



Operation and Maintenance (O&M) Manual

for:

***Springville City Water Reclamation,
Sewer Collection and Storm Water***

Revised June 2016

**Water Reclamation, Sewer Collection and Storm Water
Operation and Maintenance (O&M) Manual**

Table of Contents

- I. Introduction**
- II. Pollutant Sources**
- III. Facilities Locations, Activities and Pollution Control Measures**
 - 1. WWTP**
 - 2. Sanitary Sewer Pump Stations**
 - 3. Storm Drain Regional Detention Ponds**
- IV. Field Activities and SOPs**
- V. Dry Weather Screening**
- VI. IDDE SOPs**
- VII. Spill Prevention**
- VIII. Inspections**
- IX. 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 – Annual Post-construction Facilities Inspections**
- Appendix H – Dry Weather Screening Report Form**

Water Reclamation, Sewer Collection, and Storm Water 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. Oxygen-demanding 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.

Table 1. Potential pollutants of concern associated with municipal activities								
	Other Pollutants							
	Primary Pollutant							
	Sediment	Nutrients	Heavy Metals	pH (acids and bases)	Pesticides & herbicides	Oil & grease	Bacteria & viruses	trash, debris, solids
Clearing, grading, excavating, and unstabilized areas	x							x
Paving Operations	x							x
Concrete washout and waste			x	x				x
Structure construction, painting, cleaning		x		x				x
Demolition and debris disposal	x							x
Dewatering Operations	x	x						
Road cutting, Drilling, concrete grinding	x			x				x
Material delivery and storage (depending what it is)	x	x	x	x	x	x		x
Materials used during building process		x	x	x	x	x		x
Solid waste (trash and debris)								x
Hazardous waste			x	x	x	x		
Vehicle/equipment fueling and maintenance						x		
Vehicle storage						x		

III. Facilities Locations, Activities and Control Measures

1. WWTP and Compost Facility

Location- Located at 500 West 700 North. The WWTP, Sewer Collections and Storm Water Division share their facility with the Power Generation and Power Distribution Departments.

Activities- Waste Water Reclamation, Composting, Vehicle Storage, Sweeper and Jet-Vac Equipment Cleaning.

Control Measures SOPs

Good House Keeping. Good housekeeping practices offer a practical and cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with storm water. Good housekeeping practices also help to enhance safety and improve the overall work environment.

- Trash and litter are to be picked up from indoor and outdoor work areas daily.
- The yard will be walked to pick up and dispose of litter daily
- The paved surfaces around the building will be swept every two weeks.
- All buildings that have floor drains are connected to the sanitary sewer.
- All of the drains around the compost facility are connected to the sanitary sewer system.

Vehicle and Equipment Parking Areas

- Vehicles and equipment will be parked on the approved designated areas
- If any oil or antifreeze 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)

Vehicle and Equipment Washing Areas

- Vehicles are washed at the car wash bay or at the water reclamation facility drying beds.
- Drying bed materials are dewatered and hauled away to the land fill.

Vehicle and Equipment Maintenance Areas

- All major repairs and maintenance activities are conducted at the City Shop located at 906 East 400 South.
- Activities such as adding oil to engines is done indoors.
- Oils and other automotive fluids are neatly and cleanly stored.
- Equipment that is stored outside will be inspected prior to use to make sure that all drips are contained and/or repaired.

2. Sanitary Sewer Pump Stations

Locations

- | | |
|--------------------|-------------------------------------|
| 1. Valtek | 1380 North Mountain Springs Parkway |
| 2. Westfield's | 1150 North 1800 West |
| 3. Hobble Creek | 1000 North 1500 West |
| 4. Oakbrook | 405 West 1200 North |
| 5. East | 550 North 600 East |
| 6. South | 1200 South Main |
| 7. Spring Haven | 2591 West 700 South |
| 8. Thirty Oaks | 2800 East Canyon Road |
| 9. 1415 North | 1415 North 100 West |
| 10. East Bay | 1940 West 1400 North |
| 11. City Hall | 110 South Main |
| 12. 900 S Compound | 909 East 400 South |
| 13. Arts Park | 650 South 1350 East |

Activities

Pump Maintenance: Change gear oil every year. Pumps take about 1 qt. to 5 gallons of oil.

- Spill kit at hand
- Clean up area when service is finished

Grounds Maintenance: sweep inside the pump building. Control weeds on 7 of the 9 pump stations with round-up. Most of the pump stations have landscaping which is taken care of by the Parks Department.

- Control herbicide over spray
- Follow manufacturers recommendations when using and disposing of herbicide

Pump replacement: Done by city employees. The pumps are pulled out and taken to the waste water reclamation facility where the work is performed.

- Spill kit at hand
- Clean up area when service is finished

Back-up Power: Nine of the fourteen pump stations have back-up power 4 running on diesel fuel and 5 on natural gas. City employees service the generators with generator repair companies doing the major repairs.

- Generators are started every 2 weeks automatically, the SCADA system reports to the Water Reclamation Facility of its performance.
- Fueling of diesel tanks is done once a month by the Sewer Department personnel,
 - Spill kit at hand
 - Clean up area when service is finished

Control Measures SOPs

Oil disposal- Used oils are taken to the power generation facility for disposal.

Good house keeping. Pick up garbage around the site

Preventive maintenance- Visual inspections every week; Oil is replaced in the pumps annually.

3. Storm Drain Regional Detention Ponds

Locations

1750 West 700 South
1750 East 400 South
950 West 100 North
1100 South Whitney Lane

Activities

The Storm Drain Division contracts the maintenance to a landscaping company to maintain the detention ponds; the lawn is mowed once a week between the months of April-November, grass clippings are removed from the hard surfaces, irrigation system is checked for proper operation, fertilizer is applied by certified applicators as needed and any over spray is removed from hard surfaces, the contractors receive good housekeeping training. This site will be inspected monthly (visual) and annually by the Storm Drain Division Personnel using the Post-construction Facility Inspection Report, inspection documents will kept in digital form.. To minimize the potential for pollutant discharge; spills will be documented and cleaned up immediately. Potential pollutants related with the activities at this location include:

- Organic matter (grass clippings);
- Fertilizer;
- Sediment;
- Garbage;
- Hydrocarbons (e.g. oil, fuel).

