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Introduction

Background

Spokane County conducts Municipal Operations within a 70 square mile area of NPDES Phase 2 Municipal Permit coverage, which allows the discharge of stormwater runoff to Waters of the State of Washington. In this area of coverage, staff in four different departments work together to operate and maintain public buildings, 420 miles of roads and associated stormwater conveyance and controls, 240 miles of pipes in a regional wastewater collection and conveyance system, and over 1,500 acres of county-owned land and parks and recreational facilities.

This Operations and Maintenance Plan describes the procedural aspects that prevent and reduce stormwater pollution from municipal operations and protect water quality to the greatest extent practicable. It includes BMPs from the Stormwater Management Manual for Eastern Washington (2019), and where appropriate, it identifies BMPs to evaluate for adoption.

This O&M Plan addresses the following facilities and activities, as delineated by the Eastern Washington Phase 2 Municipal Stormwater Permit:

- Stormwater collection and conveyance systems;
- Roads, highways, and parking lots;
- Vehicle fleets;
- Municipal buildings;
- Parks and open space; and
- Material storage areas, heavy equipment storage areas, and maintenance areas.

Industrial activities are not addressed in this O&M Plan because the two facilities within a Phase 2 Municipal Permit area of coverage that conduct industrial activity categorized by a SIC are the Spokane Valley Regional Solid Waste Transfer Station, which does not discharge to any regulated municipal stormwater sewer, and is covered by its own Ecology-regulated Permit, and the Spokane County Regional Water Reclamation Facility, covered by an Individual Municipal Wastewater NPDES Permit (WA-0093317), which also does not discharge stormwater to a regulated municipal storm sewer system.

Construction projects and flood management projects are not included in this O&M Plan because water quality protections are incorporated into the design and planning procedures. Spokane County Public Works’ Environmental Permit Coordinator reviews every County road and bridge project to ensure that required permits are acquired to cover stormwater discharges from construction activities. Standard County policy is to evaluate the feasibility of incorporating runoff treatment into flood management projects, and to implement treatment upgrades in the cases where space, schedule, and funding allow.
Departments
Spokane County chooses to organize its O&M Plan according to the Municipal Department responsible for facility operations in order to allow each department’s staff flexibility in allocating its resources in the most efficient and effective ways possible.

Public Works
- Stormwater Utility
  - Stormwater collection and conveyance systems
- Roads Operations
  - Roads, highways, and parking lots
  - Material storage areas, heavy equipment storage areas, and maintenance areas
  - Stormwater collection and conveyance systems
- Wastewater Operations
  - Municipal buildings
  - Vehicle fleets
  - Roads, highways, and parking lots
- Fleet Management
  - Vehicle fleets
  - Material storage areas, heavy equipment storage areas, and maintenance areas
  - Roads, highways, and parking lots
  - Municipal buildings
- Bridge Programs
  - Material storage areas, heavy equipment storage areas, and maintenance areas

Facilities Maintenance
- Municipal buildings
- Roads, highways, and parking lots
- Parks and open space

Parks, Recreation, and Golf
- Parks and open space
- Municipal buildings
- Roads, highways, and parking lots
- Material storage areas, heavy equipment storage areas, and maintenance areas
- Vehicle fleets

Fair and Exposition Center
- Parks and open space
- Municipal buildings
- Roads, highways, and parking lots
- Vehicle fleets
Stormwater Utility

Spokane County
WASHINGTON
Spokane County’s stormwater collection and conveyance structures are inspected on a biennial frequency, or more often if necessary based on local site conditions. In brief, stormwater structures are visually inspected for damage, the depth of any accumulated sediment is measured and recorded, and structures are screened for the presence of any illicit discharges. Structural repairs and replacement are done by the Public Works Roads Maintenance Department, or are completed to specification by a contracted vendor. Hazardous material removal and disposal and cleaning activities prompted by illicit discharge response are addressed in Stormwater Utility Procedure 6. This document describes the routine procedures used to clean the Municipal Storm Sewer System (MS4) and the drywells (UICs) owned or operated by Spokane County.

Operations and Maintenance Procedures

Safety
Personal Protective Equipment (PPE):
Hearing Protection; Eye Protection; Clothing/Footwear/Handwear

Hearing Protection
When arriving at a structure and before exiting the truck, the operator and assistant should insert earplugs, or put on the bigger, can-style headsets. This is done to prevent the hassle and potentially dangerous option of applying hearing protection after the machine has been started up and work has begun. At upwards of 120 dB, which is a similar level to a rock concert or a jackhammer, the machine is very loud and can cause immediate hearing damage, so utilizing ear protection is vital. Applying hearing protection before exiting the vehicle will not only save the worker’s time and ears, but it will make the job easier.

Eye Protection
Similarly, the operator and assistant should apply eye protection before exiting the truck. High-powered pressure washers will be in use, which combined with the suction power of the Vactor will send debris of all sizes flying around the work zone. Full coverage goggles are a good option, preferably with clear lenses as it can be difficult to see inside deeper structures with shaded lenses. Sunglasses provide some protection, but the debris tends to enter through the bottom, top, and sides of that style. Water, dirt, dust, glass, and all forms of debris will inevitably get in the worker’s eyes without proper protection. Avoiding this is a matter of developing good habits.

Clothing/Footwear/Handwear
Shorts are not recommended considering part of the job will involve cleaning culverts surrounded by brambles or similar vegetation. The pressure washers can also launch gravel at high speeds which will sting and potentially cut unprotected areas. Long pants should be worn when working in environments such as these.
A pair of sturdy boots will help protect a worker from the heavy lids, pipes, rocks, and other types of debris that will be encountered. These will also help with kicking stubborn lids back into place upon completion of a structure. Water-proof boots are also recommended since the amount of water the Vactor will produce will be enormous. Tennis shoes are not recommended.

In the summer months wearing gloves may seem counterintuitive, however doing so can make all the difference. It can be dirty work but wearing the proper gear will help immensely. It may also be a good idea to install a handwashing station. A simple Igloo water cooler hooked to the side of the truck, with some soap and hand towels stored in one of the side compartments, should be sufficient to stay relatively clean throughout the workday. This will also help keep your hands clean before eating.

**Equipment**

Vehicle features:
Tanks; Tubes/Clamps; Pendant; Jet Rodder

**Tanks**
The two tanks on the side of the Vactor are made of strengthened, lower weight aluminum, allowing for higher load capacity. This tank system can hold up to 1,300 gallons and is where the water being used to clean the structures is stored, while the larger tank in the middle collects the material to be dumped. The Vactor should have a length of fire hose attached to one of the water tanks. Simply unroll the hose and connect it to a fire hydrant. Prior to use, ensure the proper permits have been obtained from the local water utility. Questions related to this should be directed to the District Supervisor. It is important to pay special attention while filling as it is easy to overflow. Be sure to detach the fire hose before departing. Excepting jet rodding, which depletes the water supply much more rapidly than the pressure guns, these two water tanks should hold enough to get through a day of work. However, the tanks can be refilled as necessary. There should be a water level indicator on the truck which will allow the operator and assistant to visualize how much water is left before needing to refill.

The debris tank is in the center of the Vactor. This is where collected material is stored. These tanks can hold anywhere from 2,000-8,000 gallons of material depending on the truck. Vactors will have a float ball inside the debris tank which triggers an indicator on the side of the truck to let the operator know when it is time to offload. The collection tank is operated by a control panel on the truck. It is also fitted with built-in pressure washers that clean the inside of the tank with roughly 80 gallons of water per minute. This helps with the offloading process as the material can become quite hardened inside the tank, especially in the hot summer months.
**Tubes/Clamps**

Determining how many tubes will be needed is simply a matter of reviewing the structure details in the County maintenance application. The field for maximum bottom depth should be filled in. If not, the assistant or operator may need to add or remove tubes during the cleaning process. The tube with the crown will be the last/lowest attached as the jagged edges help with cutting through material. A double drywell will likely require at least two tubes to reach the bottom. Both assistant and operator should keep an eye up to watch for power lines, tree branches, and anything else overhead that can be damaged if struck with the boom. It should be remembered that the more tubes that are added, the higher the boom will be lifted when not in a structure. A fully raised boom is more than high enough to clip communication lines and other such overhead objects.

The aluminum tubes are connected using circular quick clamps which wrap around the flat flange ends. The clamps themselves may need to be loosened or tightened as they are applied and removed throughout the day. The clamps should not be overly tightened around the flange ends, but enough to hold them securely together. Connecting the tubes is not necessarily a two-person task, but it can be helpful to have a partner. There are a couple different methods to attaching tubes. If the structure is shallow enough, placing the tube inside and lowering the boom to make the ends meet works quite well. Make certain the tube will not fall into the structure before doing this. If the structure is too deep for this method, having a partner hold the tube upright on flat ground while the operator lowers the boom down to it is also an option. Be aware that the angles may be slightly off depending on the terrain, so compensating for that is sometimes necessary. Simply pivot and rotate the tube being connected to find the correct angle. Both operator and assistant should be mindful of their fingers. Never hold a tube by the top while the boom is being lowered to it. Likewise, workers should watch their toes as they can be crushed by the bottom of the lowest tube.

**Pendant**

The pendant, or belly pack, is essentially a control board that hangs from the neck of the user. The driver of the truck will also operate the pendant, which turns the machine on and off, controls the directionals of the boom, including extension and retraction, as well as suction power. Some Vactors do not have a pendant, but the switches and knobs should be readily available to the operator on the front of the rig. The belly pack will also have a kill switch. If something should go wrong, hitting the red button will shut down the truck completely. These switches will also be found in various places on the truck itself. Both operator and assistant should make note of these when doing the first pre-trip and commit where they are located to memory. As the person with the pendant will be busy operating the machine, it will be the job of the second to take care of the other tasks.
Jet Rodder
The long hose on the swivel spool at the front of most Vactors is called the Jet Rodder. The hose extends 400-600 feet depending on the rig and can be quite troublesome if it becomes tangled on the spool. In this event, it may be required to let out the entire length of the hose and slowly retract it evenly on the spool. This is time consuming and tedious, so be cautious when reeling the hose back in.

The truck should be equipped with different “heads,” or nozzles, that can be attached to the rodder hose. Each head has a different use. Some have a single hole in the front which acts as a very powerful, very precise cutter, which should be able to slice through most of what will be found in a culvert. Some heads will also have holes on the bottom side which propel the hose through the pipe while simultaneously pushing material back toward the crown. Some have both.

Before inserting the rodder, it is wise to slide what is called a “tiger tail” around the hose. The tiger tail is a 36-inch protective sheath with a length of polyethylene tie-off rope attached. Without this extra layer of protection, workers run the risk that the sharp metal edges of a culvert could puncture a hole in the hose. At such high pressure, a pin-point hole in the hose could be quite hazardous.

Field Procedures
General and structure-specific activities:
- Pulling Lids; Pressure Washing; Catch Basin/Maintenance Junction Cleaning; Drywell Cleaning; Culvert Cleaning

Lid Pulling
Once the tubes are connected, the lid may be pulled from the structure. Occasionally this can prove somewhat difficult depending on the condition, shape, and size of the lid. If necessary, use a mallet to loosen the debris holding the lid in place. A couple of good hits should free it enough to allow it to be removed more easily. Remember, even if the machine is off, be sure to wear hearing protection when doing this as it will make a very sharp, very loud clanging sound. Doing so enough times without protection can irreversibly damage hearing, and it doesn’t take many.

Lids come in varying shapes and sizes, but among the tools on the truck should be a more-or-less universal lid puller. It should fit in most lids, whether herringbone, slotted, solid, or otherwise. Due to weight or just awkwardness of any given lid, some may require two people to pull open. An assistant should not be afraid to ask the operator for help if they think they might struggle pulling a lid alone. Asking for help can spare workers the trouble of having to retrieve a fallen lid from a structure, which in turn will also prevent the pipes inside from sustaining damage. Removing a lid which has fallen into a structure can prove extremely difficult. Asking
for assistance can also mean avoiding unnecessary injury. As with lifting heavy boxes, avoiding jerking motions is highly recommended. If the lid seems to be stuck, either use a mallet to loosen it, or use a box knife to cut away at crack seal tar that may have landed on the lid edges. Never exert full force when popping a lid because it could result in injury. A couple “dry” pulls to test the looseness of the lid is a smart way to do it. Using good judgment will help avoid issues such as back, shoulder, and elbow problems.

**Pressure Washing**

After removing the lid, assess the inside of the structure. Take into consideration the depth, amount of material, type of material, etc. Making note of these things should tell you which pressure washer to use. Pressure washers have different tips for different jobs. Some spray a powerful cone of mist, while others cut side to side and up and down. Some nozzles agitate and can spin at 3,000 rotations per minute. These allow the water to hit at more angles which tears through hardened material.

The vactor truck should also be equipped with different lengths of pressure washers. The two most typically used will be a hydro-excavation handgun, while the other will be a longer wand. Catch basins usually call for the handgun, while the deeper drywells might call for a wand to be used. Once a tool has been chosen, it can be attached to the spring-return hose reel which should be mounted on the truck. Typical hoses will extend to about 50 feet. This is often more length than the user will require, but there are occasions when the hose will need to be almost fully extended. The operator will be able to turn the pressure washer on and off with the pendant or by using the controls on the truck itself.

It is important to practice trigger discipline as these pressure washers can be quite powerful. Never “flag,” or aim the barrel at anything except the material in the structure. With the wands it is good practice to put the nozzle end far down the structure before even turning it on. Mishaps can and do happen, so good habits should be formed early.

**Cleaning Catch Basins/Maintenance Junctions**

Catch basins vary in depth and width, among other things. These factors should be noted when cleaning. If the structure is not very deep, a six-foot wand might be a little overkill. Better to use the shorter, more controllable handgun washer. Taking into consideration the depth of the structure and the toughness of the material therein, the person washing will be able to determine the amount of power that will be needed. Setting the pressure washer to full blast and letting loose in a small structure will do nothing but fill it with water and launch debris into the face of anyone near the work zone, including the person spraying. It can be dangerous to wield a very high-powered squirt gun while blinded by dirt and water.

For structures such as these it is better to temper less pressure with more precise movements. Simply grazing the lip of the structure while spraying on low pressure will send a blast of water in all directions. Remember, the pressure washer will hit exactly where it is pointed, regardless of whether the user is paying attention, and being knocked off guard can happen in a split
second. This can be dangerous when standing above a deep hole in the ground. Keep a firm grip on the washer and be mindful of the operator who will be working the boom. It is also a good idea to be cognizant of where the boom is. Since the truck will be humming along at full tilt, with immense suction power, the boom tends to kick the tubes at random. When it does this it is best to be out of the way. Both operator and assistant should be aware of their surroundings, immediate and otherwise.

There are many different methods to cleaning catch basins, but the idea is to cut the material at the wall of the structure and let it fall toward the crown. To allow for better suction, it is the job of the assistant to keep the crown from becoming fully submerged in material. The operator may also start at a section and let the crown drop in while it pulls material up. As this is being done, the assistant will keep a steady spray around the crown and simultaneously cut the larger pieces of material. This is done to keep the Vactor from bogging down. At several hundred cubic feet per minute, the Vactor is powerful enough to pull out things like large rocks, cinder blocks, and skateboards. If the crown does become connected to a plank of wood or something of the like, it will be the job of the assistant to remove the piece while the operator slowly raises the boom. Care should be taken when doing this as the vac truck has more than enough power to suck the gloves off your hands. Alternatively, the operator may swing the boom outside of the structure, turn the suction down or off and allow the piece to fall to the ground before resuming. Care should also be taken with bigger objects as they can get lodged in the boom and can be challenging to take back out.

Once the big material has been removed and the bottom of the structure becomes visible, the operator will lower the boom all the way and it is the job of the assistant to push the remnants toward the crown. Setting the pressure washer from cutter to spray can help with this.

