

Operation and Maintenance (O&M) Manual

For:

SPRINGVILLE FLEET MAINTENANCE SHOP 801-491-2762

Revised June 2016

Fleet Maintenance Shop (Strong Yard) Operation and Maintenance (O&M) Manual

Table of Contents

- I. Introduction
- II. Pollutant Sources
- III. Fleet Maintenance Shop, Activities and Pollution Control Measures
- IV. Field Activities
- V. Spill Prevention
- VI. Inspections
- VII. Employee Training

Appendices

Appendix A – Site Maps
Appendix B – BMPs Specifications and Details
Appendix C – Training Log
Appendix D – Spill Reports
Appendix E – Corrective Action Log
Appendix F – Visual Inspection Log
Appendix G – Quarterly Comprehensive Inspections

Fleet Maintenance Shop Operation and Maintenance (O&M) Manual

I. Introduction

This manual is designed to assist Springville City personnel on how to properly implement Best Management Practices (BMP's) on City owned facilities and field activities as part of the municipal stormwater management program.

This manual will identify the potential pollutants and activities that can contribute to the pollution of storm waters as well as the BMP's used to ensure that the potential for these pollutants affecting storm water is diminished to the maximum extent practicable.

II. Potential Pollutant Sources

A variety of pollutants are associated with stormwater pollution due to municipal activities including: sediment, nutrients, bacteria and viruses, oxygen demanding substances, oil and grease, metals, toxic pollutants and floatables (Table 1). The impacts of these pollutants on water quality along with a discussion on municipal activities which can potentially contribute to their introduction into stormwater runoff are presented in the following subsections.

- A) Sediment. Sediment is a common component of stormwater, and is considered to be one of the most damaging pollutants in Utah. Sediment fills in streams, lakes, rivers, wetlands and road drainage ditches, and can affect aquatic life by smothering fish larvae and eggs. Suspended soil particles can cause water to look cloudy or turbid. Excessive turbidity reduces light penetration in the water, impairing the sight of feeding fish; clogs fish fills, and increases drinking water treatment costs. Fine sediment also acts as a vehicle to transport other pollutants including nutrients, trace metals and hydrocarbons to nearby surface waters. Significant sediment-borne pollutants are associated with highway runoff; originating from pavement wear, vehicles and other road maintenance. Other sources of sediment include erosion from new development and construction sites.
- B) Nutrients- nutrients, especially nitrogen and phosphorus, can cause algae blooms and excessive aquatic plant growth in water bodies. These conditions can impair many important uses of these waters, including recreation, fish habitat, and water supply. Nitrogen and phosphorus associated with stormwater runoff come mostly from fertilizer application. Phosphorus has also been associated with application of sand and salt of roads. Nutrients are a result of yard debris, garbage, as well as fertilizer and pesticide use.
- C) Metals- Trace metals are a water quality concern because the toxic effects they can have on aquatic life. Metals can also be a health hazard to humans through direct ingestion of contaminated water or through eating contaminated fish. The most common trace metals found in

stormwater runoff in urban areas are lead, zinc, copper, cadmium, nickel and other metal sources originating from body rust, brake lining wear steel highway structures, tire wear, steel fabrication and vehicle maintenance.

- D) Oxygen-demanding substances- oxygen-demanding substances tend to deplete the dissolved oxygen levels in streams and lakes. The depleted oxygen supply can result in the reduction of aquatic life. Oxygendemanding substances are found in yard waste (such as leaves and lawn clippings), animal wastes, street litter and organic matter.
- E) Bacteria and Viruses- bacteria and viruses are the most common microorganisms found in surface water runoff. Bacteria and viruses often carry diseases which can be transferred to animal life and to humans. The main sources of these contaminants are animal excrement and sanitary sewer overflows.
- F) Oil, Grease and Hydrocarbons- oil grease and hydrocarbons contain a wide array of compounds, some of which are toxic to aquatic organisms at low concentrations. The main sources of oil and grease are leakage from engines and waste oil disposal. Hydrocarbons typically come from spills, leaks, lubricants and asphalt surface leachate. Hydrocarbon levels are highest from parking lots, roads and service stations.
- G) Floatables- floatables (garbage) are pollutants that may be contaminated with heavy metals, pesticides and bacteria. Typically resulting from street refuse or industrial yard waste, floatables also create an eye sore in water ways and detention basins.

Pollutant	Source	Impacts
Sediment	Construction sites, vehicle/boat washing, agricultural sites	Destruction of aquatic habitat for fish and plants, transportation of attached oils, nutrients and other chemical contamination, increased flooding. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients (Phosphorus, Nitrogen Potassium, Ammonia)	Fertilizers from agricultural operations, lawns and gardens; livestock and pet waste, decaying grass and leaves, sewer overflows and leaks.	Harmful algal blooms, reduced oxygen in the water, changes in water chemistry and pH. Nutrients can result in excessive or accelerated growth of vegetation, resulting in impaired use of water in lakes and other receiving waters.
Hydrocarbons (Petroleum Products, Benzene, Toluene, Ethyl benzene, Xylene)	Vehicle and equipment fluid leaks, engine emissions, pesticides, equipment cleaning, leaking fuel storage containers, fuel spills, parking lot runoff	These pollutants are toxic to humans and wildlife at very low levels. Carcinogenic. Teratogenic.
Heavy Metals	Vehicle brake and equipment wear, engine emissions, parking lot runoff, batteries, paint and wood preservatives, fuels and fuel additives, pesticides, cleaning agents	Metals including lead, zinc, cadmium, copper, chromium and nickel are commonly found in stormwater. Metals are of concern because they are toxic to all life at very low levels. Carcinogenic. Teratogenic.
Toxic Chemicals (Chlorides)	Pesticides, herbicides, dioxins, PCBs, industrial chemical spills and leaks, deicers, solvents,	Chemicals are of concern because they are toxic to all life at very low levels. Carcinogenic. Teratogenic.
Debris/Litter/Trash	Improper solid waste storage and disposal, abandoned equipment, litter	Aesthetically unpleasant. Risk of decay product toxicity. Risk of aquatic animal entrapment or ingestion and death.
Pathogens (Bacteria)	Livestock, human, and pet waste, sewer overflows and leaks, septic systems	Human health risks due to disease and toxic contamination of aquatic life.