Control Measures SOPs

General Cleanliness

- Trash and litter are to be picked weekly.
- Grass clippings are bagged and disposed of at the Springville City green waste recycling facility.
- The paved surfaces around the area will be swept as needed.
- Application of fertilizer and herbicide will be applied by a licensed contractor.
- Weekly visual inspection
- Annual

4. Pretreatment Structures

a. Public

Snouts, oil/sand interceptors, orifice plates, sediment traps, etc. will be cleaned annually; inventory and maintenance log will be kept in digital form using the City asset management software. Inspections and cleaning will be done by the Storm Water Division personnel.

b. Private

Private pretreatment structures will be inspected annually, inventory and maintenance log will be kept in digital form using the City asset management software, and inspections will be done by the City SWPPP Inspector.

IV. Field Activities and SOPs

Activities

Jet-Vac Cleaning of Pipes and MHs, Excavation , Pipe Line Spot Repairs, MH Surface Collaring, Street Sweeping, CCTV Inspections, Man Hole Inspections, Dry Weather Screening (IDDE Program).

Cleaning SOPs

The purpose of cleaning the storm drain and sewer collections system is to prevent SSOs and ensure that the collection system is in good working condition.

- Conduct visual inspection of equipment to insure safe operation.
- Verify that suction hoses clamps are tight and secured.
- Hoses and pipes are rinsed inside the MH.
- Dump and rinse holding tank at the Water Reclamation Facility drying beds, after material has dried out it is taken to the landfill.

- Jet/Vac and maintenance trucks are washed with soap and water at the Water Reclamation Facility wash area.
- Vehicles are parked indoors.

Excavation SOPs

Most of the excavation work to do repairs to the Springville City Sewer and Storm Drain Collection System is done by subcontractors. All subcontractors that do work for the Sewer and Storm Water Division will receive training on erosion, sediment control and good housekeeping at least once a year.

- Obtain excavation permit from the Engineering Division, this includes a traffic control plan and a sediment, erosion control and good housekeeping plan.
- Back fill and restore surface
- Clean up
 - Remove extra material
 - Sweep work area
 - Remove sediment controls
- Disposal of excavated material
 - Material is hauled to the WWTP drying beds for sorting,
 - Concrete and asphalt are hauled to a recycling facility
 - Clean fill dirt is hauled to projects that are taking this type of material.

CCTV Inspections SOPs

The purpose of Televising the sewer and storm water collection systems to inspect for leaks, infiltration, blockages, pipe condition, illicit discharges and/or cross connections.

- High priority areas are inspected with the use of CCTV equipment more frequently to prevent SSOs and storm drain flooding. These areas are identified during CCTV inspections and entered into the asset management software program (ELEMENTS) and are then monitored according to the time frame assigned by the Superintendent. The following areas will be given priority:
 - Areas with older infrastructure
 - Industrial and commercial areas
 - Areas with history of past illicit discharges
 - Areas with history of SSOs
 - Areas that are near to onsite sewage disposal systems
- CCTV equipment, hoses and pipes are rinsed inside the MH.
- Other equipment cleaning is done at the shop

V. Dry Weather Screening SOPs (4.2.3.3.)

Objective: to detect and address non-storm water discharges to the MS4, including spills, illicit connections, sanitary sewer overflows and illegal dumping.

Priority Outfall Inspection (4.2.3.3.2)

Conduct outfall inspections of areas which are considered priority area as described in section 4.2.3.3.1 of the SWMP and identified on Elements asset management tool,

these outfalls will be inspected and documented annually on the SWMP and the UPDES Annual report electronic file.

Outfall Inspection (4.2.3.3)

Conduct outfall inspections during the month of November of at least 20 percent of all known outfalls and all outfalls should be inspected at least once during the year permit term, the Elements tool will be used to manage inspection cycles. Document inspection reports on the SWMP and the UPDES Annual report electronic file.

- Select areas to be surveyed
- Conduct inspection- (**Inspection Report, Appendix H**)
 - Locate outfall
 - Fill out inspection form fields
 - Document with photographs, and/or video.
 - Collect sample if discharge is present
- If discharge is present
 - Refer to illicit discharge tracing and response standard operating procedures.
 - Notify the DWQ