There may be a situation where a pipe in a catch basin has become full of material. The operator might then decide to try and clear it out with a pressure washer. If that does not prove fruitful, the operator may then decide to jet rod it. While the work may seem repetitive, each structure has a different story and will require different methods to clean properly.

These same techniques apply to maintenance junctions as well. Although maintenance junctions tend to be deeper at times, they often are not as filled with pine needles and gravel as a catch basin might be. As a result, these are typically easier to clean. The same basic safety precautions should be applied all around.

Cleaning Drywells

While catch basins are typically shallow and usually on the curbside, drywells can be quite deep and often found in the street. It is good to cone off the work area and be aware of pedestrians, cyclists and passing cars. With all the noise and moving parts in the work zone, it can be easy to disregard the fact that the work is being done on a well trafficked road. Stay aware.
Cleaning drywells is a little different than cleaning catch basins for a few other reasons, too. For instance, any given drywell can be somewhere between 6-16 feet deep or more. This is usually a good time to use the pressure wand. Although the work can be done with a solid cutting nozzle on a gun-style washer, it will require a bit more elbow grease to cut the material at the lowest point. This could even mean lying prone on the ground, reaching an arm into the structure, and spraying one-handed. While not impossible, this method is not recommended if using a wand is an option.

The walls of a drywell are also different from those of a catch basin. A catch basin will have pipes connecting it to other catch basins, maintenance junctions or to drywells, but the walls will be solid concrete. A drywell has ports, or holes filled with drain rock, spaced out all the way down the sides which allow water to infiltrate into the earth. If those ports are clogged up with gravel or other forms of debris, water will have a difficult time leaving the structure. These must be cleared out, but not to the point where mud is dumping into the drywell. Just enough to where the water will be able to escape.

Finally, the bottom of most drywells will be concrete with a circular hole in the center. This helps with infiltration, but it is important to know when to stop pulling out material. If the crown finds its way into the hole at the bottom of the well, the operator might see and hear that material is being removed without realizing that material is being taken from beneath the structure itself. This can cause major problems, such as settling and sinkholes, and must be avoided. To this end, it is very helpful to have a flashlight connected to the truck or otherwise handy. Even with a decent flashlight it can still be difficult to see through the haze of dirty mist inside the drywell, so one technique is to stick to the walls until the base of the structure is found. From there it can be inferred where the hole is and therefore which section to avoid.

Drywells can also become quite full of sediment, so be prepared to spend a little more time on them than would be spent on catch basins. Holding the pressure washer on full for extended periods of time can exhausting, so occasionally swapping tools with a partner is not a bad idea.

**Culvert Cleaning**

Culverts can be a bit tricky. Firstly, they’re usually found in ditches, under driveways, or under roads. Finding the ends will require some traversal at times, so again, long pants and sturdy boots are necessary in these cases. Another way that culverts differ from catch basins, maintenance junctions, and drywells, aside from the obvious, is the material that collects inside of them. Culverts are used as a means of conveyance for water, so with all that water rushing through a ditch there are bound to be sticks, rocks, and lots of gravel which will get log jammed inside the pipe. It takes some work to remove it all, and one culvert could fill up the debris tank three or more times before it is fully cleaned. One benefit of cleaning culverts is that they are often found off the beaten path, so heavy traffic and pedestrians are not as much of an issue.
A few things to keep in mind: Never stand in the blast radius of the jet rodder. With pressure of 70-120 gallons per minute, or 2,000-3,000psi, it is an extremely powerful tool which can harm or even maim an unsuspecting worker. It is imperative to stay out of the way while jet rodding.

Before inserting the rodder, it is wise to slide what is called a “tiger tail” around the hose. The tiger tail is a 3/6-inch protective sheath with a length of polyethylene tie-off rope attached. Without this extra layer of protection, workers run the risk of puncturing a hole in the hose on the sharp metal edges of a culvert. At such high pressure, a pin-point hole in the hose could be quite hazardous.

After the tiger tail has been put on, insert the nozzle into the culvert. The operator will be able to control the pressure and movement of the hose from the panel on the truck. After the head has been placed in the pipe, the operator will extend the hose a couple feet inside the structure without the water on. This is done to avoid kick back from the rodder, which is ample. While gravel and other material will still shoot out the back, it won’t be as bad if the nozzle is far enough inside the pipe before turning up the pressure.

It will be the job of the assistant to stand at the other end of the culvert and either signal or yell to the operator when the first bit of water starts shooting out. It is important to stop the rodder from pushing forward once it reaches the end of the pipe since it is very difficult to retrieve if it gets stuck. As the rodder reaches the end of the culvert, water and sediment will begin blasting out in the direction of the assistant, so it is smart to stay out of the way, but close enough to observe and report to the operator.

Maintaining culverts is more difficult and takes much longer than cleaning other structures. Also, with so much water being used and essentially sucked back into the collection tank, refilling and offloading will need to be done more frequently.

**Offloading Material for Decantation and Solid Waste Disposal**

**Maintenance District 1 Shop and Decant Facility (Old Corral)**

The Spokane County Decant Facility (Maintenance District 1 Shop/Old Corral) is covered by a steel-frame roof and has three bays. The bay on the left is where the vacuum truck offloads. The solid material is retained by a series of connected Jersey barriers which snake back and forth, with each turn slowing down the water to allow for separation from the solids. This process is called “decanting” – it is the drawing off of the liquid from the lower, settled solid materials. The water is then collected in a row of six catch basins in the back of the facility, which aid in further removal of sediment. The catch basins connect to an oil/water separator and eventually feed into the swale on the east side of the decant facility. All basins will need to be cleaned intermittently to avoid back up.
The middle bay is where the solid material is placed after decantation and periodically churned. The reason for this is that it allows the sediment to “breathe.” During this process, some of the oils will volatilize.

The bay on the right is the “hot cell.” This is where material that is suspected to be contaminated is kept, so that it will not become mixed with the uncontaminated material. This cell has a drain with a valve that is kept shut until the material and water can be tested.

**Offloading Waste Material**

Upon arrival at the decant facility, the assistant will direct the operator as they back the vacuum truck up to the bay. Decant setups vary, but there will usually be a line of Jersey barriers or other such concrete structures which act as a catch for the splash back. Be sure that the back of the truck can clear the barrier before dumping, otherwise the water and material will end up outside of the system. Controlling the tank can be done at the panel on the side of the truck. Before raising the tank, the operator will open the back hatch slightly to allow most of the water to drain out while the material stays inside. On a smaller scale, slowly pouring wine so as not to agitate the sediment is a similar process.

When the back hatch is fully open and the water flowing out becomes a trickle, the operator will then begin raising the tank. It is wise to stand clear of the splash zone because oftentimes all the sediment will cascade out at once and it can cause a deluge. To avoid serious injury or death, never climb under the raised debris tank without the proper support in place. There should be a safety prop beneath the tank that can be raised up and locked into position. This is for added insurance should the hydraulic lift fail. Always be sure the stand is in place before doing any work under the tank.

Occasionally the material will remain inside even when the tank is fully raised. For this, the debris body washout system can be utilized. This is the built-in pressure washing system mentioned in Section 4. It is operated at the panel on the front of the truck. For material that will not budge, it can also help to “bump the tank.” Lifting it all the way up and quickly dropping it and raising it a couple of inches a few times will help loosen the material and allow it to fall out.

After offloading, it is recommended to clean the back of the truck with a pressure washer. Dirt and grime will accumulate and could end up leaving a mess.

Cleaning the truck should be done at the decant facility or an otherwise sanctioned location. Considering what is collected needs to be processed, it is important not to drive away while leaking potential contaminates. Consult your district supervisor to know where is safe to do this.

**Activity Record**

After offloading, it will be required to submit the data as a Stormwater Vactor Unloading Activity Record. The required fields are as follows: activity date, operator, percentage of
material inside the debris tank, whether the material is suspected to be contaminated (whether it goes to the hot cell or not), time spent offloading, the title of the decant facility that was used, as well as general notes. Coupled with the info collected on the maintenance app related to cleaning facilities, these recordings are vital. The reasons for compiling this data are manifold, but most importantly it is to allow for a better vision of the effects stormwater has on structures and the environment in general, and what is in the water itself.

Waste Disposal
Solid waste material that is moved from the serpentine to the middle cell is periodically turned, and the following year, the dry solids are tested and disposed of following solid waste regulations as described in Appendix 6 of the Phase 2 Municipal Stormwater Permit.

Material suspected to be contaminated is offloaded into the Decant Facility’s “hot cell.” If the material and water is tested, and deemed safe, the cell’s isolation shut off valve is opened and the water enters the system and is processed as any other decanted water is. If the material is deemed hazardous, the material and water will be handled following state and local regulations, depending on the contaminant(s) present.
Roads Operation and Maintenance
Operations and Maintenance Procedures

Street Sweeping
Traction sand is collected on curbed streets in the spring using internal sweepers. Collected material is disposed of at road material storage areas, in locations that do not run off to drainage swales or drywells.

Note: These disposal practices are currently under review by the County to ensure that materials disposal meets the conditions of WAC 173-350: “Solid Waste Handling Standards.”

BMPs in use:
Operators are trained to conduct sweeping according to the methods specified by the equipment manufacturer for optimal pollutant removal. (S430E)

De-icing, Anti-icing, and Snow Removal
Salt and sand are applied at calibrated rates to prevent excess material from being put onto the roadways. Truck and sander calibration is checked approximately every 8 weeks.

BMPs in use:
Roadway deicing chemicals that cause the least environmental harm are used as much as possible.
Manufacturer’s guidelines and industry standards are followed to determine application rates. Operators are trained to conduct de-icing according to standard methods to prevent overapplication. (S406E)

Road Surface Maintenance
Pavement preservation is typically done by chip sealing.

The road is prepped by fixing any small pavement discrepancies, crack sealed and then swept. An asphalt distributor is used to apply emulsion to the road. As the liquid asphalt meets the road surface, the water starts to evaporate. Immediately after spraying asphalt, a layer of crushed gravel is applied by a spreader. The gravel or (chips) size will vary depending on the road; from 1/4 inch to a maximum size of 1/2 inch. Next, the gravel is compacted and embedded into the asphalt by rubber-tired rollers. However, some gravel will not become embedded in the asphalt and is loose on the surface. The new chip-seal surface can require up to two days to set properly. Hot, dry weather helps speed up this process in which all of the remaining water in the emulsion evaporates and the asphalt hardens. Traffic can pass over this surface at reduced speeds during the curing process. After curing, the loose gravel is swept off the surface, and the road striped if applicable.

BMPs in use:
Storm drain inlets are covered prior to chip seal oil application. (S406E)
Material Storage
Solid materials are stored in designated areas.
  Note: Salt sheds to provide covered storage for materials are in the process of being acquired for installation in 2023.
Liquid materials are stored in tanks. The area surrounding the tank is plastic-lined and contained within concrete barriers.

BMPs in use:
S102E Preventative Maintenance and Good Housekeeping

Municipal Vehicle Management
The condition of municipal fleet vehicles used is regularly checked. If a leak is discovered or a repair is needed, the vehicle is sent to the County shop for maintenance.
In cases where an incident causes damage to equipment at a work site, the mechanical service truck that goes to the location also brings a spill kit to the site to clean up any leaked materials. Heavy equipment is washed on the dedicated wash pad at the Central Shop.

Steam Pad
The following procedure is required when using steam pad with oil water separator
  - Cover drywell lid with cover
  - Park unit being washed over oil water separator lid
  - Clean pad off once completed so all oil residue goes into oil water separator
  - Uncover drywell lid when not steam cleaning
  - Oil water separator pumped by vendor – under contract

BMPs in use:
Vehicles and equipment stored outside are routinely checked for leaks. (S414E)
Spills and leaks are cleaned up immediately upon discovery, using appropriate materials.
Spill response is reviewed annually as part of employee training. (S104E)

Vegetation Management
Vegetation management contracts stipulate that chemical applications are done by a licensed operator. When herbicide application is done by County staff, application rates do not exceed the manufacturer’s recommended rates.
  Note: The feasibility of using mechanical methods for roadside weed control rather than chemical application is under evaluation.

BMPs in use:
Manufacturer’s application guidelines and label requirements are followed.
Employees are trained on proper application of herbicides. (S435E)
General Roads Maintenance Operations
The following preventative maintenance and good housekeeping practices (S102E) are utilized by the Spokane County Roads Maintenance Department:

- Discharge of unpermitted liquid or solid wastes, process wastewater, and sewage to ground water or surface water, or to storm drains that discharge to surface water or to the ground is prevented.
- Oily parts cleaning, steam cleaning, or pressure washing of equipment or containers is conducted inside a building, or on an impervious contained area, such as a concrete pad. Contaminated stormwater from such an area is directed to a sanitary sewer.
- Solid and liquid pollutant leaks and spills are promptly contained and cleaned up, including oils, solvents, fuels, and dust from manufacturing operations on any exposed soil, vegetation, or paved area.
- If a contaminated surface must be pressure washed, the resulting washwater is collected for proper disposal.
- Pollutants are not hosed down from any area to the ground, storm drains, conveyance ditches, or receiving water. Discharges/conveyances associated with dust control to meet air quality regulations are conveyed to a treatment system prior to discharge.
- All appropriate surfaces (e.g., paved material handling and storage areas) are swept with vacuum sweepers annually or more frequently as needed for the collection and disposal of dust and debris that could contaminate stormwater. If resources allow, sweeping is performed more frequently.
- Contaminated soil is not paved over unless it has been determined that ground water has not been and will not be contaminated by the soil.
- Drip pans are used to collect leaks and spills from equipment such as industrial parts, and trucks and other vehicles stored outside.
- Oil and fuel filters are drained before disposal. Empty oil and fuel filters, oily rags, and other oily solid waste are discarded into appropriately closed and properly labeled containers, and in compliance with the Uniform Fire Code or International Building Code.
- Containers that are rigid and durable, corrosion resistant to the weather and fluid content, nonabsorbent, watertight, rodent-proof, and equipped with a close-fitting cover, such as steel and plastic drums, are used for liquid storage.
- Solid wastes contaminated with liquids or other potential polluted materials are temporarily stored in dumpsters, garbage cans, drums and comparable containers, which are durable, corrosion resistant, nonabsorbent, nonleaking, and equipped with either a solid cover or screen cover to prevent littering. If covered with a screen, the container is stored under a roof or other form of adequate protection.
- Where exposed to stormwater, liquid storage containers, piping, tubing, pumps, fittings, and valves are appropriate for their intended use and for the contained liquid.
• All substantially cracked or otherwise damaged paved secondary containment, high-intensity parking, and any other contributing areas, subjected to pollutant material leaks or spills are promptly repaired or replaced. Leaking connections, pipes, hoses, valves, etc., that can contaminate stormwater are promptly repaired or replaced.

• Floor drains in potential pollutant source areas are not connected to storm drains, receiving water, or the ground.

• The use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals is minimized.

• Environmentally safe raw materials, products, additives, etc., such as substitutes for zinc used in rubber production, are used to the greatest extent possible.

• Waste materials collection through the Central Shop allows recycling waste materials such as solvents, coolants, oils, degreasers, and batteries to the maximum extent feasible.

• Drip pans are emptied immediately after a spill or leak is collected in an uncovered area.

• Solid absorbents, e.g., clay and peat absorbents and rags are used for cleanup of liquid spills/leaks, where practicable.

• Damaged paved areas at industrial facilities are promptly repaired, replaced, or resealed.

• Materials, such as oils, solvents, and wood waste, are recycled to the maximum extent practicable.

These Road Operations and Maintenance Facilities have individual Stormwater Pollution Prevention Plans. An example of a site SWPPP is included at the end of this document.

• Maintenance District 1 Shop, Materials Storage, and Decant Facility

• Maintenance District 4 Materials Storage (Carnahan Pit)

• Public Works Central Shop

• Public Works Fleet Outside Storage
Wastewater Operations
Spokane County Wastewater Operations Division includes 34 remote pump stations and one central Maintenance and Operations building (WWOPs). These BMPs are meant for all sites, where applicable. Procedures for site-specific situations will be detailed in the related sections.