Sources of Pollution	Sediment Primary Pollutant	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & Herbicides	Oil & Grease	Bacteria & Viruses	Trash, Debris, Solids	Other toxic Chemicals
Clearing, grading, excavating, and un- stabilized areas	V							\checkmark	
Paving operations	\checkmark					\checkmark		\checkmark	
Concrete washout, stucco and cement waste			V	V				V	
Structure construction, painting, cleaning			\checkmark	\checkmark				\checkmark	\checkmark
Demolition and debris disposal	\checkmark							\checkmark	
Material Delivery and storage	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark		\checkmark	J
Solid waste disposal								\checkmark	\checkmark
Hazardous Waste, contaminated spills			\checkmark	\checkmark	\checkmark	\checkmark			\checkmark
Sanitary waste		\checkmark		\checkmark			\checkmark		
Vehicle/equipment fueling, maintenance, use and storage						\checkmark		\checkmark	\checkmark
Landscaping operations	\checkmark	\checkmark			\checkmark			\checkmark	\checkmark
Vehicle washing (Not allowed at this location)									

Table 1 Potential pollutants of concern associated with municipal activities.

III. Facilities Locations, Activities and Control Measures

1. CITY FLEET MAINTAINCE SHOP (High Priority)

Location- Located at 909 East 400 South, this City facility is shared with other departments.

Activities- The shop is used to maintain and repair all vehicles owned by Springville City.

The most common supplies stored in the buildings are:

OilsSolventsPaintsGreaseaerosol cansantifreeze

Outdoor Storage area includes the following:

Metal salvage container Equipment Parking Area

Control Measures

General Cleanliness

- Trash and litter are to be picked up from work areas daily.
- The yard will be walked to pick up and dispose of litter weekly
- The paved surfaces around the building will be swept as needed.

Vehicle and Equipment Work Areas

- All major repairs and maintenance activities are conducted indoors.
- Oils and other automotive fluids are neatly and cleanly stored indoors. Oil drums are stored indoors and are properly labeled.
- Used oil is stored indoors and is then sold and picked up by Rock Canyon Oil located in American Fork, Utah.
- Vehicles and equipment will be parked on the approved designated areas
- Equipment that is stored outside will be inspected prior to use to make sure that all drips are contained and/or repaired.
- If any leaks are discovered, a drip pan will be used to collect the fluids and vehicle will be scheduled for repairs.
- Any leaks or spills that do wind up on the pavement will be cleaned using dry methods (absorbent material, sweep when dry and dispose in the garbage can)
- No washing is allowed outdoors or indoors until the floor drains are connected to the sanitary sewer through an oil water separator.

Material Storage Areas

- All vehicles being worked on will be stored indoors
- Hazardous chemicals (listed above) are stored indoors, neatly organized and properly labeled.

Vehicle and Equipment Cleaning Areas

• There are no wash facilities at this location. All major washing will be done at the local commercial carwashes or at the Springville City Electrical Department Facility.

IV. Field Activities and Control measures

Activities

Field activities include minor brake down repairs like battery replacement, fan belt replacement, towing vehicles to the shop, etc.

Control Measures

Good house keeping: Pick up garbage from the work sites, sweep work areas after work is completed. Any spills or leaks will be controlled with floor dry or a drip pan and disposed of by throwing dry waste in the garbage. Liquids collected on the drip pans will be taken to the shop and will be dumped in the appropriate collection container to get recycled.

V. Spill Prevention and Response Procedures

Each work area and service truck will have a spill response kit. The suggested minimum spill response kit will contain: absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms. Spills of diesel fuel or oil and gasoline spills over 5 gallons will require to fill a spill report and a spill over 25 gallons will need to be reported to the appropriate Local, State and Federal Agencies. Most of the spills can be cleaned up using absorbent/oil dry materials.

Hazardous Material	Location of Spill	Reportable Quantity
Gasoline, Diesel Fuel and Oils	Land/Water	Over 25 gallons

1st Priority: Protect all people 2nd Priority: Protect equipment and property 3rd Priority: Protect the environment

- 1. Make sure the spill area is safe to enter and that it does not pose an immediate threat to health or safety of any person.
- 2. Stop the spill source
- Check for hazards (flammable material, noxious fumes, cause of spill) if flammable liquid, turn off engines and nearby electrical equipment. If serious hazards are present leave area and call 911. LARGE SPILLS ARE LIKELY TO PRESENT A HAZARD.
- 4. Call co-workers and supervisor for assistance and to make them aware of the spill and potential dangers
- 5. If possible, stop spill from entering drains (use absorbent or other material as necessary)
- 6. Stop spill from spreading (use absorbent or other material)
- 7. If spilled material has entered a storm sewer; contact the City Storm Water Department.
- 8. Clean up spilled material according to manufacturer specifications, for liquid spills use absorbent materials and do not flush area with water.
- 9. Properly dispose of cleaning materials and used absorbent material according to manufacturer specifications.

Emergency Numbers

Springville City Fire Department	801-491-5600
Springville City Police Department	801-489-9421
Springville City Storm Water Collections	801-489-2745

VI. Inspections

Personnel from the Fleet Department will conduct inspections of the assigned areas and document with the appropriate report. Inspection reports and logs are located on the appendices section of this manual.

- Weekly visual inspections for:
 - Fleet maintenance shop assigned area.
- Quarterly comprehensive inspections will be conducted by the Storm Water Department personnel.

Weekly visual inspections will be tracked in the log attached on appendix F, quarterly comprehensive inspections will be documented on appendix G; spills will be cleaned up immediately and documented on a spill report located on appendix D.