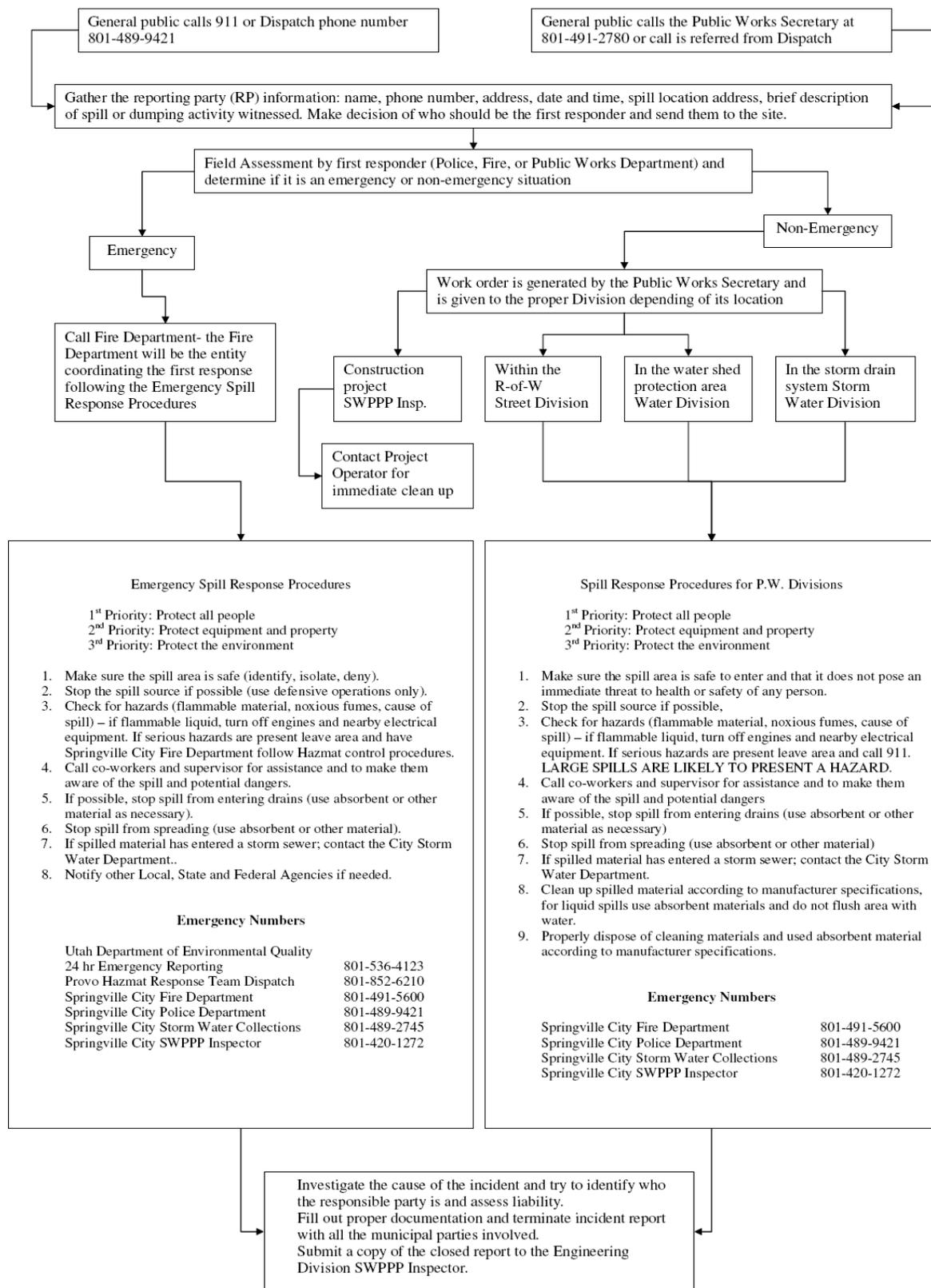
VI. Illicit Discharge Tracing, Response, and Ceasing Standard Operating Procedures (4.2.3.4.)

Tracing Illicit Discharges SOPs

- Identify outfall location
- Consult drainage map to determine contributing area to the outfall
- Begin field investigation of the storm drain system (pulling manhole lids)
- Isolate source with in the 2 manholes in question
- If necessary televise the line to identify source
- Investigate property contributing to the illicit discharge and identify source
- Collect and analyze water sample for the purpose of determining sanction or penalty.
- Complete documentation report.

Responding to and Illicit Discharge SOPs (4.2.3.5.)

Springville City Spill/Dumping Response Plan



Ceasing Illicit Discharge SOPs (4.2.3.6.)

Upon the discovery of an illicit discharge, the Permittee shall require immediate cessation of improper disposal practices upon confirmation of responsible parties in accordance with its enforceable legal authorities established pursuant to Part 4.2.3.2.1. of the MS4 GP.

- Notify property owner and issue a cease and desist order
- Notify proper regulatory authorities
- Technical assistance for removing the source of the discharge or otherwise eliminating the discharge;
- Have owner establish a schedule for permanent removal of the discharge
- Follow up inspections to verify compliance
- Escalating enforcement and legal actions if the discharge is not eliminated. Illicit discharges to the MS4 are prohibited and any such discharges violate this Permit and remain in violation until they are eliminated.
- Complete documentation will be filed and submitted to pertinent entities if necessary

VII. Spill Prevention and Response Procedures

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

Each work area has a spill response kit. Most of the spills can be cleaned up following the manufacturer recommendation. Absorbent/oil dry, sealable containers, plastic bags, and shovels/brooms are suggested minimum spill response items that should be on this location

- 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
3. 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 Sewer/Storm Water Collections	801-489-2745
Springville City Public Works	801-491-2780

VIII. Inspections

Personnel from the Sewer Collection and Storm Water Divisions 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.

- WWTP grounds- we have a separate SWPPP document as part of the UPDES permit that regulates waste water treatment and discharge.
- Sewer Pump Stations
 - As part of the weekly visit to check on the operation of the facility, regular housekeeping is done, no report will be filled out.
- Detention Ponds
 - Monthly (visual inspection)
 - Annual
- Pretreatment Structures
 - Annual
- Outfalls
 - Annual- refer to the dry weather screening on section V of this manual.

If needed, weekly visual inspections will be tracked in the log attached on appendix F 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