**Operations and Maintenance Procedures**

**Open Space Maintenance**
Groundskeeping is a contracted service. Language will be included in all contracts requiring contractors to follow all laws and regulations related to pesticide, herbicide and fertilizer management as it applies to:

- Applicator certification
- Application and record keeping
- Storage and inspection of pesticides, herbicides, and fertilizers
- Scheduling of application of pesticides, herbicides, and fertilizers

Groundskeeping company will not stockpile material on any Wastewater Operations grounds and will dispose of landscaping waste at an approved location.

**BMPs in use:**
S411E Landscaping and Lawn Vegetation Management
S435E Pesticides and Integrated Pest Management
S443E Fertilizer Application

**Trash Management**
All trash at remote sites will either be brought back to the WWOPs building or taken to a Spokane County waste transfer station. All trash at WWOPs or brought in from remote sites will be dumped in the dumpster, which is hauled by Waste Management to an approved facility. The dumpster is in a walled and gated area. The area is inspected and cleaned as needed and with a monthly, repeating work order. The dumpster is inspected with the same work order.

**BMPs in use:**
S102E Preventative Maintenance and Good Housekeeping

**Vehicle and Equipment Washing**
All vehicle and equipment washing is done at WWOPs in a building specifically constructed for washing vehicles and equipment. This building has an oil/water separator and is plumbed to the county sewer system.

**BMPs in use:**
S431E Vehicle Equipment, Buildings, and Structures Cleaning
Municipal Vehicle Use
Vehicles are parked inside or in the designated parking around WWOPs. Any fluids leaking from vehicles are to be cleaned with absorbent material (mats or granules) immediately. The vehicle will then be sent for repair. All repair work will be done by a licensed mechanic shop.

BMPs in use:
S421E Vehicle and Equipment Parking and Storage

Building Exterior Maintenance and Cleaning
All exterior building cleaning will be done with water only. Peeling paint will be removed by hand and cleaned up. All exterior maintenance and painting will be done with care not to spill onto the ground. Tarps and/or sheeting will be used when possible.

BMPs in use:
S431E Cleaning Vehicles, Equipment, Buildings, and Structures
S451E Repair, Remodeling, Painting, and Construction of Buildings

De-icing and Snow Removal
Deicing is done on walkways only, using granular ice-melt. Manufacturer’s application recommendations will be followed. Plowed snow will be moved to grass swales and lawn areas at least 100’ from any surface water.

BMPs in use:
S406E BMPs for Streets and Highways

Routine Sidewalk and Pavement Cleaning
Sidewalk and parking area cleaning is either done with broom and dustpan for spot cleaning or with high pressure water. Litter is removed prior to cleaning. Water is directed to grassy areas around lot.

BMPs in use:
S102E Preventative Maintenance and Good Housekeeping

Pavement Repairs
Pavement patching is done by our crews. Spoil and excess asphalt are taken off site to County recycle storage. Crack sealing is either done by our crews or hired out. In either case, no hot sealant is to be spilled or otherwise deposited anywhere but paved areas. If applicable, cover and protect storm drain inlets prior to conducting pavement repairs. Care is taken to allow sealant to set before lot is used for vehicle traffic.

BMP in use:
S406E BMPs for Streets and Highways
Spill Prevention/response and Material Storage
Since this department is entirely dedicated to wastewater collections, our sole mission is to safely convey sewage to a plant to be treated. By definition, sewage spills are what we work every day to avoid. We are thoroughly trained in dealing with all manners of spill response and cleanup related to sewage. Therefore, this O&M will only address other spills and their response.

At WWOPS, there are to be no liquid chemicals stored on-site besides what’s in vehicles, small (5 gallon or less) portable fuel containers, and less than 100 gallons of miscellaneous lubricants. All possible care will be taken to avoid spills. Any spills will be immediately cleaned using absorbent material (pads or absorbent granules) kept in stock for that purpose. Used absorbent will be disposed of appropriately to avoid spreading contaminants or causing fire.

BMPs in use:
S104E Spill Prevention and Cleanup
S105E Employee Training

Several pump stations have large fuel tanks for emergency generators. Care has been taken to engineer safety into the design of the tanks and containment structures.

- Containment structures are designed to hold the fuel from a leaking tank in a small area that can be easily cleaned. Drains for these containment structures will be kept closed and will only be opened to drain clean water out of the structures after rain/snow events. If a spill is detected, appropriate contractors will be called to immediately fix the fuel tank and remove the spilled fuel.
- Tanks not housed in containment structures will be approved by the appropriate authority for use as fuel storage and be designed to withstand severe damage without leaking. Tanks are inspected monthly for any sign of damage or wear and will be repaired immediately if any is found.

Applicable BMP:
S428E Liquid Storage in Permanent Aboveground Tanks

Several pump stations have large (300-5000 gallon) tanks to hold calcium nitrate. This is a non-toxic chemical used to control hydrogen sulfide in sewage.

- Most of these tanks are inside rooms with drains directly connected to the sewage pump chamber. Tank levels are monitored daily. Any leaking tanks will be drained and repaired/replaced immediately. Spills will be washed down the drain with water.
- Tanks that are outside or in areas without floor drains are inspected daily and levels are monitored. Any spills will be cleaned with water and disposed of in the sewer.

Applicable BMP:
S428E Liquid Storage in Permanent Aboveground Tanks
Facilities Maintenance
Operations and Maintenance Procedures

Parking Lots and Sidewalks
Annual parking lot cleaning is contracted by a qualified vendor. Sidewalks and roads are swept and blown as needed. Excess debris is shoveled up and placed in the dumpster. Debris from roadways is blown back onto the lawn areas.
Snow is shoveled and plowed to designated locations. New employee training includes identifying these areas.
Sidewalk deicer is applied according to the manufacturer’s instructions. Care is taken not to over apply product.
Large lot repairs are made by the Public Works Roads Maintenance Department, or are contracted to a qualified vendor using the County purchasing process.
Small repairs are completed by the Facilities Dept. using temporary cold-patch materials which are purchased at any local hardware store and applied using the installation instructions printed on the bag. When small patch repairs are completed, all appropriate measures are taken to prevent contaminating storm water, area is coned off and marked, appropriate steps are taken to keep repair product contained in the desired area until cured.

BMPs in use:
S430E Urban Street Operations: Sweeping
S406E Streets and Highways: Deicing; Pavement Repairs

Municipal Vehicles
Vehicles operated by Facilities, lawn care equipment, and snow removal equipment are inspected before every operation by the individual using the equipment; hours or miles are monitored for proper maintenance. Vehicles are taken to a repair shop as needed.
All employees are to notify the Supervisor of oil/fluid leaks in equipment. Leaks are addressed quickly, and any fluid is to be caught in a pan and recorded in our annual waste report.

BMPs in use:
S421E Parking and Storage of Vehicles and Equipment

Municipal Buildings
Building exterior cleaning is completed using a pressure washer and an environmentally safe product such as Simple Green. Larger debris is collected on to tarps or bags and disposed of properly.
Building repairs that Facilities perform are things like: Light fixture replacements, door repairs. Repairs are performed in a safe manner and work area is swept and cleaned after the repair is complete.
BMPs in use:
S431E Washing and Steam Cleaning Vehicles, Equipment, or Building Structures
S451E Building Repair, Remodeling, Painting, and Construction

Open Spaces
All grounds maintenance (lawn care/tree and shrub trimming) is performed using a Toro riding lawn mower and standard trimmers and clippers. All equipment is maintained per manufacturer’s recommendations and stored in a dry storage area on the westside of the Facilities Building. Trimmings are taken to the waste management Facility and processed through the clean green disposal.
Pesticides are to be applied only by licensed individuals at the rate the label states. They are locked in the Maintenance Shop when not in use.
Fertilizer is applied only at the normal rate and all efforts are made to keep it off roadways. Excess will be blown off the roadways to prevent runoff into storm drains.

BMPs in use:
S411E Landscaping and Lawn and Vegetation Management
S435E Pesticides and an Integrated Pest Management Program
S444E Storage of Dry Pesticides and Fertilizers
S443E Fertilizer Application

General Operations
Small spills and drips are absorbed with oil absorbing powder. After the powder has absorbed the liquid, it is bagged and transferred to the dumpster. If the spill is determined to be more than what we can handle, we call a qualified vendor who then cleans up the spill.
Dumpsters and compactors are located outside of buildings; all lids and doors function properly, exterior of dumpsters visually inspected regularly, and repairs are completed as necessary.

BMPs in use:
S104E Spill Prevention and Cleanup
S102E Preventative Maintenance and Good Housekeeping
Parks, Recreation, and Golf
Per the Eastern Washington Phase II Municipal Stormwater Permit, issued by the Washington State Department of Ecology, Spokane County Parks Department is required to implement an Operations & Maintenance (O&M) Plan that addresses appropriate pollution prevention and good housekeeping procedures for all Parks properties within the defined National Pollutant Discharge Elimination System (NPDES) boundaries. The Eastern Washington Phase II permit requires local governments to manage and control stormwater runoff so that it does not pollute downstream waters.

Permittees shall implement park and open space maintenance pollution prevention/good housekeeping practices at all park areas and other open spaces owned or operated by the Permittee within the permit boundary (see map on Ecology website).

Note: The permit boundary changes as the Urban Growth Area is modified.

The O&M Plan shall address the following regarding parks and open space.
(Eastern Washington Phase II Municipal Stormwater Permit S5.B.6.a.i.e)

Suggested BMP Sources (hyperlink):

- Model Municipal Stormwater Program 03-10-076

Operations and Maintenance Procedures

General Operations
It is a general practice in Parks to document all activities related to Operations & Maintenance. We ask that employees keep written records of tasks completed throughout their workday and record any instances where an activity might be outside of standard practices. We conduct periodic training to ensure that Parks staff are up to date on all applicable Best Management Practices relating to our daily activities.

Applicable BMPs:
- S102E: BMPs for Preventative Maintenance/Good Housekeeping
- S105E: BMPs for Employee Training

Fertilizer Application
Fertilizer is applied within parks property to turf and plants at a rate that is recommended by the manufacturer for the specific fertilizer type. Fertilizer is applied through broadcast methods and removed from impervious surfaces where it was spread errantly. Fertilizer is applied by properly trained parks staff.
Applicable BMPs:
Model Municipal Stormwater Program 03-10-076
- 7.3.2.1 Pesticide, Herbicide, and Fertilizer Management
- 7.3.7 Employee Training on O&M Plan Implementation

- S443E: BMPs for Fertilizer Application

Pesticides and Herbicides
Pesticides and herbicides are used in accordance with manufacturers recommendations. All applicators within Parks Department are licensed by the Washington State Department of Agriculture. Licenses are renewed annually in accordance with existing state regulations (Chapter 17.21 RCW, Washington Pesticide Application Act).

Record keeping is performed in accordance with Chapter 17.21 RCW, Washington Pesticide Application Act; and Chapter 16-228 WAC, General Pesticide Rules.

All pesticides and herbicides are stored at Parks maintenance facility within an enclosed and heated storage room. (Chapter 16-228 WAC, General Pesticide Rules; Chapter 15.58 RCW, Washington Pesticide Control Act; Chapter 16-229 WAC, Secondary and Operational Area Containment for Bulk Pesticides)

Applicable BMPs:
Model Municipal Stormwater Program 03-10-076
- 7.3.2.3 Trash Management
- 7.3.7 Employee Training on O&M Plan Implementation

- S444E: BMPs for the Storage of Dry Pesticides and Fertilizers

Pet Waste Management
Trash receptacles within all Parks Department properties that are frequented by dog walkers are provided and are lined with removable heavy duty plastic liners. Also provided are disposable doggie bags that can be tied off and disposed of within the larger trash receptacles. Trash is removed from all parks and disposed of at the Spokane County transfer stations on a regular basis as dictated by park usage. Some high use locations are attended to daily.

Applicable BMPs:
Model Municipal Stormwater Program 03-10-076
- 7.3.2.3 Trash Management
- 7.3.7 Employee Training on O&M Plan Implementation

- S440E: BMPs for Pet Waste
**Sediment and Erosion Control**

Erosion control is managed through the establishment of turf or native grasses and other erosion control methods such as mulching, crushed stone, or straw wattles. All efforts are made to limit the exposure of erodible soil. Parks Department rarely encounters exposed or disturbed soils in parks due to the fact our parks are well established with vegetation and open to public use.

**Applicable BMPs:**

- Model Municipal Stormwater Program 03-10-076
  - 7.3.7 Employee Training on O&M Plan Implementation


- S425E: BMPs for Soil Erosion and Sediment Control at Industrial Sites
- S417E: BMPs for Maintenance of Drainage Systems and Runoff Treatment BMPs

**Landscape Maintenance and Vegetation Disposal**

Lawn clippings are mulched on site during the mowing process at all Parks properties. Any landscape waste that must be removed from the park is taken to Spokane County Transfer Stations, or other approved facilities, and recycled as clean green material for mulching.

**Applicable BMPs:**

- Model Municipal Stormwater Program 03-10-076
  - 7.3.2.2 Landscaping Waste Disposal
  - 7.3.7 Employee Training on O&M Plan Implementation


- S411E: BMPs for Landscaping and Lawn/Vegetation Management

**Trash and Dumpster Management**

Parks Department provides 55-gallon barrels, labeled as owned by the department, within all parks properties that are frequented by patrons. Each barrel is lined with a heavy-duty plastic can liner that can be easily removed and disposed of by parks employees. Trash is removed off-site and disposed of at Spokane County Transfer Stations or other approved facilities. Parks Department employs staff to regularly remove trash from parks properties. Additional staff is brought onboard during peak park season.

For parks that have dumpsters on-site, each dumpster is secured and emptied on a regular schedule by the contracted disposal company. All enclosures are required to have a closable lid to keep waste inside and to keep rainfall out.
Applicable BMPs:
Model Municipal Stormwater Program 03-10-076

- 7.3.2.3 Trash Management
- 7.3.7 Employee Training on O&M Plan Implementation


- S411E: BMPs for Landscaping and Lawn/Vegetation Management

Building Exterior Cleaning and Maintenance
Most buildings within Parks properties are surrounded by landscape areas to prevent any runoff into adjacent stormwater systems. Water is the preferred method of cleaning. Buildings are re-painted when necessary to maintain a clean and sanitary appearance.

Applicable BMPs:
Model Municipal Stormwater Program 03-10-076

- 7.3.7 Employee Training on O&M Plan Implementation


- S431E: BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures
- S451E: BMPs for Building, Repair, Remodeling, Painting, and Construction

The following location has a site-specific Stormwater Pollution Prevention Plan. Please see the example SWPPP at the end of this document.

- Plante’s Ferry Parks Maintenance Shop
Fairgrounds and Exposition Center
Operations and Maintenance Procedures

Open Spaces
Pesticides are to be applied only by licensed individuals at the rate the label states. They are locked in the Maintenance Shop when not in use. Fertilizer is applied only at the normal rate and all efforts are made to keep it off roadways. Excess will be blown off the roadways. Clean grass clippings and leaves are added to manure bunker and then hauled off site. Small branches are placed in the dumpster. If there are a lot of branch trimmings a chipper is used to process them and they are put into the manure bunker to be hauled off. Annual fly spray application is done by professional contractor.

Applicable BMPs:
S411E Landscaping and Lawn and Vegetation Management
S435E Pesticides and an Integrated Pest Management Program
S444E Storage of Dry Pesticides and Fertilizers
S443E Fertilizer Application

Care of Buildings
When buildings are washed it is normally a hose with nozzle or lightly power washed. Depends on which building some may run to a swale some may run onto grass some may run to a drain. Debris is collected before reaching the drains. Debris is collected when building repairs are done. The work area is swept and cleaned after repairs are complete. Exterior painting is done as needed with an airless sprayer and a tarp is put down to protect surrounding area.

