vegetative covers. Install check dams, riprap, gravel filter berms, stormwater conveyance channels, and settling basins, as needed (see References 1 and 2, for additional information on ESC BMPs).

Stormwater collection and conveyance system

Definition:

The **stormwater conveyance system** includes ditches, drains, UIC wells, stormwater sewers, and gutters that direct rainwater from your site to another conveyance system, water body, or collection system. It is an important component of your stormwater pollution prevention plan. The following are some required BMPs:

- Keep uncontaminated stormwater away from pollutant sources and treatment systems wherever possible. This can be achieved by grading the runoff areas appropriately and installing contained concrete pads or equivalent, such that uncontaminated stormwater drains around them.

- Collect, segregate, and convey, as needed, significantly contaminated stormwater to appropriate treatment BMPs.
- Convey all contaminated stormwater in impervious channels, piping, etc., to prevent the contamination of soil and groundwater during conveyance. Use of durable plastic liners may be appropriate in some cases.

Use treatment best management practices

Treatment BMPs are physical, structural, or mechanical devices or facilities designed to treat and remove pollution from stormwater. If your UIC well requires a treatment BMP, the retrofit options are contained in:

Ecology-approved emerging technologies can be found online at www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html. New technologies are occasionally added to the list.

- Volume V of the *Stormwater Management Manual for Western Washington*.
- Chapter 5 of the *Stormwater Management Manual for Eastern Washington*.
- Chemical treatment as approved by Ecology.

Design and installation of Treatment BMPs typically require the services of a professional engineer to properly size and locate the collection and treatment facilities.

References

1. [Stormwater Management Manual for Western Washington](http://www.ecy.wa.gov/programs/wq/stormwater/manual.html), Department of Ecology, February 2005, Publication # 05-10-029 through 05-10-033, <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>.
2. [Stormwater Management Manual for Eastern Washington](http://www.ecy.wa.gov/programs/wq/stormwater/easternmanual/manual.html), Department of Ecology, September 2004, Publication # 04-10-076, <http://www.ecy.wa.gov/programs/wq/stormwater/easternmanual/manual.html>.
3. [Hazardous Waste Generator Checklist](http://www.ecy.wa.gov/biblio/9112b.html), Department of Ecology, Revised October 2004, Publication # 91-12b, <http://www.ecy.wa.gov/biblio/9112b.html>.
4. [Vehicle Recycling Manual: A Guide for Vehicle Recyclers - You Auto Recycle](http://www.ecy.wa.gov/biblio/97433.html), Ecology HWTR Program, January 2009, Publication #97-433, <http://www.ecy.wa.gov/biblio/97433.html>.
5. [Safe Handling of Empty Containers](http://www.ecy.wa.gov/biblio/96431.html), Ecology HWTR Program, Revised October 2004, Publication # 96-431, <http://www.ecy.wa.gov/biblio/96431.html>.
6. [Focus on Spent Antifreeze](http://www.ecy.wa.gov/biblio/0304017.html), Ecology HWTR Program, September 2003, Publication #03-04-017, <http://www.ecy.wa.gov/biblio/0304017.html>.
7. [Focus on: Spill Reporting under the Dangerous Waste Regulations](http://www.ecy.wa.gov/biblio/92119.html), HWTR Program, Revised July 2007, Publication #92-119, <http://www.ecy.wa.gov/biblio/92119.html>.
8. [Focus on Emergency Spill Response in Washington State](http://www.ecy.wa.gov/biblio/971165cp.html), Ecology Spill Response Program, October 2009, Publication #97-1165-CP, <http://www.ecy.wa.gov/biblio/971165cp.html>.

*See your Ecology regional office for copies of references or help on web links.

Headquarters (Lacey) 360-407-6000
TTY (for the speech and hearing impaired) statewide is 711 or 1-800-833-6388



For questions and assistance with determining retrofit best management practices to reduce stormwater pollutants:

- For facilities with a discharge permit, call your Ecology permit manager.
- For unpermitted facilities, call Doug Howie, Department of Ecology, 360-407-6444.

Appendix B. Vehicle Waste Material Management

Note: The *You Auto Recycle* manual (Reference 4) and video (Reference 5) are useful sources of detailed information on fluid management at vehicle recycler facilities.