IX. Employee Training (permit requirement 4.2.1.5.)

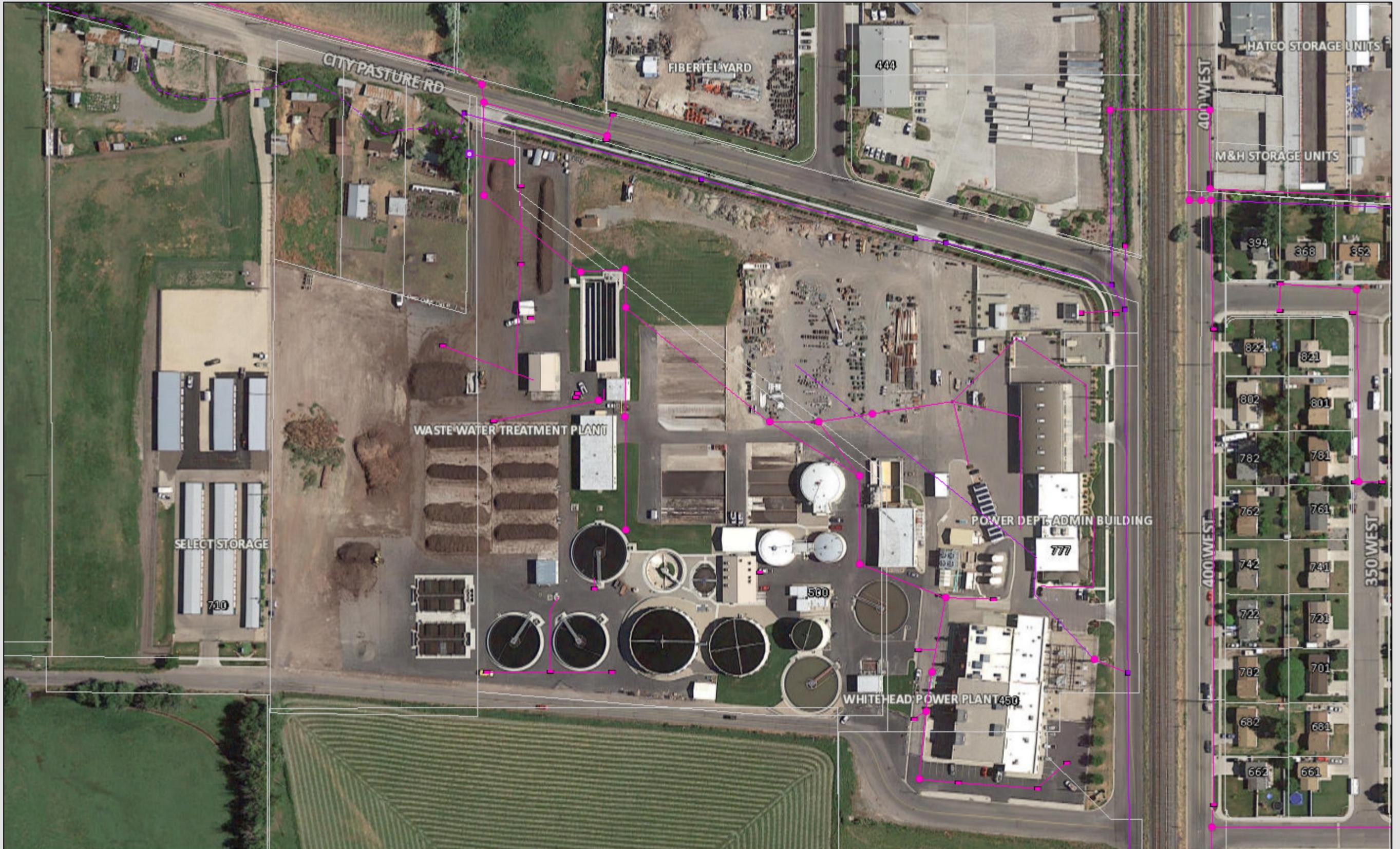
All of the Water Reclamation, Sewer Collection, and Storm Water employees will receive training regarding this O&M Manual at least annually. The training will cover the following subjects:

- Impacts associated with illicit discharges;
- Proper storage of raw materials;
- Proper disposal and management of wastes;
- Proper management and use of salt and other de-icing materials;
- Proper maintenance of indoor and outdoor working areas including parking lot surfaces; and
- Spill response

Appendix A

Site Maps

SPRINGVILLE CITY



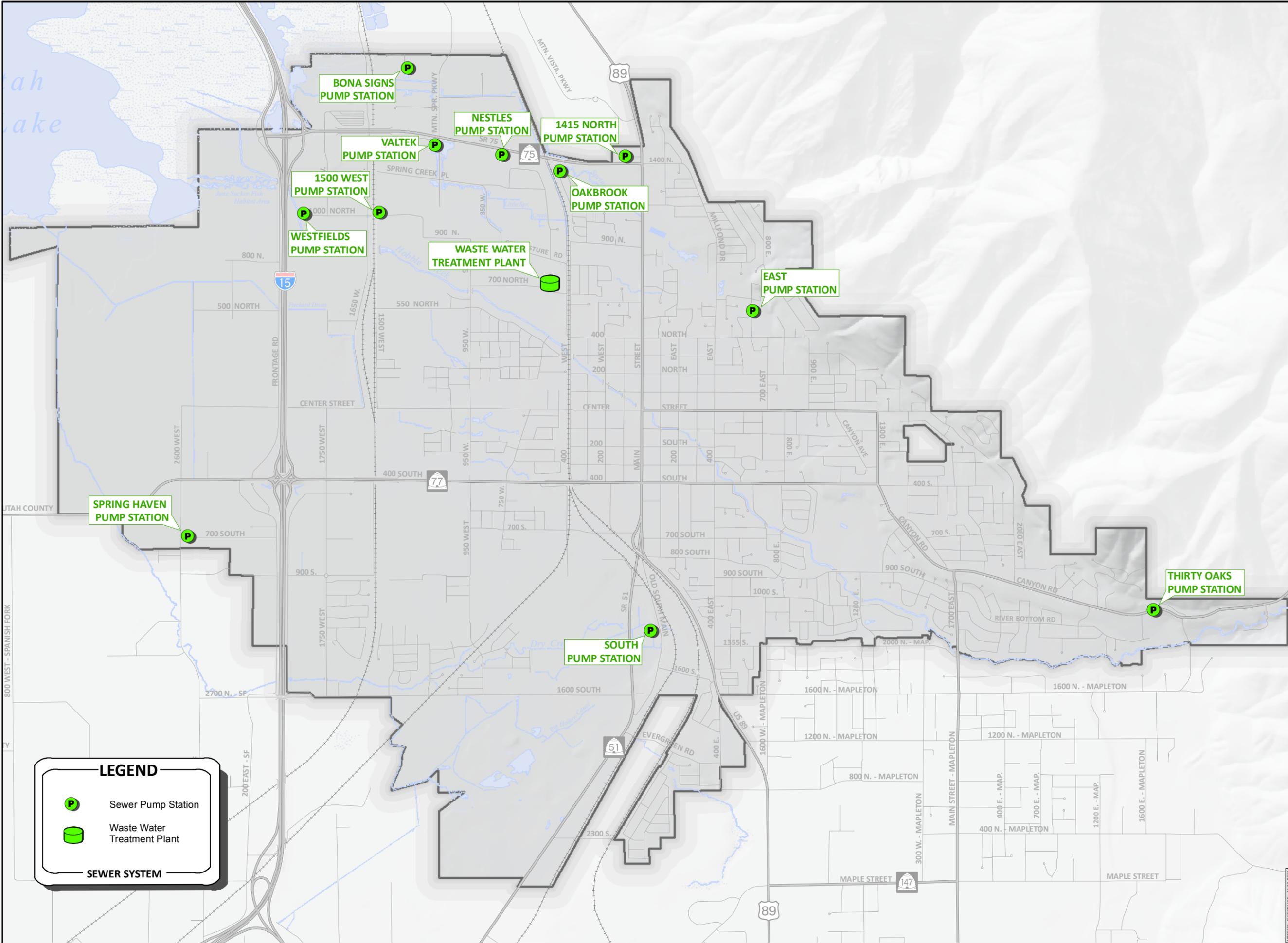
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Springville