Deficiencies will have to be corrected with in one week of being reported. All inspections and follow up actions will be documented and kept within this O&M Manual. Corrective Action Log Appendix E

VII. Employee Training (permit requirement 4.2.1.5.)

All of the Fleet Department employees will receive training regarding this O&M Manual at least annually. The training will cover the following subjects:

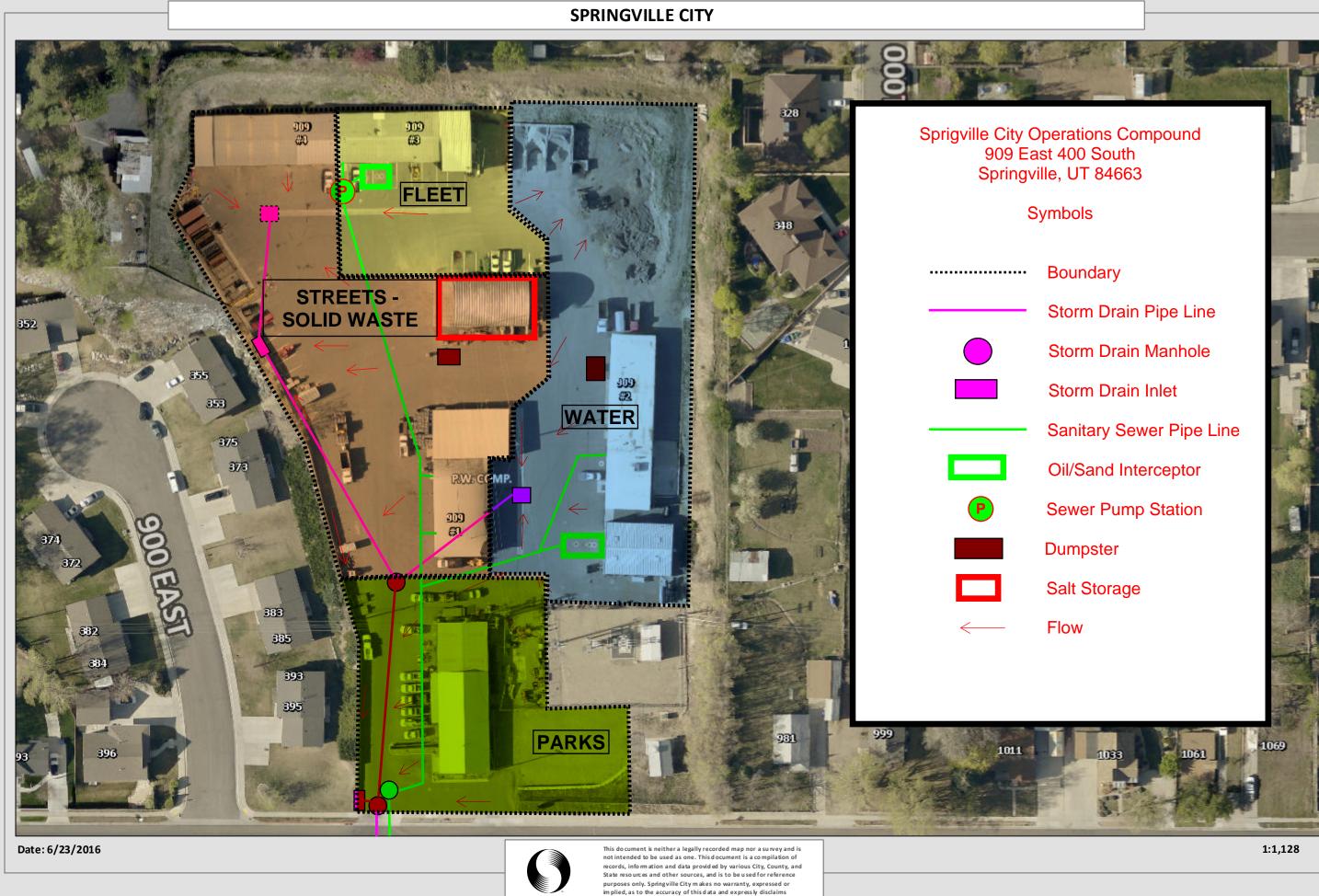
- Impacts associated with illicit discharges;
- Proper disposal and management of wastes;
- Proper maintenance of indoor and outdoor working areas including parking lot surfaces;
- Spill response; and
- Inspections training.

Appendices

Appendix A – Site Maps
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Appendix A

Site Maps



Springville

liability for the accuracy of the data and docum ent. ----- Springville City GIS - mphilp@springville.org

Appendix B

BMPs Specifications and Details

BMP: Area Control Procedures



DESCRIPTION:

Area control procedures involve practicing good housekeeping measures such as maintaining indoor or covered material storage and industrial processing areas. If the area is kept clean, the risk of accumulating materials on footwear and clothing is reduced. In turn, the chance of left over pollutants making contact with stormwater polluting surface water is minimized.

APPROACH:

Area control procedures can be used at any facility where materials may be tracked into areas where they can come in contact with stormwater runoff. Areas can include material handling areas, storage areas, or process areas.

Effective practices include the following:

- Cover garments, foot mats, and other devices used to collect residual material near the area should be cleaned regularly.
- Brush off clothing before leaving the area.
- Stomp feet to remove material before leaving the area.
- Use floor mats at area exits.
- Use coveralls, smocks, and other overgarments in areas where exposure to material is of greatest concern (employees should remove the overgarments before leaving the area).
- Post signs to remind employees about these practices.

LIMITATIONS:

May be seen as tedious by employees and therefore may not be followed.

MAINTENANCE:

Materials storage areas and industrial processing areas should be checked regularly to ensure that good housekeeping measures are implemented.

APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices



Springville

Springville City Corporation Public Works Department Engineering Division 110 South Main Street Springville, Utah 84663 801-491-2780

TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

Medium

- Capital Costs
- O&M Costs
- Maintenance
- Training

High

Materials Adopted From Salt Lake County Engineering Division Guidance Document

Low

APPLICATIONS Manufacturing Material Handling Vehicle Maintenance Construction Commercial Activities Roadways Waste Containment Housekeeping Practices **DESCRIPTION:** Prevent or reduce the discharge of pollutants to stormwater from aboveground storage tanks by installing safeguards against accidental releases, installing secondary containment, conducting regular inspections, and training employees in standard operating procedures and spill cleanup techniques. Springville The most common causes of unintentional releases are: Installation problems, Springville City Corporation Failure of piping systems (pipes, pumps, couplings, hoses, and valves), Public Works Department External corrosion and structural failure, Engineering Division Spills and overfills due to operator error, and 110 South Main Street Leaks during pumping of liquids or gases from truck to a storage tank or vice Springville, Utah 84663 versa. 801-491-2780 APPROACH: Integrate efforts with existing above ground petroleum storage tank programs **TARGETED POLLUTANTS** through the local Fire Department and Health Department, and area and business emergency response plans through the City, County, or Fire District. High Impact Use engineering safeguards to reduce the chance for spills. Medium Impact Perform regular maintenance. • Low or Unknown Impact LIMITATIONS: Sediment For larger spills, a private spill clean-up company or Hazmat team may be Nutrients necessary. Heavy Metals Toxic Materials Oxygen Demanding Substances **MAINTENANCE:** Oil & Grease Maintenance is critical to preventing leaks and spills. Conduct routine weekly Floatable Materials inspections and: Bacteria & Viruses Check for external corrosion and structural failure, Check for spills and overfills due to operator error, IMPLEMENTATION REQUIREMENTS Check for failure of piping system (pipes, pumps, flanger, coupling, hoses, and . Capital Costs valves), O&M Costs • Check for leaks or spills during pumping of liquids or gases from truck to storage Maintenance facility or vice versa. Training

BMP: Aboveground Tank Leak And Spill Control

Periodically, integrity testing should be conducted by a qualified professional.

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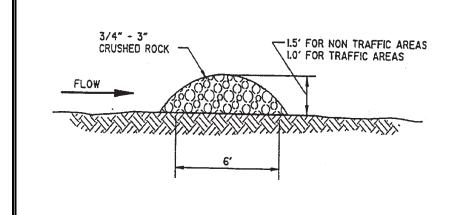
• Low

• Medium

High

ATL

BMP: Brush or Rock Filter



DESCRIPTION:

A rock filter is made of rock 3/4 - 3" in diameter and placed along a level contour. A brush filter is composed of brush (usually obtained during the site clearing) wrapped in filter cloth and anchored to the toe of the slope. If properly anchored brush or rock filters may be used for sediment trapping and velocity reduction.

APPLICATION:

- As check dams across mildly sloped construction roads.
- Below the toe of slopes.
- Along the site perimeter.
- In areas where sheet or rill flow occurs.
- Around temporary spoil areas.
- At sediment traps or culvert/pipe outlets.

INSTALLATION/APPLICATION CRITERIA:

- For rock filter, use larger rock and place in a staked, woven wire sheathing if placed where concentrated flows occur.
- Install along a level contour.
- Leave area behind berm where runoff can pond and sediment can settle.
- Drainage areas should not exceed 5 acres.

LIMITATIONS:

- Rock berms may be difficult to remove.
- Removal problems limit their usefulness in landscaped areas.
- Runoff will pond upstream of the filter, possibly causing flooding if sufficient space does not exist.

MAINTENANCE:

- Inspect monthly after each rainfall.
- If berm is damaged, reshape and replace lost/dislodged rock.
- Remove sediment when depth reaches 1/3 of berm height, or 1 ft.

Materials Adapted From Salt Lake County Engineering Division Guidance Document

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion



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TARGETED POLLUTANTS

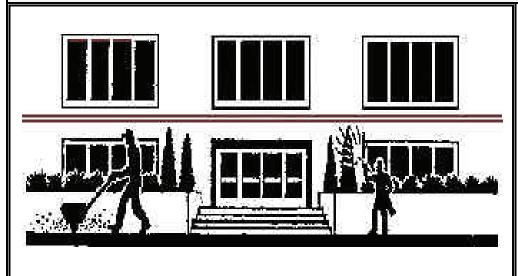
- High Impact
- Medium Impact
- Low or Unknown Impact
 - Sediment
- Nutrients

- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training

BMP: Building And Grounds Maintenance



DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from buildings and grounds maintenance by washing and cleaning up with as little water as possible, preventing and maintaining the stormwater collection system.

Buildings and grounds maintenance includes taking care of landscaped areas around the facility, cleaning of parking lots and pavement other than in the area of industrial activity, and the cleaning of the storm drainage system.

APPROACH:

- Preserve existing native vegetation to reduce water, fertilizer, and pesticide needs.
- Carefully use pesticides and fertilizers in landscaping.
- Integrate pest management where appropriate.
- Sweep paved surfaces.
- Clean the storm drainage system at appropriated intervals.
- Properly dispose of wash water, sweepings, and sediments.

LIMITATIONS:

Alternative pest/weed controls may not be available, suitable or effective in every case.

MAINTENANCE:

The BMPs themselves relate to maintenance and do not require maintenance as they do not involve structures.

APPLICATIONS

BGM

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices



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TARGETED POLLUTANTS

- High Impact
- Low or Unknown Impact
- Medium Impact

Sediment

- Nutrients
- Heavy Metals
- Toxic Materials
 Owner Domain
- Oxygen Demanding SubstancesOil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

Medium

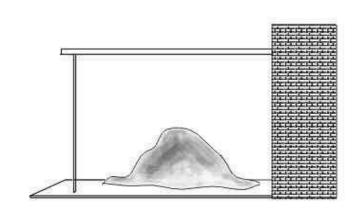
- Capital Costs
- O&M Costs
- MaintenanceTraining
- Indiming

High

Materials Adopted From Salt Lake County Engineering Division Guidance Document

• Low

BMP: Covering



DESCRIPTION:

Covering is the partial or total physical enclosure of materials, equipment, process operations, or activities. Covering certain areas or activities prevents stormwater from coming into contact with potential pollutants and reduces material loss from wind blowing. Tarpaulins, plastic sheeting, roofs, buildings, and other enclosures are examples of covering that are effective in preventing stormwater contamination. Covering can be temporary or permanent.