Applicable BMPs:
S431E Washing and Steam Cleaning Vehicles, Equipment, or Building Structures
S451E Building Repair, Remodeling, Painting, and Construction

Pavement/Parking Lots/Sidewalks
Sidewalks and roads are swept and blown as needed. Excess debris is shoveled up and placed in the dumpster. Debris from roadways is blown back onto the lawn areas. If necessary, a water truck is used to clean roads. Snow is shoveled and plowed to designated locations throughout the site. New employees will be shown those areas. Granular ice melt is used to deice sidewalks. Care is used not to overapply product. Small pavement holes and transitions are patched with bagged asphalt cold patch. The old
gravel is swept up and discarded. Sealing and large repairs are made by licensed contractors. Fabric is placed inside the drain to protect it.

**Applicable BMPs:**
S430E Urban Street Operations: Sweeping
S406E Streets and Highways: Deicing; Pavement Repairs

**Municipal Vehicles**
Loaders, tractors, and other small equipment are stored inside Multipurpose Building B during the Fall & Winter months. They are moved to the north side of the Maintenance Shop when the weather improves.

Vehicles, mowers, and light equipment are washed off at the hose bib on the west side of the Maintenance Shop. Washwater disperses and does not enter the drywell.

Employees are to notify the Supervisor of oil/liquid leaks in equipment. Leaks are addressed quickly, and any fluid is to be caught in a pan.

Small spills and drips are absorbed with oil absorbing powder. Used absorbent materials are disposed of properly.

**Applicable BMPs:**
S104E Spill Prevention and Cleanup
S414E Maintenance and Repair of Vehicles and Equipment
S421E Parking and Storage of Vehicles and Equipment

**Other Routine Activities**
Manure from livestock is stored in designated bunker until it is hauled off site.

Garbage boxes should try to be kept in dry locations and dumped regularly.

**Applicable BMPs:**
S402E Commercial Animal Handling Areas
S440E Pet Waste
S102E Preventative Maintenance and Good Housekeeping
Best Management Practices
S102E: BMPs for Preventive Maintenance/Good Housekeeping

Preventive maintenance and good housekeeping practices reduce the potential for stormwater to come into contact with pollutants and can reduce maintenance intervals for the drainage system and sewer system.

Applicable BMPs

Prevent the discharge of unpermitted liquid or solid wastes, process wastewater, and sewage to ground water or surface water, or to storm drains that discharge to surface water or to the ground.

Conduct all oily parts cleaning, steam cleaning, or pressure washing of equipment or containers inside a building, or on an impervious contained area, such as a concrete pad. Direct contaminated stormwater from such an area to a sanitary sewer where allowed by local sewer authority, or to other approved treatment.

Promptly contain and clean up solid and liquid pollutant leaks and spills, including oils, solvents, fuels, and dust from manufacturing operations on any exposed soil, vegetation, or paved area. If a contaminated surface must be pressure washed, collect the resulting washwater for proper disposal (usually involves plugging storm drains or otherwise preventing discharge, and pumping or vacuuming up washwater for discharge to sanitary sewer or for Vactor truck transport to a wastewater treatment plant for disposal).

Do not hose down pollutants from any area to the ground, storm drains, conveyance ditches, or receiving water. Discharges/conveyances associated with dust control to meet air quality regulations shall be conveyed to a treatment system approved by the local jurisdiction prior to discharge.

Sweep all appropriate surfaces (e.g., paved material handling and storage areas) with vacuum sweepers quarterly or more frequently as needed for the collection and disposal of dust and debris that could contaminate stormwater.

Do not pave over contaminated soil unless it has been determined that ground water has not been and will not be contaminated by the soil. Call the Washington State Department of Ecology (Ecology) for assistance.

Construct impervious areas that are compatible with the materials handled. Portland cement concrete, asphalt, or equivalent material may be considered.

Use drip pans to collect leaks and spills from industrial/commercial equipment such as cranes at ship/boat building and repair facilities, log stackers, industrial parts, and trucks and other vehicles stored outside.

At industrial and commercial facilities, drain oil and fuel filters before disposal. Discard empty oil and fuel filters, oily rags, and other oily solid waste into appropriately closed and properly
labeled containers, and in compliance with the Uniform Fire Code or International Building Code.

For the storage of liquids use containers, such as steel and plastic drums, that are rigid and durable, corrosion resistant to the weather and fluid content, nonabsorbent, watertight, rodent-proof, and equipped with a close-fitting cover.

For the temporary storage of solid wastes contaminated with liquids or other potential polluted materials use dumpsters, garbage cans, drums and comparable containers, which are durable, corrosion resistant, nonabsorbent, nonleaking, and equipped with either a solid cover or screen cover to prevent littering. If covered with a screen, the container must be stored under a roof or other form of adequate.

Where exposed to stormwater, use containers, piping, tubing, pumps, fittings, and valves that are appropriate for their intended use and for the contained liquid.

Clean oils, debris, sludge, etc., from all stormwater BMPs regularly, including catch basins, settling/detention basins, oil and water separators, boomed areas, and conveyance systems, to prevent the contamination of stormwater. See Ecology Requirements for Generators of Dangerous Wastes at the following web address to assist in determining if a waste must be handled as hazardous waste: [https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance](https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance)

Promptly repair or replace all substantially cracked or otherwise damaged paved secondary containment, high-intensity parking, and any other contributing areas, subjected to pollutant material leaks or spills.

Promptly repair or replace all leaking connections, pipes, hoses, valves, etc., that can contaminate stormwater.

Do not connect floor drains in potential pollutant source areas to storm drains, receiving water, or the ground.

**Recommended BMPs**

Where feasible, store potential stormwater pollutant materials inside a building or under a cover and/or containment.

Minimize use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals.

Use environmentally safe raw materials, products, additives, etc., such as substitutes for zinc used in rubber production.

Recycle waste materials such as solvents, coolants, oils, degreasers, and batteries to the maximum extent feasible. Contact Ecology’s Hazardous Waste and Toxics Reduction Program at
the following web address, or your local jurisdiction, for recommendations on recycling or disposal of vehicle waste liquids and other waste materials:


Empty drip pans immediately after a spill or leak is collected in an uncovered area.

Stencil warning signs at catch basins and drains, e.g., “Dump no waste – Drains to water body.”

For more information: See S442E: BMPs for Labeling Storm Drain Inlets on Your Property.

Use solid absorbents, e.g., clay and peat absorbents and rags for cleanup of liquid spills/leaks, where practicable.

Promptly repair/replace/reseal damaged paved areas at industrial facilities.

Recycle materials, such as oils, solvents, and wood waste, to the maximum extent practicable.

Note: Evidence of stormwater contamination can include the presence of visible sheen, color, or turbidity in the runoff; or present or historical operational problems at the facility. Operators can use simple pH tests, for example with litmus or pH paper. These tests can screen for high or low pH levels (anything outside the 6.5 to 8.5 range) due to contamination of stormwater.
S104E: BMPs for Spill Prevention and Cleanup

Description of Pollutant Sources
Spills and leaks can damage public infrastructure, interfere with sewage treatment, and cause a threat to human health or the environment. Spills are often preventable if appropriate chemical and waste handling techniques are practiced effectively and the spill response plan is immediately implemented. Additional spill control requirements may be required based on the specific activity occurring on site.

Applicable BMPs

Spill Prevention
Clearly label all containers that contain potential pollutants.

Store and transport liquid materials in appropriate containers with tight-fitting lids.

Place drip pans underneath all containers, fittings, valves, and where materials are likely to spill or leak.

Use tarpaulins, ground cloths, or drip pans in areas where materials are mixed, carried, and applied to capture any spilled materials.

Train employees on the safe techniques for handling materials used on the site and to check for leaks and spills.

Spill Plan
Develop and implement a spill plan and update it annually or whenever there is a change in activities or staff responsible for spill cleanup. Post a written summary of the plan at areas with a high potential for spills, such as loading docks, product storage areas, waste storage areas, and near a phone. The spill plan may need to be posted at multiple locations. Describe the facility, including the owner’s name, address, and telephone number; the nature of the facility activity; and the general types of chemicals used at the facility.

Designate spill response employees to be on-site during business activities. Provide a current list of the names and telephone numbers (home and office) of designated spill response employees who are responsible for implementing the spill plan.

Provide a site plan showing the locations of storage areas for chemicals, inlets/catch basins, spill kits and other relevant infrastructure or materials information.

Describe the emergency cleanup and disposal procedures. Note the location of all spill kits in the spill plan.

List the names and telephone numbers of public agencies to contact in the event of a spill.

Spill Cleanup Kits
Store all cleanup kits near areas with a high potential for spills so that they are easily accessible in the event of a spill. The contents of the spill kit must be appropriate to the types and
qualities of materials stored or otherwise used at the facility, and refilled when the materials are used. Facilities covered under the Industrial Stormwater General Permit must provide secondary containment for all chemical liquids, fluids, and petroleum products stored on-site. Spill kits must be located within 25 feet of all fueling/fuel transfer areas, including on-board mobile fuel trucks.

Ecology recommends that the kit(s) be stored in an impervious container and include the following:

- Salvage drums or containers, such as high-density polyethylene polypropylene, or polyethylene sheet-lined steel
- Polyethylene or equivalent disposal bags
- An emergency response guidebook
- Safety gloves/clothes/equipment
- Shovels or other soil removal equipment
- Oil containment booms and absorbent pads

**Spill Cleanup and Proper Disposal of Material**

Stop, contain, and clean up all spills immediately upon discovery.

Implement the spill plan immediately.

Contact the designated spill response employees.

Block off and seal nearby inlets/catch basins to prevent materials from entering the drainage system or combined sewer.

Use the appropriate material to clean up the spill.

Do not use emulsifiers or dispersants such as liquid detergents or degreasers.

Immediately report all spills, discharges, or releases that could impact a drainage system, a combined sewer, a sanitary sewer, or a receiving water.

Do not wash absorbent material into interior floor drains or inlets/catch basins.

Place used spill control materials in appropriate containers and dispose of according to regulations.
S105E: BMPs for Employee Training
Train all employees that work in pollutant source areas about the following topics:

- Identifying Pollution Prevention Team members
- Identifying pollutant sources
- Understanding pollutant control measures
- Spill prevention and response
- Emergency response procedures
- Handling practices that are environmentally acceptable. Particularly those related to vehicle/equipment liquids, such as fuels, and vehicle/equipment cleaning

Additional specialized training may be needed for staff who will be responsible for handling hazardous materials.
S406E: BMPs for Streets/Highways

Description of Pollutant Sources
These BMPs apply to the maintenance and deicing/anti-icing of streets and highways. Deicing products can be conveyed during storm events to inlets/catch basins or to receiving waters after application. Leaks and spills of these products can also occur during their handling and storage. Equipment and processes using during maintenance can contribute pollutants such as oil and grease, suspended solids, turbidity, high pH, and metals.

Pollutant Control Approach
Apply good housekeeping practices, preventive maintenance, properly train employees, and use materials that cause less adverse effects on the environment.

Applicable BMPs

Deicing and Anti-Icing Operations
Select deicing and anti-icing chemicals that cause the least adverse environmental impact. Apply only as needed using minimum quantities.
Where feasible and practicable, use roadway deicing chemicals that cause the least adverse environmental impact.
Adhere to manufacturer’s guidelines and industry standards of use and application.
Store and transfer deicing/anti-icing materials on an impervious containment pad in accordance with S429E: BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products.
Sweep/clean up accumulated deicing/anti-icing materials and grit from roads as soon as practicable after the road surface clears.
Minimize use in areas where runoff or spray from the roadway immediately enters sensitive areas such as fish-bearing streams.

Maintenance Operations
Use drip pans or absorbents wherever concrete, asphalt, asphalt emulsion, paint product, and drips are likely to spill, such as beneath discharge points from equipment.
Cover and contain nearby storm drains to keep runoff from entering the storm drainage system.
Collect and contain all solids, slurry, and rinse water. Do not allow these to enter gutters, storm drains, or drainage ditches or onto the paved surface of a roadway or driveway.
Designate an area onsite for washing hand tools and collect that water for disposal.
Conduct all fueling of equipment in accordance with S419E: BMPs for Mobile Fueling of Vehicles and Heavy Equipment.
Do not use diesel fuel for cleaning or prepping asphalt tools and equipment.
Sweep areas as frequently as needed. Collect all loose aggregate and dust for disposal. Do not hose down areas into storm drains.
Store all fuel, paint, and other products on secondary containment.
Conduct paint striping operations during dry weather.

**Recommended BMPs**

Intensify roadway cleaning in early spring to help remove particulates from road surfaces.
Include limits on toxic metals in the specifications for deicing/anti-icing chemicals.
Research admixtures (e.g., corrosion inhibitors and surfactants) to determine what additional pollutants may be an issue. Verify with the local jurisdiction if there are any restrictions on admixtures.
Install catch basin inserts to collect excess sediment and debris as necessary. Inspect and maintain catch basin inserts to ensure they are working correctly.
S411E: BMPs for Landscaping and Lawn/Vegetation Management

Description of Pollutant Sources
Landscaping can include grading, soil transfer, vegetation planting, and vegetation removal. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; and residential lawn/plant care. Proper management of vegetation can minimize excess nutrients and pesticides.

Pollutant Control Approach
Maintain appropriate vegetation to control erosion and the discharge of stormwater pollutants.

Prevent debris contamination of stormwater.

Where practicable, grow plant species appropriate for the site, or adjust the soil properties of the site to grow desired plant species.

Applicable Operational BMPs
Amend soils to improve the infiltration and regulation of stormwater in landscaped areas.

Select the right plants for the planting location based on soil conditions, sun exposure, water availability, height, sight factors, and space available.

Ensure that plants selected for planting are not on the Washington State Noxious Weed Control Board’s noxious weed list. See https://www.nwcb.wa.gov/ For example, butterfly bush often gets planted as an ornamental but is on the noxious weed list.

Do not dispose of collected vegetation into receiving waters or drainage systems.

Do not blow vegetation or other debris into the drainage system.

Dispose of collected vegetation such as grass clippings, leaves, sticks by composting or recycling.

Remove, bag, and dispose of class A and B noxious weeds in the garbage immediately.

Do not compost noxious weeds as it may lead to spreading through seed or fragment if the composting process is not hot enough.

Use manual and/or mechanical methods of vegetation removal (pincer-type weeding tools, flame weeders, or hot water weeders as appropriate) rather than applying herbicides, where practical.

Use ≥ 8-inches of topsoil with ≥ 8% organic matter to provide a sufficient vegetation-growing medium.

Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2% and 10% of its total nitrogen each year, and this release corresponds closely to the plant growth cycle. Return natural plant debris and mulch to the soil, to continue recycling nutrients indefinitely.
Select the appropriate turfgrass mixture for the climate and soil type.

Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects. The fungus causes no known adverse effects on the host plant or humans.

Tall fescues and rye grasses do not repel root-feeding lawn pests such as crane fly larvae.

Tall fescues and rye grasses are toxic to ruminants such as cattle and sheep.

Endophytic grasses are commercially available; use them in areas such as parks or golf courses where grazing does not occur.

Local agricultural or gardening resources such as Washington State University Extension offices can provide advice on which types of grass are best suited to the area and soil type.

Use the following seeding and planting BMPs in Chapter 7 - Construction Stormwater Pollution Prevention, or equivalent BMPs, to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates:

- BMP C120E: Temporary and Permanent Seeding
- BMP C121E: Mulching
- BMP C123E: Plastic Covering
- BMP C124E: Sodding

Adjusting the soil properties of the subject site can assist in selection of desired plant species. Consult a soil restoration specialist for site-specific conditions.

Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Conduct aeration while the grasses in the lawn are growing most vigorously. Remove layers of thatch > 0.75 inches deep.

Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only one-third of the grass blade height will prevent stressing the turf. Mowing is a stress-creating activity for turfgrass. The productivity of grass decreases when it is mowed too short and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone, and more reliant on outside means such as pesticides, fertilizers, and irrigation to remain healthy.