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1:2,257



LEGEND

-  Sewer Pump Station
-  Waste Water Treatment Plant

SEWER SYSTEM

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WASTE WATER LIFT STATIONS & WASTE WATER TREATMENT PLANT


 1 IN = 0.47 MILES
 1:30,000

SPRINGVILLE CITY
 ENGINEERING DIVISION
 GEOGRAPHIC INFORMATION SYSTEMS
 110 S. MAIN ST. - SPRINGVILLE, UTAH



7/25/2018 SUPPLEMENT-11.29.2018

Appendix B

BMPs Specifications and Detail Sheets



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

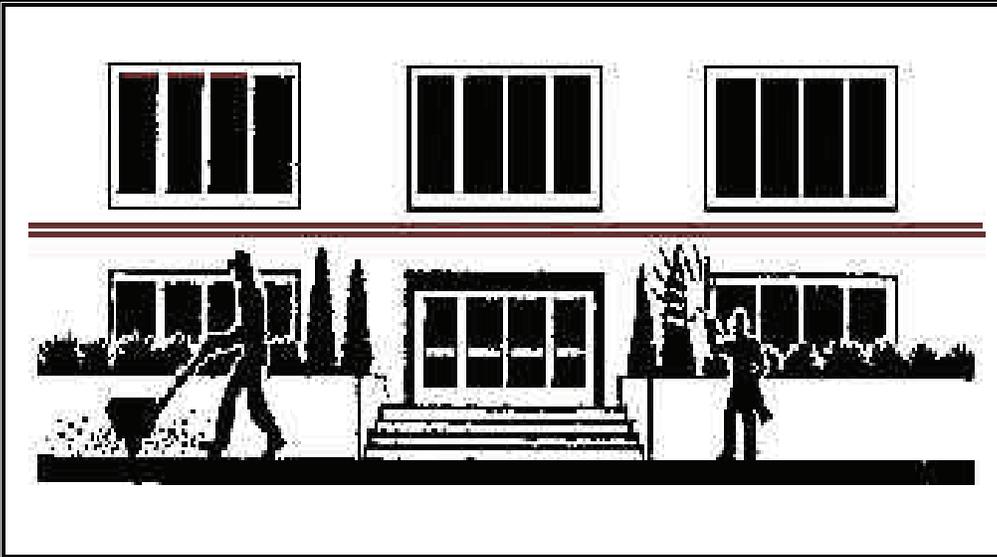
- Sediment
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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

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



Springville

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110 South Main Street
Springville, Utah 84663
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TARGETED POLLUTANTS

- High Impact
- Low or Unknown Impact
- Medium Impact

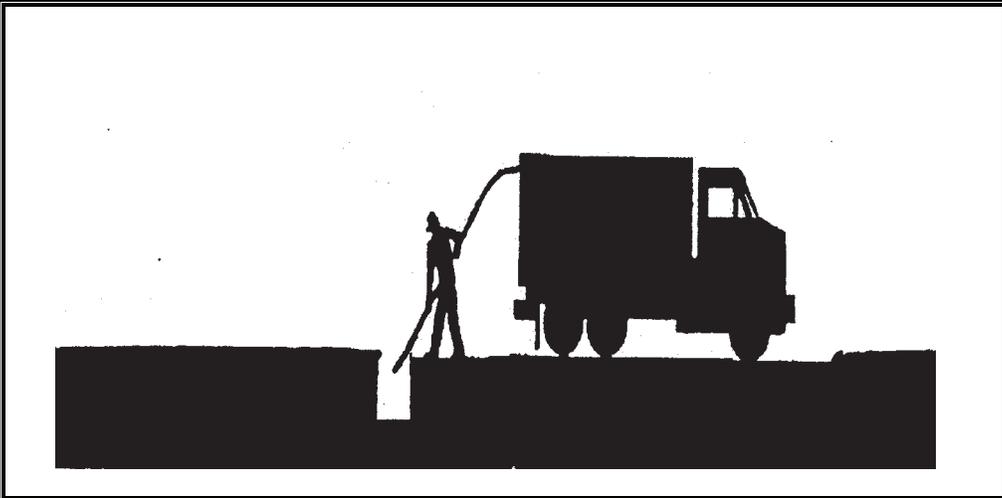
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

Maintain catch basin and stormwater inlets on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, and restore the catch basins' sediment trapping capacity. A catch basin is distinguished from a stormwater inlet by having at its base a sediment sump designed to catch and retain sediments below the overflow point. This information sheet focuses on the cleaning of accumulated sediments from catch basins.