APPROACH:

- Covering is appropriate for outdoor material storage piles (e.g., stockpiles of dry materials, gravel, sand, compost, sawdust, wood chips, and de-icing salt) as well as areas where liquids and solids in containers are stored or transferred.
- While it may be too expensive to cover all industrial activities, cover all highrisk areas first (e.g., chemical preparation areas, vehicle maintenance areas, and areas where salts are stored), then according to budget cover the rest of the materials.
- Evaluate the strength and longevity of the covering, as well as its compatibility with the material or activity being enclosed.
- When designing an enclosure, consider access to materials, their handling, and transfer.
- Materials that pose environmental and safety dangers require special ventilation and temperature considerations.
- Covering alone may not protect the materials. When designing, consider placing materials on an elevated, impermeable surface or build curbing around the outside of the materials to prevent problems from runon of uncontaminated stormwater from adjacent areas.
- Anchor all coverings with stakes, tie-down ropes, large rocks, tires or other easily available heavy objects.

LIMITATIONS:

Requires frequent inspection.

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May pose health or safety problems if enclosure is built over certain activities.

MAINTENANCE:

• Frequently inspect coverings for rips, holes and general wear.

APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices



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TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact

Sediment

- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

Medium

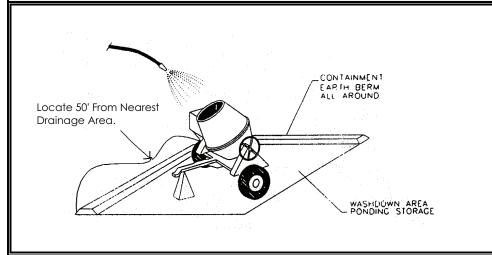
- Capital Costs
- O&M Costs Maintenance
- Training

High

• Low

BMP: Concrete Waste Management

CWM



DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout off-site, performing on-site washout in a designated area, and training employees and subcontractors.

APPLICATIONS:

This technique is applicable to all types of sites.

INSTALLATION/APPLICATION CRITERIA:

- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete or cement on-site.
- Perform washout of concrete trucks off-site or in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped on-site, except in designated areas.
- When washing concrete to remove fine particles and expose the aggregate, avoid creating runoff by draining the water within a bermed or level area. (See Earth Berm Barrier information sheet.)
- Train employees and subcontractors in proper concrete waste management.

LIMITATIONS:

• Off-site washout of concrete wastes may not always be possible.

MAINTENANCE:

- Inspect subcontractors to ensure that concrete wastes are being properly managed.
- If using a temporary pit, dispose hardened concrete on a regular basis.

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion



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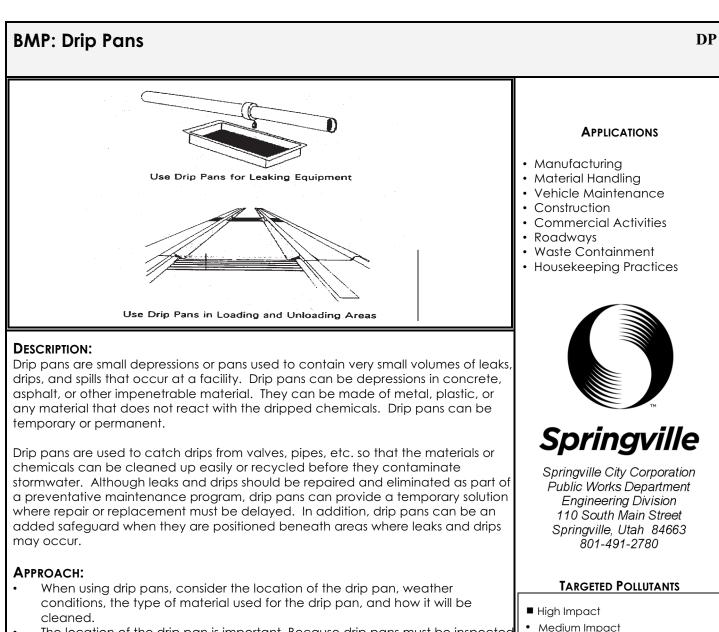
TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Maintenance
- Training
- High Medium Low

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- The location of the drip pan is important. Because drip pans must be inspected and cleaned frequently, they must be easy to reach and remove. However, take special care to avoid placing drip pans where they can be easily overturned or be a safety hazard.
- Secure pans by installing or anchoring them. Drip pans may be placed on platforms, behind wind blocks or tied down.
- Employees must pay attention to the pans and empty them when they are nearly full.
- Frequent inspection of the drip pans is necessary due to the possibility of leaks in the pan itself or in piping or valves that may occur randomly or irregular slow drips that may increase in volume.

LIMITATIONS:

- Contain small volumes only.
- Must be inspected and cleaned frequently.
- Must be secured during poor weather conditions.
- Contents may be disposed of improperly unless facility personnel are trained in proper disposal methods.
 High Medium Low

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Low or Unknown Impact

Oxygen Demanding Substances

IMPLEMENTATION REQUIREMENTS

Sediment

Nutrients

Heavy Metals

Oil & Grease

Capital CostsO&M Costs

Maintenance

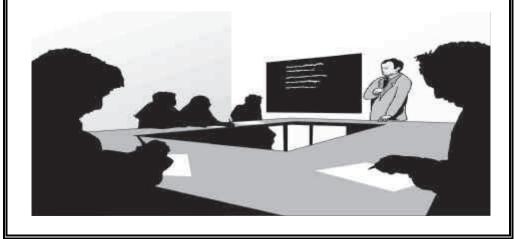
Training

Floatable Materials

Bacteria & Viruses

Toxic Materials

BMP: Employee Training



DESCRIPTION:

Employee training, like equipment maintenance, is a method by which to implement BMPs. Employee training should be used in conjunction with all other BMPs as part of the facility's SWPPP.

The specific employee training aspects of each of the source controls are highlighted in the individual information sheets. The focus of this information sheet is more general, and includes the overall objectives and approach for assuring employee training in stormwater pollution prevention. Accordingly, the organization of this information sheet differs somewhat from the other information sheets in this chapter.