**Recommended Operational BMPs**

Conduct mulch-mowing whenever practicable.

Use native plants in landscaping. Native plants do not require extensive fertilizer or pesticide applications. Native plants may also require less watering.

Use mulch or other erosion control measures on soils exposed for > 1 week during the dry season (July 1 to September 30) or 2 days during the wet season (October 1 to June 30).
Till a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.

Apply an annual topdressing of 3/8 inches of compost. Amending existing landscapes and turf systems by increasing the percentage of organic matter and depth of topsoil can:

- Substantially improve the permeability of the soil,
- Increase the disease and drought resistance of the vegetation, and
- Reduce the demand for fertilizers and pesticides.

Disinfect gardening tools after pruning diseased plants to prevent the spread of disease.

Prune trees and shrubs in a manner appropriate for each species.

If specific plants have a high mortality rate, assess the cause and replace with another more appropriate species.

When working around and below mature trees, follow the most current American National Standards Institute (ANSI) A300 standards (see http://www.tcia.org/TCIA/BUSINESS/ANSI_A300_Standards_/TCIA/BUSINESS/A300_Standards/A300_Standards.aspx?hkey=202ff566-4364-4686-b7c1-2a365af59669) and International Society of Arboriculture (ISA) BMPs to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil).

Monitor tree support systems (stakes, guys, etc.) and take the following actions:

- Repair and adjust as needed to provide support and prevent tree damage.
- Remove tree supports after one growing season or maximum of 1 year.
- Backfill stake holes after removal.

When continued, regular pruning (more than one time during the growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location.

Make reasonable attempts to remove and dispose of class C noxious weeds.

Reseed bare turf areas until the vegetation fully covers the ground surface.

Watch for and respond to new occurrences of especially aggressive weeds such as Himalayan blackberry, Japanese knotweed, morning glory, English ivy, and reed canary grass to avoid invasions.

Plant and protect trees per BMP F6.62: Trees.

**Additional BMP Information**

The ISA is a group that promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees through research, technology, and education. ISA standards used for managing trees, shrubs, and other woody plants are the ANSI A300
standards. The ANSI A300 standards are voluntary industry consensus standards developed by the Tree Care Industry Association and written by the Accredited Standards Committee. The ANSI standards can be found on the ISA website at the following address: http://www.isa-arbor.com/education/publications/index.aspx

Washington State University’s Gardening in Washington State web page contains Washington State–specific information about vegetation management based on the type of landscape: http://gardening.wsu.edu/ Washington State University County Extension offices, see the following website: http://extension.wsu.edu/locations/

See the Pacific Northwest Plant Disease Management Handbook (Pscheidt and Ocamb, 2016) for information on disease recognition and for additional resources.
S414E: BMPs for Maintenance and Repair of Vehicles and Equipment

Description of Pollutant Sources
Pollutant sources include parts/vehicle cleaning, spills/leaks of fuel and other liquids, replacement of liquids, outdoor storage of batteries/liquids/parts, and vehicle parking.

Pollutant Control Approach
Control of leaks and spills of fluids using good housekeeping and cover and containment BMPs.

Applicable Operational BMPs
Inspect all incoming vehicles, parts, and equipment stored temporarily outside for leaks.

Use drip pans or containers under parts or vehicles that drip or that are likely to drip liquids, such as during dismantling of liquid containing parts, or removal or transfer of liquids.

Remove batteries and liquids from vehicles and equipment in designated areas designed to prevent stormwater contamination. Store cracked batteries in a covered nonleaking secondary containment system.

Remove liquids from vehicles retired for scrap.

Empty oil and fuel filters before disposal. Provide for proper disposal of waste oil and fuel.

Do not pour/convey washwater, liquid waste, or other pollutants into storm drains or receiving water. Check with the local sanitary sewer authority for approval to convey water to a sanitary sewer.

Do not connect maintenance and repair shop floor drains to storm drains or to surface water.

To allow for snowmelt during the winter, install a drainage trench with a sump for particulate collection. Use the drainage trench for draining the snowmelt only. Do not discharge any vehicular or shop pollutants to the trench drain.

Applicable Structural Source Control BMPs
Conduct all maintenance and repair of vehicles and equipment in a building or other covered impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and runoff of contaminated water.

Operators may conduct maintenance of refrigeration engines in refrigerated trailers in the parking area.

Exercise due caution to avoid the release of engine or refrigeration fluids to storm drains or receiving water.

Park large mobile equipment, such as log stackers, in a designated contained area.

Additional Applicable BMPs
S409E: BMPs for Fueling at Dedicated Stations
S108E: BMPs for Correcting Illicit Connections to Storm Drains
S412E: BMPs for Loading and Unloading Areas for Liquid or Solid Material
S426E: BMPs for Spills of Oil and Hazardous Substances
S427E: BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers
S428E: BMPs for Storage of Liquids in Permanent Aboveground Tanks
S429E: BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products
S431E: BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures

Applicable Runoff Treatment BMPs
Convey contaminated stormwater runoff from vehicle staging and maintenance areas to a sanitary sewer, if allowed by the local sewer authority, or to an American Petroleum Institute or coalescing plate oil and water separator followed by a basic treatment BMP (see Chapter 5 - Runoff Treatment BMP Design), applicable filter, or other equivalent oil treatment system.

Note: A runoff treatment BMP may be necessary for contaminated stormwater.

Recommended Operational BMPs
Store damaged vehicles inside a building or other covered containment, until successfully removing all liquids.

Clean parts with aqueous detergent-based solutions or non-chlorinated solvents such as kerosene or high-flash mineral spirits, and/or use wire brushing or sand blasting whenever practicable.

Avoid using toxic liquid cleaners such as methylene chloride, 1,1,1-trichloroethane, trichloroethylene, or similar chlorinated solvents.

Choose cleaning agents that can be recycled.

Inspect all BMPs regularly, particularly after a significant storm. Identify and correct deficiencies to ensure that the BMPs are functioning as intended.

Avoid hosing down work areas. Use dry methods for cleaning leaked fluids.

Recycle greases, used oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic fluids, transmission fluids, and engine oils. See the Washington State Department of Ecology’s Hazardous Waste and Toxics Reduction Program at the following web address for recommendations on recycling or disposal of vehicle waste liquids and other waste materials: https://ecology.wa.gov/About-us/Get-to-know-us/Our-Programs/Hazardous-Waste-Toxics-Reduction

Do not mix dissimilar or incompatible waste liquids stored for recycling.
S421E: BMPs for Parking and Storage of Vehicles and Equipment

Description of Pollutant Sources
Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways can be sources of toxic hydrocarbons and other organic compounds, including oil and grease, metals, and suspended solids.

Pollutant Control Approach
If the parking lot is a high-use site for vehicles as defined under Applicable Runoff Treatment BMPs, provide appropriate oil removal equipment for the contaminated stormwater runoff.

Applicable Operational BMPs
If a parking lot must be washed, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority or other approved wastewater treatment system, or collect washwater for off-site disposal.
Do not hose down the area to a storm drain or receiving water. Vacuum sweep parking lots, storage areas, and driveways regularly to collect dirt, waste, and debris.
Clean up vehicle and equipment fluid drips and spills immediately.
Place drip pans below inoperative or leaking vehicles and equipment in a manner that catches leaks or spills, including employee vehicles.

Recommended Operational BMPs
Encourage employees to repair leaking personal vehicles.
Encourage employees to carpool or use public transit through incentives.
Encourage customers to use public transit by rewarding valid transit pass holders with discounts.
Install catch basin inserts to collect excess sediment and oil if necessary. Inspect and maintain catch basin inserts to ensure they are working correctly.

Applicable Runoff Treatment BMPs
Establishments subjected to high-use intensity are significant sources of oil contamination of stormwater. Examples of potential high-use areas include customer parking lots at fast food stores, grocery stores, taverns, restaurants, large shopping malls, discount warehouse stores, quick-lubrication (lube) shops, and banks.
If the pollution-generating impervious surface for a high-use site is > 5,000 square feet (sf), an oil control BMP from the oil control options in 5.1.3 Runoff Treatment Methods and BMPs is necessary. A high-use site at a commercial or industrial establishment has one of the following characteristics (Gaus, 1994):
Subjected to an expected average daily traffic count ≥ 100 vehicles per 1,000 sf of gross building area, or

Subjected to storage of a fleet of ≥ 25 diesel vehicles that are > 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.).
S428E: BMPs for Storage of Liquids in Permanent Aboveground Tanks

**Description of Pollutant Sources**

Aboveground tanks containing liquids (excluding uncontaminated water) may be equipped with a valved drain, vent, pump, and bottom hose connection. Aboveground tanks may be heated with steam heat exchangers equipped with steam traps, if required. Leaks and spills can occur at connections and during liquid transfer. Oil and grease, organics, acids, alkalis, and heavy metals in tank water and condensate drainage can also cause stormwater contamination at storage tanks.

**Pollutant Control Approach**

Install secondary containment or a double-walled tank. Slope the containment area to a drain with a sump.

Operators may need to discharge stormwater collected in the containment area to treatment such as an American Petroleum Institute (API) or coalescing plate (CP) oil and water separator, or equivalent BMP.

Add safeguards against accidental releases, including protective guards around tanks to protect against vehicle or forklift damage, and tagging valves to reduce human error.

Tank water and condensate discharges are process wastewater that may need a National Pollutant Discharge Elimination System Stormwater General Permit.

**Applicable Operational BMPs**

Inspect the tank containment areas regularly for leaks/spills, cracks, corrosion, etc., to identify problem components, such as fittings, pipe connections, and valves.

Place adequately sized drip pans beneath all mounted taps and drip/spill locations during filling/unloading of tanks. Operators may need valved drain tubing in mounted drip pans.

Vacuum sweep and clean the tank storage area regularly, if paved.

Replace or repair tanks that are leaking, corroded, or otherwise deteriorating.

Storage of flammable, ignitable, and reactive chemicals and materials must comply with the stricter of local zoning codes, local fire codes, the Uniform Fire Code (UFC), UFC standards, or the National Electric Code.

**Applicable Structural Source Control BMPs**

Locate permanent tanks in impervious (Portland cement concrete or equivalent) secondary containment surrounded by dikes as illustrated in Figure 8.13: Above-Ground Tank Storage or use UL-approved double walled tanks. The dike must be of sufficient height to provide a containment volume of either 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater.

Slope the secondary containment to drain to a dead-end sump (optional), or equivalent, for the collection of small spills.
Include a tank overfill protection system to minimize the risk of spillage during loading.

**Applicable Runoff Treatment BMPs**
Depending on the kind of liquid being stored, the potential and type of stormwater contamination will vary and may require specialized treatment.

For an uncovered tank containment area is uncovered, equip the outlet from the spill-containment sump with a normally closed shutoff valve. Operators may open this valve manually or automatically, only to convey contaminated stormwater to approved treatment or disposal, or to convey uncontaminated stormwater to a storm drain.

Evidence of contamination can include the presence of visible sheen, color, or turbidity in the runoff, or existing or historical operational problems at the facility. Use simple pH tests with litmus or pH paper can be used for areas subject to acid or alkaline contamination.

At petroleum tank farms, convey stormwater contaminated with floating oil or debris in the contained area through an API or CP oil and water separator (Chapter 5 - Runoff Treatment BMP Design), or other approved treatment prior to discharge to storm drain or surface water.
S430E: BMPs for Urban Streets

**Description of Pollutant Sources**

Urban streets can be the source of vegetative debris, paper, fine dust, vehicle liquids, tire and brake wear residues, heavy metals (lead and zinc), soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products. Street surface contaminants contain significant concentrations of particle sizes < 250 microns (Sartor and Boyd, 1972).

**Pollutant Control Approach**

Conduct efficient street sweeping where and when appropriate to minimize the contamination of stormwater. Do not wash street debris into storm drains.

Facilities not covered under the Industrial Stormwater General Permit may consider a minimum amount of water washing of streets. All facilities must comply with their local stormwater requirements for discharging to storm drains.

Municipal Stormwater permittees are required to limit street washwater discharges and may have special conditions or treatment requirements.

**Recommended BMPs**

For maximum stormwater pollutant reductions on curbed streets and high-volume parking lots use efficient vacuum sweepers.

*Note:* High-efficiency street sweepers use strong vacuums and the mechanical action of main and gutter brooms combined with an air filtration system that only returns clean air to the atmosphere (i.e., filters very fine particulates). They sweep dry and use no water because they do not emit any dust.

High-efficiency vacuum sweepers have the capability of removing 80% or more of the accumulated street dirt particles whose diameters are < 250 microns, from pavements under good condition (Sutherland et al., 1998). This assumes pavements under good condition and reasonably expected accumulation conditions.

For moderate stormwater pollutant reductions on curbed streets use regenerative air sweepers or tandem sweeping operations.

*Note:* A tandem sweeping operation involves a single pass of a mechanical sweeper followed immediately by a single pass of a vacuum sweeper or regenerative air sweeper. A regenerative air sweeper blows air down on the pavement to entrain particles and uses a return vacuum to transport the material to the hopper.

These operations usually use water to control dust. This reduces their ability to pick up fine particulates.

These types of sweepers have the capability of removing approximately 25% to 50% of the accumulated street dirt particles whose diameters are < 250 microns (Sutherland et al., 1998). This assumes pavements under good condition and typical accumulation conditions.
For minimal stormwater pollutant reductions on curbed streets use mechanical sweepers.

**Note:** The industry refers to mechanical sweepers as broom sweepers and uses the mechanical action of main and gutter brooms to throw material on a conveyor belt that transports it to the hopper. These sweepers usually use water to control dust. This reduces their ability to pick up fine particulates.

It has been reported that mechanical sweepers have the capability of removing only 10% to 20% of the accumulated street dirt particles whose diameters are < 250 microns (Sutherland et al., 1998). This assumes the most favorable accumulation conditions and pavement in good condition.

Conduct vacuum sweeping at optimal frequencies. Optimal frequencies are those scheduled sweeping intervals that produce the most cost-effective annual reduction of pollutants normally found in stormwater and can vary depending on land use, traffic volume, and rainfall patterns.

Train operators in those factors that result in optimal pollutant removal. These factors include sweeper speed, brush adjustment and rotation rate, sweeping pattern, maneuvering around parked vehicles, and interim storage and disposal methods.

Consider the use of periodic parking restrictions in low- to medium-density single-family residential areas to ensure the sweeper’s ability to sweep along the curb.

Establish programs for prompt vacuum sweeping, removal, and disposal of debris from special events that will generate higher than normal loadings.

Disposal of street sweeping solids must comply with Appendix 8-B: Management of Street Waste Solids and Liquids.

Consider developing ordinances that prohibit citizens from putting yard debris in the street gutters or doing vehicle maintenance on the street.

Provide incentives to property owners for installing permeable pavement parking areas and driveways.

Consider installing catch basin inserts in high use areas to remove trash and yard debris before it enters the system.

Implement a storm drain stenciling program to label and educate the public not to dump materials into storm drains or onto sidewalks, streets, parking lots, and gutters.

Provide household hazardous waste collection and used oil recycling for citizens to avoid illegal dumping.
S431E: BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures

Description of Pollutant Sources
Pollutant sources include the commercial cleaning of vehicles, aircraft, vessels, and other transportation, restaurant kitchens, carpets, and industrial equipment, and large buildings with low- or high-pressure water or steam. This includes “charity” car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

Permitting Requirements
Obtain all necessary permits for installing, altering, or repairing onsite drainage and sewage. Restrictions on certain types of discharges may require pretreatment before they enter the sanitary sewer.

Pollutant Control Approach
The preferred approach is to cover and/or contain the cleaning activity, or conduct the activity inside a building, to separate the uncontaminated stormwater from the washwater sources. Convey washwater to a sanitary sewer after approval by the local sewer authority. Provide temporary storage before proper disposal, or recycling. Under this preferred approach, no discharge to the ground, to a storm drain, or to surface water should occur.