APPROACH:

Regular maintenance of catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the key to effective catch basins are:

- At least annual inspections.
- Prioritize maintenance to clean catch basins and inlets in areas with the highest pollutant loading.
- Clean catch basins in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.

LIMITATIONS:

There are no major limitations to this best management practice.

MAINTENANCE:

Regular maintenance of public and private catch basins and inlets is necessary to ensure their proper functioning. Clogged catch basins are not only useless but may act as a source of sediments and pollutants. In general, the keys to effective catch basins are:

- Annual/monthly inspection of public and private facilities to ensure structural integrity, a clean sump, and a stenciling of catch basins and inlets.
- Keep logs of the number of catch basins cleaned.
- Record the amount of waste collected.

PROGRAM ELEMENTS

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



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

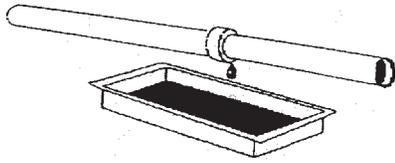
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

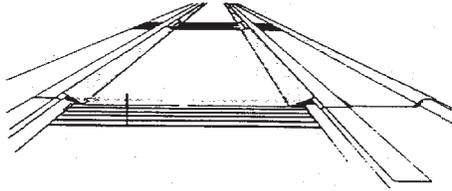
- Capital Costs
- O&M Costs
- Regulatory
- Training
- Staffing
- Administrative

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



Use Drip Pans for Leaking Equipment



Use Drip Pans in Loading and Unloading Areas

DESCRIPTION:

Drip pans are small depressions or pans used to contain very small volumes of leaks, drips, and spills that occur at a facility. Drip pans can be depressions in concrete, asphalt, or other impenetrable material. They can be made of metal, plastic, or any material that does not react with the dripped chemicals. Drip pans can be temporary or permanent.

Drip pans are used to catch drips from valves, pipes, etc. so that the materials or chemicals can be cleaned up easily or recycled before they contaminate stormwater. Although leaks and drips should be repaired and eliminated as part of a preventative maintenance program, drip pans can provide a temporary solution where repair or replacement must be delayed. In addition, drip pans can be an added safeguard when they are positioned beneath areas where leaks and drips may occur.

APPROACH:

- When using drip pans, consider the location of the drip pan, weather conditions, the type of material used for the drip pan, and how it will be cleaned.
- 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.

APPLICATIONS

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



Springville

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TARGETED POLLUTANTS

- High Impact
- Medium Impact
- Low or Unknown Impact

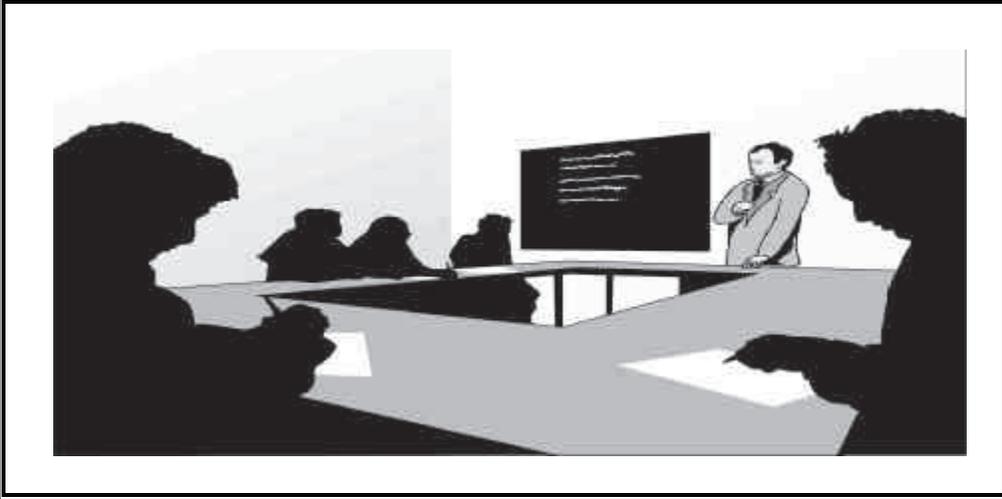
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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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- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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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IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from hazardous waste through proper 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; petroleum 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 waste that 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.

OBJECTIVES

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



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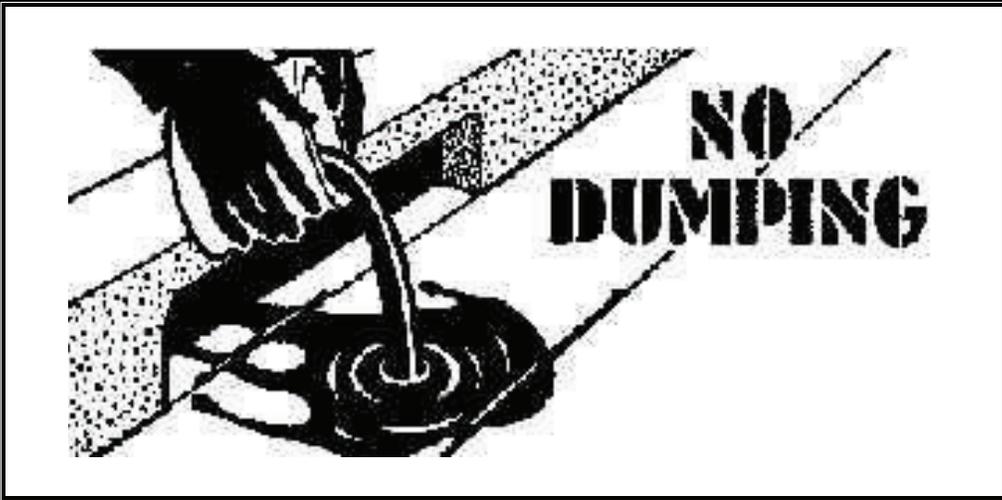
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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,
- 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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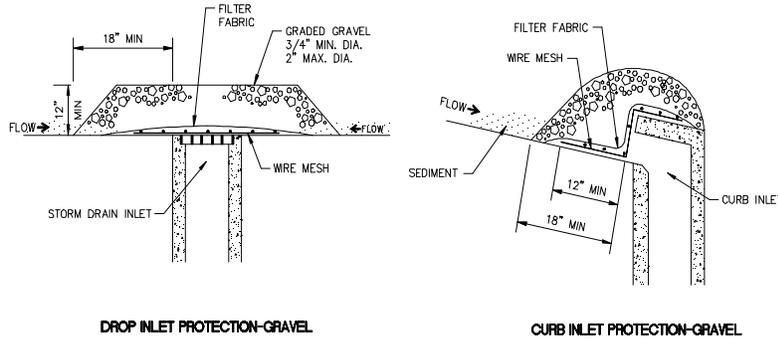
- Sediment
- Nutrients
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- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

Placement of gravel filter over inlet to storm drain to filter storm water runoff.