OBJECTIVES:

Employee training should be based on four objectives:

- Promote a clear identification and understanding of the problem, including activities with the potential to pollute stormwater;
- Identify solutions (BMPs);
- Promote employee ownership of the problems and the solutions; and
- Integrate employee feedback into training and BMP implementation.

APPROACH:

- Integrate training regarding stormwater quality management with existing training programs that may be required for other regulations.
- Employee training is a vital component of many of the individual source control BMPs included in this manual.

PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges



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TARGETED POLLUTANTS

- High Impact
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- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

Medium

- Capital Costs
- O&M Costs
- RegulatoryTraining
- Staffing

High

Administrative

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Low

BMP: Housekeeping Practices



DESCRIPTION:

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals.

APPROACH:

- Pattern a new program after the many established programs from municipalities around the country. Integrate this best management practice as much as possible with existing programs at your municipality.
- This BMP has two key audiences: municipal employees and the general public.
- For the general public, municipalities should establish a public education
 program that provides information on such items as storm water pollution and
 beneficial effects of proper disposal on water quality; reading product labels;
 safer alternative products; safe storage, handling, and disposal of hazardous
 products; list of local agencies; and emergency phone numbers. The programs
 listed below have provided this information through brochures or booklets that
 are available at a variety of locations including municipal offices, household
 hazardous waste collection events or facilities, and public information fairs.

Municipal facilities should develop controls on the application of pesticides, herbicides, and fertilizers in public right-of-ways and at municipal facilities. Controls may include:

- List of approved pesticides and selected uses.
- Product and application information for users.
- Equipment use and maintenance procedures.
- Record keeping and public notice procedures.

LIMITATIONS:

There are no major limitations to this best management practice.

PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges



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TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

- Capital Costs
- O&M Costs
- Regulatory
- Training
- StaffingAdministrative
- Administrative

High • Medium

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• Low

BMP: Hazardous Waste Management

HWM



DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste throughproper material use, waste disposal, and training of employees and subcontractors.

APPLICATION:

Many of the chemicals used on-site can be hazardous materials which become hazardous waste upon disposal. These wastes may include:

• Paints and Solvents; petroluem products such as oils, fuels, and grease; herbicides and pesticides; Acids for cleaning masonry; and concrete curing compounds.

In addition, sites with existing structures may contain wastes which must be disposed of in accordance with Federal, State, and local regulations, including:

• Sandblasting grit mixed with lead, cadmium, or chromium-based paints; Asbestos; and PCB's.

INSTALLATION/APPLICATION CRITERIA:

The following steps will help reduce storm water pollution from hazardous wastes:

- Use all of the product before disposing of the container.
- Do not remove the original product label, it contains important safety and disposal information.
- Do not over-apply herbicides and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried off-site by runoff. Do not apply these chemicals just before it rains. People applying pesticides must be certified in accordance with Federal and State regulations.

LIMITATIONS:

Hazardous wastethat cannot be reused or recycled must be disposed of by a licensed hazardous waste hauler.

MAINTENANCE:

- Inspect hazardous waste receptacles and area regularly.
- Arrange for regular hazardous waste collection.

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OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion



Springville

Springville City Corporation Public Works Department Engineering Division 110 South Main Street Springville, Utah 84663 801-491-2780

TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

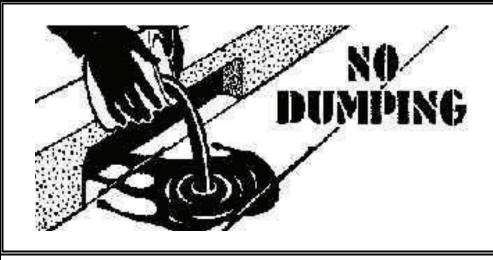
Medium

- Capital Costs
- O&M Costs
- Maintenance
- Training

High

• Low

BMP: Illegal Dumping Controls



DESCRIPTION:

Implement measures to detect, correct, and enforce against illegal dumping of pollutants on streets, into the storm drain system, and into creeks. Substances illegally dumped on streets, into the storm drain system, and into creeks includes paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. All of these wastes can cause storm water and receiving water quality problems as well as clog the storm drain system.

APPROACH:

One of the keys to success is increasing the general public's awareness of the problem and to at least identify the incident, if not correct it. There are a number of ways of accomplishing this:

- Train municipal staff from all departments to recognize and report incidents.
- Deputize municipal staff who may come into contact with illegal dumping with the authority to write illegal dumping tickets for offenders caught in the act.
- Educate the public.
- Provide the public with a mechanism for reporting such as a hot line.

Establish system for tracking incidents which will identify:

- Illegal dumping "hot spots",
- Types and quantities (in some cases) of wastes,

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- Patterns in time of occurrence (time of day/night, month, or year),
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accident/spills), and
- Responsible parties.

A tracking system also helps manage the program by indicating trends, and identifying who, what, when, and where efforts should be concentrated.

LIMITATIONS

The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal.

PROGRAM ELEMENTS

- New Development
- Residential
- Commercial Activities
- Industrial Activities
- Municipal Facilities
- Illegal Discharges



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TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