The Industrial Stormwater General Permit (ISGP) prohibits the discharge of process wastewater (e.g., vehicle washing wastewater) to groundwater or surface water. Stormwater that commingles with process wastewater is considered process wastewater.

Facilities not covered under the ISGP that are unable to follow one of the preferred approaches listed above may discharge washwater to the ground only after proper treatment in accordance with Vehicle and Equipment Washwater Discharges/Best Management Practices Manual (Ecology, 2012).

The quality of any discharge to the ground after proper treatment must comply with the Washington State Department of Ecology (Ecology) Water Quality Standards for Ground, Chapter 173-200 WAC.

Facilities not covered under the ISGP that are unable to comply with one of the preferred approaches and want to discharge to storm drain, must meet their local stormwater requirements. Local jurisdictions may require treatment prior to discharge.

Contact the local Ecology regional office (https://ecology.wa.gov/About-us/Get-to-know-us/Contact-us) to discuss permitting options for a National Pollutant Discharge Elimination
Spokane County Municipal Operations & Maintenance

System (NPDES) Stormwater General Permit application for discharge of washwater to a receiving water or to a storm drain after on-site treatment.

**Applicable Structural Source Control BMPs**

Conduct vehicle/equipment washing in one of the following locations:

- At a commercial washing facility in which the washing occurs in an enclosure and drains to the sanitary sewer
- In a building constructed specifically for washing of vehicles and equipment, which drains to a sanitary sewer

Conduct outside washing operation in a designated wash area with the following features:

- In a paved area, construct a spill containment pad to prevent the run-on of stormwater from adjacent areas.
- Slope the spill containment area to collect washwater in a containment pad drain system with perimeter drains, trench drains, or catchment drains. Size the containment pad to extend out a minimum of 4 feet on all sides of the washed vehicles and/or equipment.
- Convey the washwater to a sump (like a grit separator) and then to a sanitary sewer (if allowed by the local sewer authority), or other appropriate wastewater treatment or recycle system. The containment sump must have a positive control outlet valve for spill control with live containment volume and oil and water separation. Size the minimum live storage volume to contain the maximum expected daily washwater flow plus the sludge storage volume below the outlet pipe. Shut the outlet valve during the washing cycle to collect the washwater in the sump. The valve should remain shut for ≥ 2 hours following the washing operation to allow the oil and solids to separate before discharge to a sanitary sewer.
- Close the inlet valve in the discharge pipe when washing is not occurring, thereby preventing the entry of uncontaminated stormwater into the pretreatment/treatment system. The stormwater can then drain into the conveyance/discharge system outside of the wash pad (essentially bypassing the sanitary sewer or recycle system). Post signs to inform people of the operation and purpose of the valve.
- Clean the concrete pad thoroughly until there is no foam or visible sheen in the washwater prior to closing the inlet valve and allowing uncontaminated stormwater to overflow and drain off the pad (see Figure 8.16: Uncovered Wash Area).

**Note:** The purpose of the valve is to convey only washwater and contaminated stormwater to a treatment system.

Collect the washwater from building structures and convey it to appropriate treatment, such as a sanitary sewer system if it contains oils, soaps, or detergents. If the washwater does not contain oils, soaps, or detergents (in this case only a low-pressure, clean, cold water rinse is
allowed) then it could drain to soils that have sufficient natural attenuation capacity for dust and sediment.

Sweep surfaces prior to cleaning/washing to remove excess sediment and other pollutants.

If roof equipment or hood vents are cleaned, ensure that no washwater or process water is discharged to the roof drains or drainage systems.

Label all mobile cleaning equipment as follows: “Properly dispose of all wastewater. Do not discharge to an inlet/catch basin, ditch, stream, or on the ground.”

**Recommended BMPs**
Mark the wash area at gas stations, multifamily residences, and any other business where non-employees wash vehicles.

Operators may use a manually operated positive control valve for uncovered wash pads, but a pneumatic or electric valve system is preferable. The valve may be on a timer circuit and opened upon completion of a wash cycle. After draining the sump or separator, the timer would then close the valve.

Minimize the use of water and detergents in washing operations when practicable.

Use phosphate-free biodegradable detergents when practicable.

Use the least hazardous cleaning products available.

Consider recycling the washwater.

Operators may use soluble/emulsifiable detergents in the wash medium and should use with care and the appropriate treatment. Carefully consider the selection of soaps and detergents and runoff treatment BMPs.

Oil and water separators are ineffective in removing emulsified or water-soluble detergents. Another treatment appropriate for emulsified and water-soluble detergents may be required.
S435E: BMPs for Pesticides and an Integrated Pest Management Program

Description of Pollutant Sources
Pesticides include herbicides, rodenticides, insecticides, and fungicides. The following are examples of pesticide uses:

- Weed control on golf course lawns, access roads, utility corridors and landscaping
- Sap stain and insect control on lumber and logs
- Rooftop moss removal
- Killing of nuisance rodents
- Fungicide application to patio decks

It is possible to release toxic pesticides such as pentachlorophenol, carbamates, and organometallics to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of pesticides can cause appreciable stormwater contamination and unintended impacts on nontargeted organisms.

Pollutant Control Approach
Control pesticide applications to prevent contamination of stormwater.

Develop and implement an integrated pest management (IPM) plan.

Carefully apply pesticides, in accordance with label requirements.

Applicable Operational BMPs
Choose the least toxic pesticide available that can reduce the infestation to acceptable levels. The pesticide should readily degrade in the environment and/or have properties that strongly bind it to the soil.

Choose pesticides categorized by U.S. Environmental Protection Agency as reduced risk, for example, the herbicide imazamox.

Train employees on proper application of pesticides and disposal practices.

Follow manufacturers’ application guidelines and label requirements.

Do not apply pesticides in quantities that exceed the limits on the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label. Avoid excessive application of chemical.

Conduct spray applications during weather conditions as specified in the label requirements and applicable local and state regulations. Do not apply during rain or immediately before expected rain (unless the label directs such timing).

When possible apply pesticides during the dry season so that the pesticide residue is degraded prior to the next rain event.

Clean up any spilled pesticides immediately. Do not hose down to a storm drain, conveyance ditch, or water body.
Remove weeds/vegetation in stormwater ditches, stormwater facilities, and drainage systems by hand or other mechanical means and only use pesticides as a last resort.

If possible, do not spray pesticides within 100 feet of water bodies. Spraying pesticides within 100 feet of water bodies including any drainage ditch or channel that leads to open water may have additional regulatory requirements beyond just following the pesticide product label. Additional requirements may include the following:

- Obtaining a discharge permit from the Washington State Department of Ecology (Ecology)
- Obtaining a permit from the local jurisdiction
- Using an aquatic labeled pesticide and adjuvant
- Flag all sensitive areas including wells, creeks, and wetlands prior to spraying.
- Post notices and delineate the spray area prior to the application, as required by the local jurisdiction, or by Ecology.

See S411E: BMPs for Landscaping and Lawn/Vegetation Management and use pesticides only as a last resort.

Conduct any pest control activity at the life stage when the pest is most vulnerable. For example, if it is necessary to apply *Bacillus thuringiens* to control tent caterpillars, apply it to the material before the caterpillar’s cocoon is formed, or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.

Mix pesticides and clean the application equipment under cover in an area where accidental spills will not enter surface or ground waters and will not contaminate the soil.

The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.

Implement a pesticide-use plan and include the following at a minimum:

- A list of selected pesticides and their specific uses
- Brands and formulations of the pesticides
- Application methods and quantities to be used
- Equipment use and maintenance procedures
- Safety, storage, and disposal methods
- Monitoring, record keeping, and public notice procedures.

All procedures shall conform with the requirements of Chapter 17.21 RCW and Chapter 16-228 WAC.

Develop and implement an IPM program. The following steps are adapted from *Least Toxic Pest Management for Lawns* (Daar, 1992):
1. Correctly identify problem pests and understand their life cycle.
   Learn more about the pest.
   Observe it and pay attention to any damage that may be occurring.
   Many pests are only a problem during certain seasons or can only be treated effectively in certain phases of the life cycle.

2. Establish tolerance thresholds for pests.
   Decide on the level of infestation that must be exceeded before treatment needs to be considered. Pest populations under this threshold should be monitored but do not need treatment.

3. Monitor to detect and prevent pest problems.
   Monitor regularly to anticipate and prevent major pest outbreaks.
   Conduct a visual evaluation of the lawn or landscape’s condition. Take a few minutes before mowing to walk around and look for problems.
   Keep a notebook, record when and where a problem occurs, then monitor for it at about the same time in future years.
   Specific monitoring techniques can be used in the appropriate season for some potential problem pests, such as European crane fly.

4. Modify the maintenance program to promote healthy plants and discourage pests.
   Review your landscape maintenance practices to see if they can be modified to prevent or reduce the problem.
   A healthy landscape is resistant to most pest problems. Lawn aeration and overseeding along with proper mowing height, fertilization, and irrigation will help the grass outcompete weeds.
   Correcting drainage problems and letting soil dry out between waterings in the summer may reduce the number of crane fly larvae that survive.

5. If pests exceed the tolerance thresholds:
   Consider the most effective management options concurrent with reducing impacts on the environment. This may mean chemical pesticides are the best option in some circumstances.
   Consider the use of physical, mechanical, or biological controls.
   Study to determine what products are available and choose a product that is the least toxic and has the least nontarget impact.

6. Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.
   Keep records
   Note when, where, and what symptoms occurred or when monitoring revealed a potential pest problem.
   Note what controls were applied and when and the effectiveness of the control.
   Monitor next year for the same problems.
**Recommended Operational BMPs**

Use manual pest control strategies such as physically scraping moss from rooftops, high-pressure sprayers to remove moss, and rodent traps.

Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.

Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as *Pythium* rot, ashy stem blight, and parasitic nematodes.

Once a pesticide is applied, evaluate its effectiveness for possible improvement. Records should be kept showing the effectiveness of the pesticides applied.

Follow the FIFRA label requirements for disposal. If the FIFRA label does not have disposal requirements, the rinsate from equipment cleaning and/or from triple-rinsing of pesticide containers should be used as product or recycled into product.

Develop an adaptive management plan and annual evaluation procedure that includes the following (adapted from Daar, 1992):

- A review of the effectiveness of pesticide applications.
- Impact on buffers and sensitive areas, including potable wells. If individual or public potable wells are located in the proximity of commercial pesticide applications, contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.
- Public concerns.
- Recent toxicological information on pesticides used/proposed for use.

**Additional Information**

Washington pesticide law requires most businesses that commercially apply pesticides to the property of another to obtain a Commercial Applicator license from the Washington State Department of Agriculture.

For more information: See the Pesticide Information Center Online (PICOL) databases at the following web address: [http://picol.cahe.wsu.edu/LabelTolerance.html](http://picol.cahe.wsu.edu/LabelTolerance.html)
S440E: BMPs for Pet Waste

Description of Pollutant Sources
Pets and pet-care can generate pollutants from waste, animal washing, and cage or kennel cleaning. Pet waste that washes into lakes or streams begins to decay, using up oxygen and releasing ammonia. Low oxygen levels and ammonia combined with warm water can kill fish. Pet waste also contains nutrients that encourage weed and algae growth, and contribute to low oxygen and high pH in waters we use for swimming, boating and fishing. Most importantly, pet waste can carry viruses and bacteria that could cause disease and lead to beach or shellfish harvesting closures.

Pollutant Control Approach
Use a plastic bag or pooper-scooper to clean up after pets. Properly dispose of pet waste.

Recommended Operational BMPs for Pet Owners
Regularly pick up and dispose of pet waste deposited on walks and at home.

Put pet waste in a securely closed bag and deposit it in the trash. Do not place pet waste in yard waste containers because pet waste may carry diseases, and composting may not kill disease-causing organisms.

Do not compost or use pet waste as fertilizer. Harmful bacteria, worms, and parasites that can transmit disease can live in the soil for years even after the solid portion of the pet waste has dissolved.

Do not dispose of unused pet pharmaceuticals in a storm drain, in a toilet, or down a sink. Check with your local refuse collector for proper disposal locations of pet medications.

When cleaning out cages and kennels, dispose of wash water down the toilet or a mop sink. Otherwise, wash directly over lawn areas or make sure the wash water drains to a vegetated area.

Bathe pets indoors or in a manner that wash water won’t be discharged to storm drains, ditches, or surface waters of the state.

Recommended Operational BMPs for Recreation Areas and Multi-Family Properties
Post signs at recreation areas and multi-family properties (that allow pets) reminding residents and visitors to pick up after their pets.

Carefully consider the placement of pet waste stations at recreation sites and near multi-family properties that allow pets. Choose locations convenient for dog walkers to pick up a bag at the start of their walk and locations for them to dispose of it at mid-walk or at the end of their walk. Check pet waste stations on a regular basis to keep pet waste bags stocked and disposal stations empty.

Consider signage to keep regular trash out of pet waste disposal stations to avoid filling them too quickly.
Make sure pet waste disposal stations have a cover to keep out water.

At multi-family properties with roof-top dog runs, ensure that stormwater from the dog run is not discharged to the stormwater system. Check with the local jurisdiction regarding roof-top dog run connections to sanitary sewer.
S443E: BMPs for Fertilizer Application

**Description of Pollutant Sources**
Poor application of fertilizers can cause appreciable stormwater contamination. Fertilizers can leach phosphorus, nitrogen, and coliform bacteria. Fertilizers can contribute to algae blooms, increase nutrient concentrations, and deplete oxygen in receiving waters.

**Pollutant Control Approach**
Minimize the amount of fertilizer necessary to maintain vegetation. Control the application of fertilizer to prevent the discharge of stormwater pollution.

**Applicable Operational BMPs**
Apply the minimum amount of slow-release fertilizer necessary to achieve successful plant establishment.

Do not fertilize when the soil is dry or during a drought.

Never apply fertilizers if it is raining or about to rain.

Do not apply fertilizers within 3 days prior to predicted rainfall. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs. Determine the proper fertilizer application for the types of soil and vegetation involved.

Follow manufacturers’ recommendations and label directions.

Train employees on the proper use and application of fertilizers.

Keep fertilizer granules off impervious surfaces. Clean up any spills immediately. Do not hose down to a storm drain, conveyance ditch, or water body.

If possible, do not fertilize areas within 100 feet of water bodies including wetlands, ponds, and streams.

Avoid fertilizer applications in stormwater ditches, stormwater facilities, and drainage systems.

In areas that drain to sensitive water bodies, apply no fertilizer at commercial and industrial facilities, to grass swales, filter strips, or buffer areas unless approved by the local jurisdiction.

Turfgrass is most responsive to nitrogen fertilization, followed by potassium and phosphorus.

Use slow-release fertilizers such as methylene urea, isobutylidene, or resin-coated fertilizers when appropriate, generally in the spring. Use of slow-release fertilizers is especially important in areas with sandy or gravelly soils.

Apply fertilizers in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters.

Time the fertilizer application to periods of maximum plant uptake. The Washington State Department of Ecology generally recommends application in the fall and spring, although Washington State University turf specialists recommend four fertilizer applications per year.
Do not use turf fertilizers containing phosphorus unless a soil sample analysis taken within the past 36 months indicates the soil of the established lawn is deficient in phosphorus. For more information about restrictions on turf fertilizers containing phosphorus, see the Washington State Department of Agriculture Restrictions on Turf Fertilizers Containing Phosphorus web page at the following address: https://agr.wa.gov/pestfert/fertilizers/phosturffert.aspx#UseTurfFertilizersContainingPhosphorous

**Recommended Operational BMPs**

Test soils to determine the correct fertilizer application rates.

Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization.

Fertilization needs vary by site depending on plant, soil, and climate conditions.

Choose organic fertilizers when possible.