APPLICATION:

Construct at inlets in paved or unpaved areas where upgradient area is to be disturbed by construction activities.

INSTALLATION/APPLICATION CRITERIA:

- Place wire mesh (with ½ inch openings) over the inlet grate extending one foot past the grate in all directions.
- Place filter fabric over the mesh. Filter fabric should be selected based on soil type.
- Place graded gravel, to a minimum depth of 12-inches, over the filter fabric and extending 18-inches past the grate in all directions.

LIMITATIONS:

- Recommended for maximum drainage area of one acre.
- Excess flows may bypass the inlet requiring down gradient controls.
- Ponding will occur at inlet.

MAINTENANCE:

- Inspect inlet protection after every large storm event and at a minimum of once monthly.
- Remove sediment accumulated when it reaches 4-inches in depth.
- Replace filter fabric and clean or replace gravel if clogging is apparent.

OBJECTIVES

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



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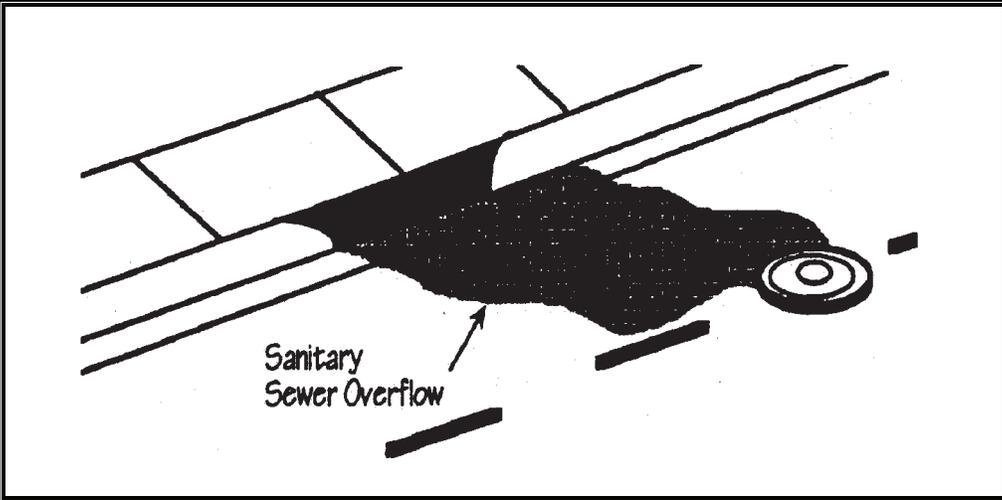
- Sediment
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- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

Implement control procedures for identifying, repairing, and remediating sewer blockages, infiltration, inflow, and wet weather overflows from sanitary sewers into the storm drain conveyance system. Procedures include field screening, follow-up testing, and complaint investigation.

APPROACH:

- Identify dry weather infiltration and inflow first. Wet weather overflow connections are very difficult to locate.
- Locate wet weather overflows and leaking sanitary sewers using conventional source identification techniques.
- Coordinate with ongoing infiltration and inflow (I & I) program to locate sources of exfiltration during I & I inspections.
- Design, site, operate, and maintain on-site sewage disposal systems to prevent nutrient/pathogen loadings to surface waters and to reduce loadings to groundwater.

Leaking sanitary sewer detection techniques include:

- Field screening program (including field analytical testing),
- Fluorometric dye testing,
- Zinc chloride smoke testing,
- Television camera inspection,
- Nessler Reagent test kits for ammonia detection,
- Citizens' hotline reporting of wet weather sanitary overflows.

LIMITATIONS:

- Private property access rights needed to perform field screening/testing along storm drain right-of-ways.
- Requirements of municipal ordinance authority for suspected source verification testing necessary for guaranteed rights of entry.

PROGRAM ELEMENTS

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



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- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



APPLICATIONS

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



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DESCRIPTION:

Eliminate non-stormwater discharges to the stormwater collection system. Non-stormwater discharges may include: process wastewaters, cooling waters, wash waters, and sanitary wastewater.

APPROACH:

The following approaches may be used to identify non-stormwater discharges:

- Visual inspection: the easiest method is to inspect each discharge point during dry weather. Keep in mind that drainage from a storm event can continue for three days or more and groundwater may infiltrate the underground stormwater collection system.
- Piping Schematic Review: The piping schematic is a map of pipes and drainage systems used to carry wastewater, cooling water, sanitary wastes, etc... A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system. Inspect the path of floor drains in older buildings.
- Smoke Testing: Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems. During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.
- Dye Testing: A dye test can be performed by simply releasing a dye into either the sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

LIMITATIONS:

- Many facilities do not have accurate, up-to-date schematic drawings.
- Video and visual inspections can identify illicit connections to the storm sewer, but further testing is sometimes required (e.g. dye, smoke) to identify sources.