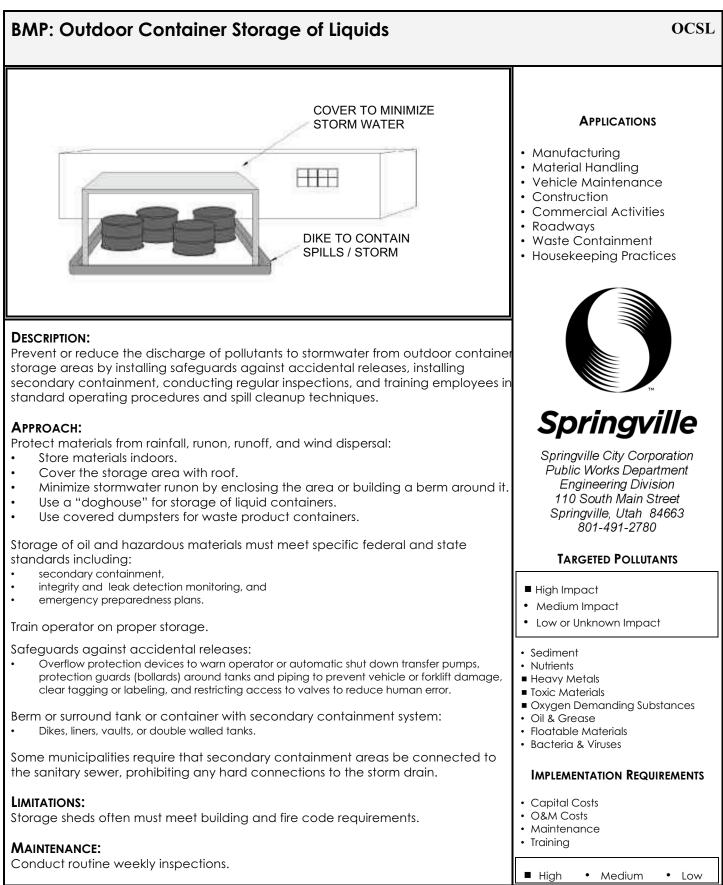
Medium

- Capital Costs
- O&M Costs
- Regulatory
- TrainingStaffing

High

Administrative

Low



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BMP: Spill Clean-Up



DESCRIPTION:

Practices to clean-up leakage/spillage of on-site materials that may be harmful to receiving waters.

APPLICATION:

All sites

GENERAL:

- Store controlled materials within a storage area.
- Educate personnel on prevention and clean-up techniques.
- Designate an Emergency Coordinator responsible for employing preventative practices and for providing spill response.
- Maintain a supply of clean-up equipment on-site and post a list of local response agencies with phone numbers.

METHODS:

- Clean-up spills/leaks immediately and remediate cause.
- Use as little water as possible. NEVER HOSE DOWN OR BURY SPILL CONTAMINATED MATERIAL.
- Use rags or absorbent material for clean-up. Excavate contaminated soils. Dispose of clean-up material and soil as hazardous waste.
- Document all spills with date, location, substance, volume, actions taken and other pertinent data.
- Contact local Fire Department and State Division of Environmental Response and Remediation (Phone #536-4100) for any spill of reportable quantity.

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion



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- High Impact
- Medium Impact
- Low or Unknown Impact
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

• Low

- Capital Costs
- O&M Costs
- Maintenance
- Training
- High Medium

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SCU

BMP: Signs and Labels





DESCRIPTION:

Signs and labels identify problem areas or hazardous materials at a facility. Warning signs, often found at industrial facilities, are a good way to suggest caution in certain areas. Signs and labels can also provide instructions on the use of materials and equipment. Labeling is a good way to organize large amounts of materials, pipes, and equipment, particularly on large sites.

APPROACH:

Signs and labels can be used at all types of facilities. Areas where they are particularly useful are material transfer areas, equipment areas, loading and unloading areas, or anywhere information might prevent contaminants from being released to stormwater.

Signs and labels should be visible and easy to read. Useful signs and labels might provide the following information:

- Names of facility and regulatory personnel, including emergency phone numbers, to contact in case of an accidental discharge, spill, or other emergency.
- Proper uses of equipment that could cause release of stormwater contaminants.
- Types of chemicals used in high-risk areas.
- The direction of drainage lines/ditches and their destination (treatment or discharge).
- Information on a specific material.
- Refer to OSHA standards for sizes and numbers of signs required for hazardous material labeling.

LIMITATIONS:

No limitations.

MAINTENANCE:

- Periodic checks can ensure that signs are still in place and labels are properly attached.
- Signs and labels should be replaced and repaired as often as necessary.

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APPLICATIONS

- Manufacturing
- Material Handling
- Vehicle Maintenance
- Construction
- Commercial Activities
- Roadways
- Waste Containment
- Housekeeping Practices



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TARGETED POLLUTANTS

- High ImpactMedium ImpactLow or Unknown Impact
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

Capital Costs

MaintenanceTraining

O&M Costs

High

IMPLEMENTATION REQUIREMENTS

Medium

• Low

BMP: Sorbents



DESCRIPTION:

Sorbents are materials that are capable of cleaning up spills through the chemical processes of adsorption and absorption. Sorbents adsorb (an attraction to the outer surface of a material) or absorb (taken in by the material like a sponge) only when they come in contact with the sorbent materials.

Sorbents include, but are not limited to, the following:

- Common materials such as clays, sawdust, straw and fly ash
- Polymers polyurethane and polyolefin
- Activated Carbon powdered or granular
- "Universal Sorbent Material" a silicate glass foam consisting of rounded particles that can absorb the material.

APPLICATION:

Sorbents are useful BMPs for facilities with liquid materials onsite.

INSTALLATION/APPLICATION CRITERIA:

- Personnel should know the properties of the spilled material(s) to know which sorbent is appropriate. To be effective, sorbents must adsorb the material spilled but must not react with the spilled material to form hazardous or toxic substances.
- Apply immediately to the release area.
- Application is generally simple: the sorbent is added to the area of release, • mixed well, and allowed to adsorb or absorb.
- Many sorbents are not reusable once they have been used.
- Proper disposal is required.

LIMITATIONS:

- Requires a knowledge of the chemical makeup of a spill (to choose the best sorbent).
- May be an expensive practice for large spills.
- May create disposal problems and increase disposal costs by creating a solid waste and potentially a hazardous waste.

MAINTENANCE:

No information available.

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CONSIDERATIONS

- Soils
- Area Required
- Slope
- Water Availability
- Aesthetics
- Hydraulic Head
- Environmental Side Effects



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TARGETED POLLUTANTS

High Impact Medium Impact • Low or Unknown Impact • Sediment Nutrients • Heavy Metals Toxic Materials Oxygen Demanding Substances Oil & Grease Floatable Materials • Bacteria & Viruses **IMPLEMENTATION REQUIREMENTS** • Capital Costs O&M Costs Maintenance • Training • Low High Medium

SO

BMP: Vehicle And Equipment Cleaning



DESCRIPTION:

Prevent or reduce the discharge of pollutants to storm water from vehicle and equipment cleaning by using off-site facilities, washing in designated, contained areas only, eliminating discharges to the storm drain by infiltrating or recycling the wash water, and/or training employees and subcontractors.