For details on soils testing, contact the local conservation district, a soils testing professional, or a Washington State University Extension office.
S444E: BMPS for the Storage of Dry Pesticides and Fertilizers

Description of Pollutant Sources
Pesticides such as pentachlorophenol, carbonates, and organometallics can be released to the environment as a result of container leaks and outside storage of pesticide-contaminated materials and equipment. Inappropriate management of pesticides or fertilizers can result in stormwater contamination. Runoff contaminated by pesticides and fertilizers can severely degrade streams and lakes and adversely affect fish and other aquatic life.

Pollutant Control Approach
Store fertilizer and pesticide properly to prevent stormwater contamination.

Applicable Structural BMPs
Store pesticides and fertilizers in enclosed or covered impervious containment areas.

Applicable Operational BMPs
Containers and bags must be covered, intact, and off the ground.

Store all material so that it cannot come into contact with water.

Immediately clean up any spilled fertilizer or pesticides.

Keep pesticide and fertilizer contaminated waste materials in designated covered and contained areas and dispose of properly.

Store and maintain spill cleanup materials near the storage area.

Sweep paved storage areas as needed. Collect and dispose of spilled materials. Do not hose down the area.

Do not discharge pesticide contaminated stormwater or spills/leaks of pesticides to storm drains.

Comply with WAC 16-228-1220 and Chapter 16-229 WAC.
S451E: BMPs for Building, Repair, Remodeling, Painting, and Construction

Description of Pollutant Sources
This activity applies to the following:

- Construction of buildings and other structures
- Remodeling of existing buildings and houses
- General exterior building repair work

Pollutants of concern include toxic hydrocarbons, hazardous wastes, toxic organics, suspended solids, heavy metals, pH, oils, and greases.

Pollutant Control Approach
Educate employees about the need to control site activities. Control leaks, spills, and loose material. Implement good housekeeping practices. Regularly clean up debris that can contaminate stormwater. Protect the drainage system from dirty runoff and loose particles.

Applicable Operational BMPs
Identify, remove, and properly dispose of hazardous substances from the building before beginning repairing or remodeling activities that could expose them to stormwater. Such substances could include polychlorinated biphenyls (PCBs), asbestos, lead paint, mercury switches, and electronic waste.

Educate employees about the need to control site activities to prevent stormwater pollution, and also train them in spill cleanup procedures.

At all times, have available at the work site spill cleanup materials appropriate to the chemicals used on site.

Clean up the work site at the end of each workday. Put away materials (such as solvents) indoors or cover and secure them so that unauthorized individuals will not have access to them.

Sweep the area daily to collect loose litter, paint chips, grit, and dirt.

Do not dump any substance on pavement, on the ground, in the storm drain, or toward the storm drain, regardless of its content, unless it is clean water only.

Place a drop cloth, where space and access permits, before beginning wood treating activities. Use drip pans in areas where drips are likely to occur if the area cannot be protected with a drop cloth.

Use ground or drop cloths underneath scraping and sandblasting work. Use ground cloths, buckets, or tubs anywhere that work materials are laid down.

Clean paint brushes and other tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can subsequently be dumped into a sanitary sewer drain.
Clean brushes and tools covered with non-water-based finishes or other materials in a manner that enables collection of used solvents for recycling or proper disposal. Do not discharge non-water-based finishes or paints or used solvents into the sanitary sewer, or any other drain.

Use storm drain covers, or similarly effective devices, to prevent dust, grit, washwater, or other pollutants from escaping the work area. Place the cover or containment device over the storm drain at the beginning of the workday. Collect and properly dispose of accumulated dirty runoff and solids before removing the cover or device at the end of each workday.

Refer to S431E: BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures for information associated with power washing buildings.

**Recommended Operational BMPs**

Lightly spray water on the work site to control dust and grit that could blow away. Do not use oils for dust control. Never spray to the point of water runoff from the site.

Clean tools over a ground cloth or within a containment device such as a tub.

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**All BMPs from:**

Washington State Department of Ecology


Publication No. 18-10-044
Example Stormwater Pollution Prevention Plan

This Stormwater Pollution Prevention Plan (SWPPP) instructs site operators on the practices necessary to keep stormwater runoff clean by addressing pollution generating equipment, materials, and activities. Proper implementation of Best Management Practices (BMPs) is the best defense against stormwater pollution.

This SWPPP is organized in the following sections:

Quick Reference Guide: The quick reference guide contains the most important information critical to preventing stormwater pollution on site. Information includes:

- Emergency Spill Plan
- Site Summary
- Site Maps
- Inventory and BMPs
- Site Inspection Form

Stormwater Pollution Prevention Plan (SWPPP)

- Pollution Prevention Team
- Employee Training
- Preventative Maintenance and Good Housekeeping
- Spill Prevention and Cleanup
- Inspections
- Recordkeeping
- Regulatory Reference
- SWPPP Development, Implementation, and Review

Appendix 1: Applicable BMPs from the SWMMEW

Appendix 2: Definitions and Acronyms

Appendix 3: Site Specific Spill Plan
District 1 Shop/Decant Facility
Stormwater Pollution Prevention Plan (SWPPP)

December 15, 2022
SPILL RESPONSE – FIELD REFERENCE GUIDE

IF SITUATION IS DANGEROUS OR AN EMERGENCY CALL 911

1) **Immediate Actions**
   - Assess the scene for safety hazards
   - Notify Supervisor and immediate area personnel of spill
   - Contact Risk Management if assistance is needed to coordinate additional response (Hazmat team, fire response, etc) (509) 477-3617
   - Wear personal protective equipment
   - If safe to do so, stop the flow and contain spill
   - If safe and within capabilities, clean up spill
   - If necessary, contact spill response contractor for cleanup

2) **Contact Risk Management:** (509) 477-3617 and **Stormwater Utility:** (509) 477-3600
   If Risk Management is not already involved in response coordination, the department should be notified that a spill incident has occurred.
   Stormwater Utility is responsible for recordkeeping and year-end reporting to Ecology. Staff from stormwater utility may also be able to assist with spill response.

3) **Be prepared to provide the following information:**
   - Your name, phone number, and job title
   - Exact address and location of spill
   - What spilled and how much (estimate volume or weight)
   - Where the spill went and what has been contaminated (soil, drains, water, pavement)
   - When the spill occurred
   - How it was spilled and who/what was responsible
   - Whether the spill is contained or being cleaned up
   - Ask any questions you might have. Emergency Response contacts are there to help and can be a valuable resource.

**Required Notifications – The County must call the following organizations within 24 hours**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Emergency Management Division</td>
<td>(800) 258-5990</td>
</tr>
<tr>
<td>National Response Center</td>
<td>(800) 424-8802</td>
</tr>
<tr>
<td>WA Department of Ecology, Eastern Regional Office</td>
<td>(509) 329-3400</td>
</tr>
</tbody>
</table>
Spokane County Decant Facility
Spokane County Maintenance District 1 Shop and Storage Yard
0 North Mayfair Rd
Spokane, WA 99218

The Spokane County Decant Facility is a designated waste holding site for separation of liquids from solids collected during routine stormwater system cleaning operations. Separated liquids infiltrate after pretreatment and solid waste is conveyed to a regulated transfer station for disposal. It is not a designated waste disposal site for contaminated wastes or materials collected as part of emergency response, and is not used as such.

The Maintenance District 1 Shop and offices are also at this location, and it serves as a materials and equipment storage site.

Stormwater management consists of dispersion and subsequent infiltration, and infiltration through treatment swales and drywells located within the site’s property lines. The nearest portion of Spokane County’s regulated MS4 is shallow ditch collection and conveyance east on Farwell Road, and catch basins that discharge to a drywell 450 feet south on Ruby Road. This stormwater pollution prevention plan, with spill prevention and spill response, is intended to ensure that stormwater discharges meet groundwater quality standards as established in WAC 173-200.

This plan will:

- Identify the activities, equipment, and materials on site that have the potential to impact stormwater runoff.
- Identify best management practices to address pollutant sources and prevent stormwater pollution.
- Facilitate assembly of a pollution prevention team to implement this plan throughout the site.

Pollution prevention team:

Name Name – District One Maintenance and Operations Supervisor
Name Name – District One Site Staff Person, Name and Title

Team Responsibilities:

- assess site conditions and activities for stormwater impact
- evaluate control measures’ effectiveness
- work on-site daily
- develop and oversee facility activities necessary to comply with stormwater requirements
- have access to all applicable records, including permit documents, monitoring data, and the stormwater pollution prevention plan
- maintain updated training in BMP operations, maintenance, and inspections procedures
- maintain up-to-date reporting procedures
- establish staff responsibilities for inspections, operation, maintenance, and emergencies
- include review of BMP effectiveness at regular facility operations meeting
Map 1: Vicinity Map
Map 2: Site Map
## Physical Inventory

<table>
<thead>
<tr>
<th>Asset Tag</th>
<th>Description</th>
<th>Condition</th>
<th>BMPs in place</th>
</tr>
</thead>
<tbody>
<tr>
<td>3291</td>
<td>grader</td>
<td></td>
<td>inspect and maintain</td>
</tr>
<tr>
<td>LG21</td>
<td>grader</td>
<td></td>
<td>inspect and maintain</td>
</tr>
<tr>
<td>2570</td>
<td>2016 Peterbilt Model 367</td>
<td>inspect and maintain</td>
<td></td>
</tr>
<tr>
<td>2574</td>
<td>2016 Peterbilt Model 367</td>
<td>inspect and maintain</td>
<td></td>
</tr>
<tr>
<td>2581</td>
<td>2018 Peterbilt class 8</td>
<td>inspect and maintain</td>
<td></td>
</tr>
<tr>
<td>2590</td>
<td>dump truck</td>
<td>inspect and maintain</td>
<td></td>
</tr>
<tr>
<td>2212</td>
<td>2008 International 7600</td>
<td>inspect and maintain</td>
<td></td>
</tr>
<tr>
<td>2207</td>
<td>2008 International 7600</td>
<td>inspect and maintain</td>
<td></td>
</tr>
</tbody>
</table>

## Materials Inventory

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Where Stored</th>
<th>Stormwater exposure?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice Slicer</td>
<td>750 tons</td>
<td>under decant area, cover during winter</td>
<td>not during winter months</td>
</tr>
<tr>
<td>Sand</td>
<td>5500 tons</td>
<td>pile at north end of property; pile northwest of shop</td>
<td>yes</td>
</tr>
<tr>
<td>Salt</td>
<td>100 tons</td>
<td>mixed in sand pile at property north end</td>
<td>yes</td>
</tr>
<tr>
<td>Liquid deicer</td>
<td>40000 gal</td>
<td>tanks at northeast corner of property</td>
<td>yes</td>
</tr>
<tr>
<td>Asphalt chips</td>
<td></td>
<td>pile northwest of shop</td>
<td>yes</td>
</tr>
<tr>
<td>Rock</td>
<td></td>
<td>pile northwest of shop</td>
<td>yes</td>
</tr>
<tr>
<td>Shop supplies</td>
<td>various</td>
<td>indoors</td>
<td>no</td>
</tr>
</tbody>
</table>

## Activities Inventory

<table>
<thead>
<tr>
<th>Activity</th>
<th>Location</th>
<th>BMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>materials loading</td>
<td>outdoors</td>
<td>good housekeeping practices employed secondary containment around liquid tanks</td>
</tr>
</tbody>
</table>
Table 1: Applicable Best Management Practices from the Stormwater Management Manual for Eastern Washington

<table>
<thead>
<tr>
<th>BMP</th>
<th>Why is this BMP Included?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollution Prevention Team</td>
<td>Establishes clear responsibility for SWPPP implementation.</td>
</tr>
<tr>
<td>Preventative Maintenance/Good Housekeeping</td>
<td>Operational BMPs are crucial to protecting stormwater.</td>
</tr>
<tr>
<td>Spill Prevention and Cleanup</td>
<td>Each site must have a plan for how to deal with spills.</td>
</tr>
<tr>
<td>Employee Training</td>
<td>Employees must be knowledgeable of stormwater issues and the SWPPP.</td>
</tr>
<tr>
<td>Inspection</td>
<td>Establishes regular inspections performed by trained employees.</td>
</tr>
<tr>
<td>Recordkeeping</td>
<td>Tracks inspections, inventory changes, spills, etc. for administrative needs.</td>
</tr>
<tr>
<td>Prevent and Eliminate Illicit Connections</td>
<td>Ensures non-stormwater discharges do not directly tie in to storm sewer system.</td>
</tr>
<tr>
<td>Landscaping and Vegetation Management</td>
<td>Landscaping practices can pollute via chemicals, nutrients, and sediments.</td>
</tr>
<tr>
<td>Loading and Unloading</td>
<td>To transfer materials in ways that prevent spills and protect storm structures.</td>
</tr>
<tr>
<td>Bulk Solids Storage</td>
<td>Proper handling of materials prevents conveyance to stormwater system.</td>
</tr>
<tr>
<td>Vehicle and Equipment Maintenance</td>
<td>Vehicles contain oils, metals, and chemicals that can impact stormwater.</td>
</tr>
<tr>
<td>Maintain Drainage Systems and Treatment BMPs</td>
<td>Damaged storm systems may no longer treat or convey runoff properly.</td>
</tr>
<tr>
<td>Parking and Vehicle/Equipment Storage</td>
<td>Vehicles can leak fluids onto impervious surfaces which can impact stormwater.</td>
</tr>
<tr>
<td>Above-Ground Tank Storage</td>
<td>Storage tanks require preventative maintenance, especially if uncovered.</td>
</tr>
<tr>
<td>Vehicle/Equipment Washing</td>
<td>Non-stormwater discharges such as vehicle washwater must be properly disposed of.</td>
</tr>
<tr>
<td>Building Exterior Maintenance and Repair</td>
<td>Non-stormwater discharges associated with maintenance can impact runoff.</td>
</tr>
</tbody>
</table>
Operations and Maintenance Site Visit Assessment Form

Inspector: ___________________  Date: ___________________

Facility: ___________________  Contact: ___________________

Category: ___________________  Parcel #: ___________________

Lat: _______________  Long: _______________

1) Waste Management:  N/A?  □ Sketch location of dumpsters and used oil containers on site map.

Dumpsters:  Yes □ No □  BMP’s □  Condition: Good □ Fair □ Poor □

Photos: ___________________

Trash Compactors:  Yes □ No □  BMP’s □  Condition: Good □ Fair □ Poor □

Recycling Cont.:  Yes □ No □  BMP’s □  Condition: Good □ Fair □ Poor □

Petroleum Products:  Yes □ No □  BMP’s □  Condition: Good □ Fair □ Poor □

Notes
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

2) Cleaning and Washing:  N/A?  □ Sketch the drainage characteristics of the wash area on site map.