Call HWTR at 360-407-6700 for copies. More information on waste management can be downloaded at: www.ecarcenter.org

Wastestream	Recommended Management
Antifreeze	<ul style="list-style-type: none"> • Store separately for resale or recycle. • Clearly label containers (“Waste Antifreeze”, “Useable Antifreeze”, etc.) • If not recyclable, send to a treatment, storage, and disposal site (TSDF) for proper disposal. See www.ecy.wa.gov/apps/hwtr/hwsd/default.htm or Reference 7.
Batteries	<p>INTACT: Accumulate in a contained area under cover prior to sale, deliver to recycler, or return to manufacturer.</p> <p>BROKEN: Accumulate acid from broken batteries in resistant containers with secondary containment. Send to TSDF for proper disposal.</p>
Brake fluid	Accumulate in separate, marked, closed container. Do not mix with waste oil. Recycle. Check with waste hauler.
Fuel	Store leaded gasoline, unleaded gasoline, and diesel separately for use or resale. Mixtures of diesel, gasoline, oil, and other fluids may not be recyclable and may require expensive disposal. Do not mix with brake fluid or used antifreeze.
Mercury light switches	<ul style="list-style-type: none"> • Remove mercury light switch assembly from hood and trunk or ABS system. • Place in leak-proof closed container labeled “Used Mercury Switches” • Keep container with switches under cover until properly disposed.
Used oils including crankcase oil, transmission oil, power steering fluid, and differential/rear end oil	<ul style="list-style-type: none"> • Keep used oil in separate containers marked “USED OIL ONLY.” Arrange for pick-up by responsible firm for off-site recycling. • Do NOT mix with brake fluid or used antifreeze. • Do NOT mix with any other waste if you plan to burn it in your shop for heating. Heater must be designed for a capacity of not more than 0.5 million BTU/hr and combustion gases from the heater are vented to the outside.
Oil filters	<ul style="list-style-type: none"> • Puncture the filter dome and drain it for 24 hours. • Put oil drained from filters into used oil collection container. • Keep drained oil filters in a separate container marked “USED OIL FILTERS ONLY.” • Locate a scrap metal dealer or other responsible entity that will pick up your filters and properly recycle/dispose of them. • Dispose of drained oil filters into a dumpster ONLY with the approval of your local landfill operator.

Wastestream	Recommended Management
Paint	<ul style="list-style-type: none"> • Accumulate oil-based and water-based paints separately for use or resale. • If not recyclable, send accumulations to TSDf for disposal.
Shop towels/oily rags	<ul style="list-style-type: none"> • Use cloth towels that can be laundered and reused. • Accumulate used shop towels in a closed container. • Sign up with an industrial laundry service that can recycle your towels.
Solvents	<ul style="list-style-type: none"> • Consider using less hazardous solvents or switching to a water spray cabinet parts washer that does not use solvent. • Accumulate solvents separately and recycle. Contact solvent disposal co. • Do not mix with used oil. • Do not evaporate as a means of disposal.
Windshield washer fluid	Accumulate separately for reuse or resale. If acceptable by the local sewer authority, discharge to sanitary sewer.

Appendix C. Lists of Recycler and Waste Handling Businesses

This partial list of vendors is for informational purposes only and is not an endorsement by Ecology. Please see www.ecy.wa.gov/external_content_policy.html for more information.

Tire Recycle

Tire Disposal and Recycling, Tacoma: 253-460-6326

L&S Tire Company: Spokane 509-464-0976, Lakewood 253-582-5586

Batteries for Recycle

Battery Systems (locations throughout Washington): Seattle, 206-762-5522, Union Gap 509-248-4874

Budget Batteries (locations throughout Washington): Tacoma, 206-922-3737

Northwest Recycling: Bellingham 360-733-0100

Interstate Batteries (locations throughout Washington): 1-800-325-2902

Drum Recycle (Steel & Plastic)

Industrial Container Services: Seattle, 206-763-2345

Emerald Services: Seattle, 888-832-3008

Oil Filter Recycling

Able Cleanup Technologies: Spokane, 866-466-5255

FBN Enterprises: Bellevue, 425-466-9642

*For lists of additional recycler and waste handling facilities refer to: “Hazardous Waste Services Directory”, Ecology HWTR Program. Call 360-407-6700 for updated lists or download at www.ecy.wa.gov/apps/hwtr/hwsd/default.htm.

Appendix D. Regional Treatment Centers for Petroleum Contaminated Soils

For a list of additional centers see ([Regional Treatment Centers for Petroleum Contaminated Soil](http://search.usa.gov/search?utf8=%E2%9C%93&affiliate=www.ecy.wa.gov&query=Regional+Treatment+Centers+for+Petroleum+Contaminated+Soils))
<http://search.usa.gov/search?utf8=%E2%9C%93&affiliate=www.ecy.wa.gov&query=Regional+Treatment+Centers+for+Petroleum+Contaminated+Soils>

Roosevelt Regional Landfill (Disposal Only)
Roosevelt, WA
800-275-5641

Fife Sand & Gravel (Bio-Remediation)
Fife, WA
253-922-7710

Lefarge Cement (Cement Incorporation).
5400 W. Marginal Way SW
Seattle, WA
206-937-8025

Petroleum Reclaiming Services.
(Stabilization/Disposal)
Tacoma, WA 98421
253-383-4175

Remtech, Inc. (Thermal Desorption)
Spokane, WA 99224
509-624-0210

Rinker Materials (Soil Remediation)
Everett, WA
425-355-2111