INSTALLATION/APPLICATION:

- Use off-site commercial washing businesses as much as possible. Washing vehicles and equipment outdoors or in areas where wash water flows onto paved surfaces or into drainage pathways can pollute storm water. If you wash a large number of vehicles or pieces of equipment, consider conducting this work at an off-site commercial business. These businesses are better equipped to handle and dispose of the wash waters properly. Performing this work off-site can also be economical by eliminating the need for a separate washing operation at your site.
- If washing must occur on-site, use designated, bermed wash areas to prevent wash water contact with storm water, creeks, rivers, and other water bodies. The wash area can be sloped for wash water collection and subsequent infiltration into the ground.
- Use as little water as possible to avoid having to install erosion and sediment controls for the wash area. Use phosphate-free biodegradable soaps. Educate employees and subcontractors on pollution prevention measures. Do not permit steam cleaning on-site. Steam cleaning can generate significant pollutant concentrations.

LIMITATIONS:

- Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades.
- Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance.

MAINTENANCE:

• Minimal, some berm repair may be necessary.

OBJECTIVES

- Housekeeping Practices
- Contain Waste
- Minimize Disturbed Areas
- Stabilize Disturbed Areas
- Protect Slopes/Channels
- Control Site Perimeter
- Control Internal Erosion



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	TARGETED POLLUTANTS
t ate	 High Impact Medium Impact Low or Unknown Impact
)	 Sediment Nutrients Toxic Materials Oil & Grease Floatable Materials Other Waste
	IMPLEMENTATION REQUIREMENTS • Capital Costs • O&M Costs • Maintenance • Training

High

Materials Adopted From Salt Lake County Engineering Division Guidance Document

• Low

• Medium

Appendix C

Training Log



Training Date:

Training Description:

Trainer:

Employee Name	Employee Signature

Appendix D

Spill Reports

PUBLIC WORKS

NON-STORM WATER DISCHARGE INSPECTION REPORT

Date of Spill:	Time:	Springville
Location:		
Date of Investigation:	Time:	
Method of Discovery:		
REGUALTORY AGENCIES NOTIFICATION (document: date, ti	me, person, agency)	
Springville City (801-491-2780):		
Utah County Health Department: (801-851-7525)		
DWQ (801-536-4300, after hours 801-536-4123):		
Other:		
Description and Quantity of Material Spilled: Gasoline Diesel Oil Antifreeze 1 to 5 Gallons 5 to 10 Gallons 10 to 25 Gallons	Other: More than 25 Gallons	
Source:		
Cause:		
Adverse environmental impact (if any):		
Any Discharge to Storm Drain and or waters of the U.S.?	Yes No Do not know	
Immediate remedial actions taken at time of spill:		
Spill Containment Sweeping Other:	Absorbent Material	Removal from site
Method of removal and verification:		
Additional comments:		
Analytical Monitoring:		
Enforcement Action:		

Appendix E

Corrective Action Log



Date Completed	Describe the actions taken and note the person(s) that completed the work

Appendix F

Weekly Visual Inspection Log



Fleet Division Weekly Visual Inspection Log.

	Check the box if a deficiency is observed, describe the corrective actions taken on the notes section or on the corrective action log.
Name:	400 South Compound:
	Parking areas are clean Shop is clean and organized Outdoor storage areas are free of polluting materials
Date:	Spill kit is available and well stocked Scrap Metal Containment Chemicals, solvents and oils labeled and stored
	Garbage cans lids closed Trash picked up
Notes:	
	Check the box if a deficiency is observed, describe the corrective actions taken on the notes section or on the corrective action log.
Name:	400 South Compound:
	Parking areas are clean Shop is clean and organized Outdoor storage areas are free of polluting materials
Date:	Spill kit is available and well stocked Scrap Metal Containment Chemicals, solvents and oils labeled and stored
	Garbage cans lids closed Trash picked up
Notes:	
	Check the box if a deficiency is observed, describe the corrective actions taken on the notes section or on the corrective action log.
Name:	400 South Compound:
	Parking areas are clean Shop is clean and organized Outdoor storage areas are free of polluting materials
Date:	Spill kit is available and well stocker Scrap Metal Containment Chemicals, solvents and oils labeled and stored
	Garbage cans lids closed Trash picked up
Notes:	
	Check the box if a deficiency is observed, describe the corrective actions taken on the notes section or on the corrective action log.
Name:	400 South Compound:
	Parking areas are clean Shop is clean and organized Outdoor storage areas are free of polluting materials
Date:	Spill kit is available and well stocked Scrap Metal Containment Chemicals, solvents and oils labeled and stored
	Garbage cans lids closed Trash picked up
Notes:	
	Check the box if a deficiency is observed, describe the corrective actions taken on the notes section or on the corrective action log.
Name:	400 South Compound:
	Parking areas are clean Shop is clean and organized Outdoor storage areas are free of polluting materials
Date:	Spill kit is available and well stocked Scrap Metal Containment Chemicals, solvents and oils labeled and stored
	Garbage cans lids closed Trash picked up

Appendix G

Quarterly Comprehensive Inspections



High Priority Facility SWPPP Compliance Report

Site Name: Insp					Inspected By:
Date of Evaluation:	Start/End Time:				Existing Weather Conditions:
Date of last rain event > .1" of precipitation:					Approximate rainfall:
	Areas	s of In	dustria	al activ	vities and materials exposed to stormwater
Area/Activity	Was area Inspected?		Are controls operating effectively		Describe Corrective Action Needed
	yes	no	yes	no	
1. Outdoors and indoor material storage areas					
2. Equipment and vehicle parking areas					
3. Dumpsters					
4. Paved areas					
5. Storm drain inlets and gutters					
6. Indoors working and storage areas					
7. Spill Kits					
Additional Notes:					

I certify that this document and all attachments were prepared under my direction. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.