Vehicles □  Heavy and Light Equip □  Tools □

Indoors □  Outdoors □

Wash water drains to:  Catch Basin □  Drywell □  Swale □  Dirt □  Street □

Photos: ___________________

Existing BMP’s  Yes □ No □  Condition: Good □ Fair □ Poor □

Notes
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________
_____________________________________________________________________________________

3) Transfer of Solids and Liquids:  N/A?  □ Boxes □  Other ________________

Containers:  Barrels □  Bags □  Bottles

Secondary Containment  Yes □ No □

Material Safety Data Sheets accessible:  Yes □ No □  Spill Clean-up Kits  Yes □ No □

Photos: ___________________

Existing BMP’s  Yes □ No □  Condition: Good □ Fair □ Poor □
4) Production and Application Activities: N/A?  Painting □  Coating □  
Spraying □  Other □  
Sketch location of production/application activities and drainage characteristics on site map.  
Designated Locations  Yes □  No □  Indoors □  Outdoors □  
Photos: ________________________________  
Existing BMP’s  Yes □  No □  Condition: Good □  Fair □  Poor □  
Notes

5) Material Storage: N/A?  □ Sketch storage area locations and drainage characteristics on site map.  
Type of Materials Stored:

Indoors □  Outdoors □  Drainage Characteristics:  
Existing BMP’s  Yes □  No □  Condition: Good □  Fair □  Poor □  
Photos: ________________________________

Notes

6) Vehicles and Equipment: N/A?  Maintenance □  Parking □  Repair □  
Storage □  
Sketch locations of storage and parking areas, structures, surfaces, floor drains, drainage characteristics, and location of clean-up kits on site map.  
Location:  Indoors □  Outdoors □  Structures:  Yes □  No □  Shop Floors Clean:  
Yes □  No □  

Notes
Surface Type:  Asphalt □ Concrete □ Dirt/Gravel □  Floor Drains:  Yes □ No □  
Photos: ________________________________

Drainage Characteristics:

Solid Wastes Disposed Properly: Yes □ No □  Leaks: Yes□ No □  Spill Clean Up Kits Easily Accessible Yes □ No □
Notes: ______________________________________

Photos: ______________________________________

Notes: _______________________________________

Solid Wastes Disposed Properly: Yes □ No □  Leaks: Yes□ No □  Spill Clean Up Kits Easily Accessible Yes □ No □
Photos: ________________________________

Notes: ______________________________________

7) Dust, Erosion, Sediment, and Landscape Maintenance:  N/A? □ Sketch erosion, sediment, and landscape maintenance on site map.
Dust Producing Activities: Yes □ No □  Exposed or Eroded Soils: Yes □ No □
Deposited Sediment: Yes □ No □
Pesticides/Herbicides Used: Yes □ No □  Stored in Lockable Cabinet/Signage: Yes □ No □
Photos: ______________________________________
Notes: ______________________________________

8) Stormwater Drainage System:  N/A? □ Sketch flow directions and storm drains on site map.
Type of system: ____________________________________________________.
Does stormwater have ability to flow offsite: Yes □ No □  Does stormwater flow into storm drain inlets: Yes □ No □
MS4 Connection Yes □ No □  Does stormwater come into contact with pollutants before leaving the site Yes □ No □
List Potential Pollutants:

Existing Structural BMP’s: Yes □ No □  Condition: Good □ Fair □ Poor □
Photos: ________________________________
Notes: ______________________________________

Photos: ______________________________________

Notes: _______________________________________

__________________________________________

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Introduction

This Stormwater Pollution Prevention Plan (SWPPP) instructs site operators on the practices necessary to keep stormwater runoff clean by addressing pollution generating equipment, materials, and activities. Proper implementation of Best Management Practices (BMPs) is the best defense against stormwater pollution.

This SWPPP is organized in the following sections:

- **Quick Reference Guide**: The quick reference guide contains the most important information critical to preventing stormwater pollution on site. Information includes:
  
  a. Emergency Spill Plan
  b. Site Summary
  c. Site Maps
  d. Inventory and BMPs
  e. Site Inspection Form

- **Stormwater Pollution Prevention Plan (SWPPP)**
  
  a. Pollution Prevention Team
  b. Employee Training
  c. Preventative Maintenance and Good Housekeeping
  d. Spill Prevention and Cleanup
  e. Inspections
  f. Recordkeeping
  g. Regulatory Reference
  h. SWPPP Development, Implementation, and Review

- **Appendix 1**: Applicable BMPs from the SWMMEW
- **Appendix 2**: Definitions and Acronyms
- **Appendix 3**: Site Specific Spill Plan
A. Pollution Prevention Team

The pollution prevention team leads the implementation and maintenance of all BMPs and treatment for the site. This team should be able and authorized to address any corrective actions needed on site to mitigate potential stormwater contamination. All team members should:

- Be familiar with the facility and its operations;
- Possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and be able to evaluate the effectiveness of control measures;
- Have the primary responsibility for developing and overseeing facility activities necessary to comply with stormwater requirements;
- Have access to all applicable permit, monitoring, and Stormwater Pollution Prevention Plan documents and other records;
- Be trained in the operation, maintenance and inspections of all BMPs and reporting procedures;
- Establish responsibilities for inspections, operation, maintenance, and emergencies; and
- Regularly meet to review overall facility operations and BMP effectiveness.

B. Employee Training

All employees who work in pollutant source areas must be trained on the following topics:

- Identifying Pollution Prevention Team members
- Identifying pollutant sources
- Understanding pollutant control measures
- Spill prevention and response
- Emergency response procedures
- Materials handling practices that are environmentally acceptable, particularly those related to vehicle/equipment liquids such as fuels and vehicle/equipment cleaning

Additional training will be offered as needed, an example being hazardous materials handling practices.

C. Preventative Maintenance and Good Housekeeping

Structural controls like treatment swales and covered buildings are crucial to preventing stormwater pollution. However, it is the day-to-day operational practices that have the greatest impact on water quality. Preventive maintenance and good housekeeping practices, also called Operational BMPs, reduce the potential for stormwater to contact pollutants and can reduce the required frequency of stormwater drainage system maintenance.

The Quick Reference Guide addresses site-specific activities, equipment, and materials that may contribute to stormwater pollution. The Guide also lists BMPs specific to the inventory of pollutant generation on site. Essential practices applicable to all sites are provided below.

- When possible, conduct pollutant generating activities inside a building or on an impervious contained area.
- Where feasible, store potential stormwater pollutant materials inside a building or under a cover and/or within containment.
- Use containers that are rigid and durable, corrosion resistant to the weather and fluid content, nonabsorbent, water tight, rodent-proof, and equipped with a close-fitting cover for the storage of liquids. Steel and plastic drums are suitable containers for liquid storage in many cases.
- Where exposed to stormwater, use containers, piping, tubing, pumps, fittings, and valves that are appropriate for their intended use and for the contained liquid.
- Promptly repair or replace all substantially cracked or otherwise damaged paved secondary containment, high-intensity parking, and any other contributing areas subject to pollutant material leaks or spills. Promptly repair or replace all leaking connections, pipes, hoses, valves, etc., that can contaminate stormwater.
- Store waste products in compatible containers which are durable, corrosion resistant, nonabsorbent, nonleaking, and equipped with a solid cover. If no solid cover is provided, store the container under a roof or provide another method to prevent stormwater impact.
- Use drip pans to collect leaks and spills from equipment such as industrial parts, trucks and other vehicles stored outside. Promptly empty used drip pans into the appropriate receptacle.
- Recycle waste materials such as solvents, coolants, oils, degreasers, and batteries to the maximum extent feasible.
- Minimize use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals.
- Do not connect floor drains in potential pollutant source areas to storm drains, receiving water, or the ground. Prevent the illicit discharge of liquids or solid wastes to storm drains.
- Regularly inspect and promptly maintain stormwater BMPs (including but not limited to catch basins, swales, settling/detention basins, oil and water separators, boomed areas, and conveyance systems) to prevent the contamination of stormwater.
- Promptly contain and clean up solid and liquid pollutant leaks and spills, including oils, solvents, fuels, and dust from manufacturing operations, on any exposed soil, vegetation, or paved area.
- Sweep all appropriate surfaces (e.g., paved material handling and storage areas) with vacuum sweepers as needed (quarterly or more frequently) for the collection and disposal of dust and debris that could contaminate stormwater.
- Do not hose down pollutants from any area to the ground, storm drains, conveyance ditches, or receiving water. Discharges/conveyances associated with dust control to meet air quality regulations shall be conveyed to a treatment system.
- If an area must be washed because of a spill or contamination, collect the resulting washwater for proper disposal. This usually involves plugging storm drains or otherwise preventing discharge, and then pumping or vacuuming up washwater for discharge to sanitary sewer or for Vactor truck transport to a wastewater treatment plant for disposal.

### D. Spill Prevention and Cleanup

Spills and leaks can damage public infrastructure, interfere with sewage treatment, and threaten human health or the environment. Spills are often preventable if appropriate chemical and waste handling techniques are practiced effectively, and damage is often avoidable if the spill response plan is implemented immediately.

#### Preventing Spills

- Clearly label all containers that contain potential pollutants.
- Store and transport liquid materials in appropriate containers with tight-fitting lids.
- Place drip pans underneath all containers, fittings, valves, and anywhere materials are likely to spill or leak.
- Use tarpaulins, ground cloths, or drip pans in areas where materials are mixed, carried, and/or applied to capture any spilled materials.
• Train employees on the safe techniques for handling materials used on the site and to check for leaks and spills.

**Spill Plan**

The full Spill Plan is in the Quick Reference Guide along with a readily-accessible abridged version for use in the event of an emergency.

• Implement the spill plan and update it whenever there is a change in activities or staff responsible for spill cleanup. Review the spill plan at least annually to ensure relevancy.
• Post a written summary of the plan at areas with a high potential for spills, such as loading docks, product storage areas, waste storage areas, and near a phone. Copies of the spill plan may need to be posted at multiple locations.

**Spill Cleanup and Disposal**

• Store spill cleanup kits near all areas with a high potential for spills so that they are easily accessible in the event of a spill. The contents of the spill kit must be appropriate to the types and quantities of materials stored or otherwise used at the facility.
• Promptly refill the spill kit when the materials have been used.
• It is suggested that spill kits contain the following:
  o Disposal containers such as salvage drums, HDPE containers, or polyethylene bags
  o An emergency response guidebook
  o Safety gloves/clothes/equipment
  o Shovels or other soil removal equipment
  o Oil containment booms and absorbent pads
• Follow the spill plan regarding disposal of materials collected while cleaning up the spill.

**E. Inspections**

Monthly inspections should be conducted by someone familiar with the facility’s site, operations, and BMPs. Inspections should reflect the current conditions of the site and verify the accuracy of the pollutants and BMPs inventories and discharge point conditions.

• Visually inspect outdoor areas that could contribute to stormwater pollution
• Assess all currently implemented BMPs for effectiveness and needed maintenance and identify areas where additional BMPs are needed.
• Inspect discharge points and include written observations of any contamination (e.g. floating materials, suspended solids, oil and grease, discoloration, turbidity, and odor) in stormwater discharges.

Inspection forms are included in the quick reference guide. At a minimum, visual inspection reports will include:

• Time and date of the inspection
• Locations inspected
• Any required actions identified by the inspection
• Name, title, and signature of the person conducting the inspection.
F. Recordkeeping

All records related to this SWPPP will be maintained for at least five years. Records related to this SWPPP will be kept with the SWPPP at the facility location and digitally on the Public Works network drive.

Records will be kept relating to pollutant control and pollution-generating activities, including training activities, site inventory, materials stored on-site, material use and disposal, maintenance activities, spills, etc.

Records of inspection will be kept with the SWPPP folder. Copies of each inspection will be scanned and emailed to the Stormwater Utility Department to satisfy recordkeeping requirements. See the above section for inspection details.

G. Regulatory Reference

Spokane County is subject to the requirements of the Eastern Washington National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit, effective August 1, 2019 and expiring July 31, 2024. Spokane County is also subject to the Underground Injection Control (UIC) rule as established in 40 CFR Parts 144-148. The UIC program, as required by the Safe Drinking Water Act (SDWA), intend to protect underground sources of drinking water from contamination by wastewaters, which includes the infiltration of polluted stormwater. While established by the United States Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology) implements these regulations at the state level.

Permit Section S5.B.6.a.i(h) Material storage areas, heavy equipment storage areas and maintenance areas is included in full as follows:

“Permittees shall implement a Stormwater Pollution Prevention Plan to protect water quality at each of these facilities owned or operated by the Permittee and not required to have coverage under the Industrial Stormwater General Permit or another NPDES permit that authorizes stormwater discharges associated with the activity. At a minimum, the SWPPP shall include:

- A site map showing the facility’s stormwater drainage, discharge points, and areas of potential pollutant exposure.
- An inventory of the materials and equipment stored on-site, and the activities conducted at the facility which may be exposed to precipitation or runoff and could result in stormwater pollution.
- A plan for preventing and responding to spills at the facility which could result in an illicit discharge.
- A detailed description of the operational and structural BMPs in use at the facility and a schedule for implementation of additional BMPs. BMPs selected shall be consistent with the Stormwater Management Manual for Eastern Washington, or a program approved by Ecology.
- The SWPPP shall be updated as needed to maintain relevancy with the facility.
- At minimum, annual inspections of the facility, including visual observations of discharges, to evaluate the effectiveness of the BMPs, identify maintenance needs, and determine if additional or different BMPs are needed. The results of these inspections shall be documented in an inspection report or check list.
H. SWPPP Development, Implementation, and Review

The methods used to develop this SWPPP include site visits, identification of facility specific BMPs, and coordination with facility operators. Implementation of the SWPPP will include employee training and BMP application. It is ultimately the responsibility of the site supervisor to train employees on details of the SWPPP. The facility and SWPPP will be regularly reviewed by facility operators and qualified Stormwater Utility personnel. If any deficiencies are found during operations or site inspections, a compliance schedule of BMP implementation will be created and followed.
Appendix 1


Contents:

Pg. 2  Pollution Prevention Team  
3  Preventative Maintenance/Good Housekeeping  
5  Spill Prevention and Cleanup  
7  Employee Training  
8  Inspection  
9  Recordkeeping  
10  Prevent and Eliminate Illicit Connections  
11  Landscaping and Vegetation Management  
14  Loading and Unloading  
16  Bulk Solids Storage  
18  Vehicle and Equipment Maintenance  
20  Maintain Drainage Systems and Treatment BMPs  
21  Parking and Vehicle/Equipment Storage  
22  Above-Ground Tank Storage  
24  Vehicle/Equipment and Building Washing  
26  Building Exterior Maintenance and Repair

The full text of these BMPs are included in the site’s SWPPP. They may also be found in the “BMPs” section of this O&M Plan, which begins on page 37. For the sake of brevity, they are not repeated here.
District 1 Maintenance Shop and Decant Facility Spill Response Plan

1. Be prepared.
   - Review the plan once per year.
   - Teach new employees the plan.
   - Know where emergency supplies are kept.

2. Work as a team.
   - Ask for help – it’s faster and more effective.

3. Report the incident.
   - Documentation is not optional.
**Site Information**

Spill Kits are located **HERE:**

In the shop: west wall, second shelf
Stormwater swales are [HERE:]
Drywells are HERE:
Catch basins are HERE:
IF SITUATION IS DANGEROUS OR AN EMERGENCY CALL 911

General Procedure

1. If safe to do so, stop the spill. Close the valve, grab a bucket, pick the drum back up.
   
   Wear PPE – eye protection, nitrile gloves, face mask, etc.

2. Notify the supervisor, and coworkers in the immediate area.
   
   Use teamwork – have someone else go find the supervisor if needed.

3. Protect the environment.
   
   Use spill kit materials, sandbags, tarps, etc. to block any drywells, catch basins, or swales.
   
   Contain the spill and clean it up.

   Use containment booms, absorbent pads, granular absorbent, etc. to keep the spill from spreading out or soaking into the ground.
   
   Use the correct supplies to clean up the spill. Some soak up oil, some soak up water-based spills.

   **DO NOT WASH SPILLS INTO DRAINS OR SWALES.**

4. Dispose of collected materials properly.
   
   Follow the product label information/material data safety sheet for disposal instructions. Take contained waste, soiled supplies and PPE to the correct facility. This may be Central Shop, a designated pit, or one of the transfer stations. The Environmental Services Solid Waste Management department is able to determine if material is accepted at a transfer station (Deb Geiger, Regional Solid Waste Manager, 509-477-7281).

5. Document and report the incident.
   
   Write down a summary of what happened, what follow-up action is needed, and how to prevent it from happening again. Keep the notes with the SWPPP binder.
   
   Notify Risk Management (509-477-3617) and/or Stormwater Utility (509-477-3600).
   
   An incident report may be needed. Notification to Ecology is probably necessary, as well as state and federal response agencies. Risk Management and Stormwater Utility will double-check to confirm that the County stays compliant.

Washington Emergency Management Division (800) 258-5990
National Response Center (800) 424-8802
WA Department of Ecology, Eastern Regional Office (509) 329-3400
Spokane County Risk Management (509) 477-3617
Spokane County Stormwater Utility (509) 477-3600