TARGETED POLLUTANTS

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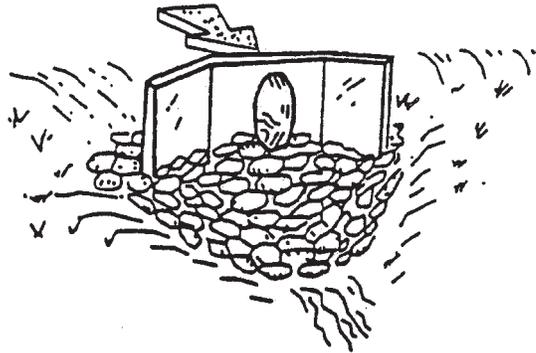
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- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

A rock outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble which is placed at the outlet of a pipe to prevent scour of the soil caused by high pipe flow velocities, and to absorb flow energy to produce non-erosive velocities.

APPLICATIONS:

- Wherever discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach.
- Rock outlet protection is best suited for temporary use during construction because it is usually less expensive and easier to install than concrete aprons or energy dissipators.
- A sediment trap below the pipe outlet is recommended if runoff is sediment laden.
- Permanent rock riprap protection should be designed and sized by the engineer as part of the culvert, conduit or channel design.
- Grouted riprap should be avoided in areas of freeze and thaw because the grout will break up.

INSTALLATION/APPLICATION CRITERIA:

Rock outlet protection is effective when the rock is sized and placed properly. When this is accomplished, rock outlets do much to limit erosion at pipe outlets. Rock size should be increased for high velocity flows. Best results are obtained when sound, durable, angular rock is used.

LIMITATIONS:

- Large storms often wash away the rock outlet protection and leave the area susceptible to erosion.
- Sediment captured by the rock outlet protection may be difficult to remove without removing the rock.
- Outlet protection may negatively impact the channel habitat.

MAINTENANCE:

- Inspect after each significant rain for erosion and/or disruption of the rock, and repair immediately.
- Grouted or wire-tied rock riprap can minimize maintenance requirements.

OBJECTIVES

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



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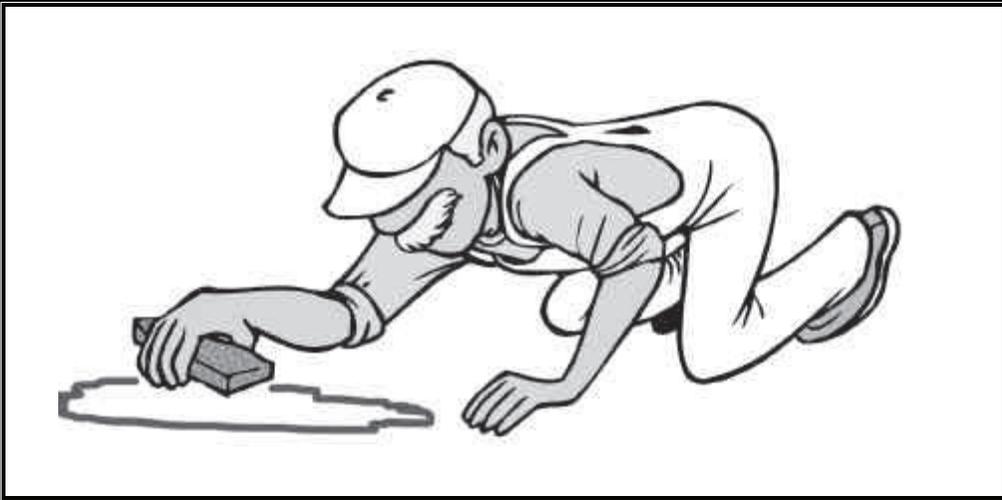
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

MATERIALS ADOPTED FROM SALT LAKE COUNTY ENGINEERING DIVISION GUIDANCE DOCUMENT



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

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IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

A storm drain is "flushed" with water to suspend and remove deposited materials. Flushing is particularly beneficial for storm drain pipes with grades too flat to be self-cleansing. Flushing helps ensure pipes convey design flow and remove pollutants from the storm drain system.

APPROACH:

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Whenever possible, flushed effluent should be collected, decanted, evaporated, and disposed of in a landfill.

LIMITATIONS:

- Most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity).
- Water source must be available.
- May have difficulty finding downstream area to collect sediments.
- Requires liquid/sediment disposal.

PROGRAM ELEMENTS

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



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- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



PROGRAM ELEMENTS

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



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DESCRIPTION:

Stenciling of the storm drain system (inlets, catch basins, channels, and creeks) with prohibitive language/graphic icons discourages the illegal dumping of unwanted materials.

APPROACH:

- Create a volunteer work force to stencil storm drain inlets.
- An important aspect of a stenciling program is the distribution of informational flyers that educate the neighborhood (business and residential) about stormwater pollution, the storm drain system, and the watershed. The flyers should also provide information on alternatives such as recycling, household hazardous waste disposal, and safer products.
- Because a stenciling program primarily involves volunteer services, liability release forms and volunteer identification notices should also be administered.
- Readability of stencils is critical to their effectiveness. Wherever possible stencils should be painted on a smooth surface such as cement, as opposed to asphalt.
- Use municipal staff to erect signs near drainage channels and creeks.
- An effectively implemented stenciling program encourages change in personal behavior and helps minimize non-point source pollutants from entering the storm drain system. An additional benefit is that waste and catch basin maintenance is minimized through the reduction of disposed materials into storm drain inlets. Finally a well-implemented stenciling program encourages the use of household hazardous waste collection and used oil recycling programs.

LIMITATIONS:

- Private property access limits stenciling to publicly-owned areas.
- Program is highly dependent on volunteer response.
- Storm drain inlets that are physically blocked will be missed or require follow-up.
- High traffic/commercial/industrial zones are the responsibility of city staff.
- Ongoing maintenance is needed to maintain readable signs.

TARGETED POLLUTANTS

- High Impact
 - Medium Impact
 - Low or Unknown Impact
- Sediment
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- Floatable Materials
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IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



APPLICATIONS

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



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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.

TARGETED POLLUTANTS

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- Medium Impact
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- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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.

CONSIDERATIONS

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



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- Medium Impact
- Low or Unknown Impact

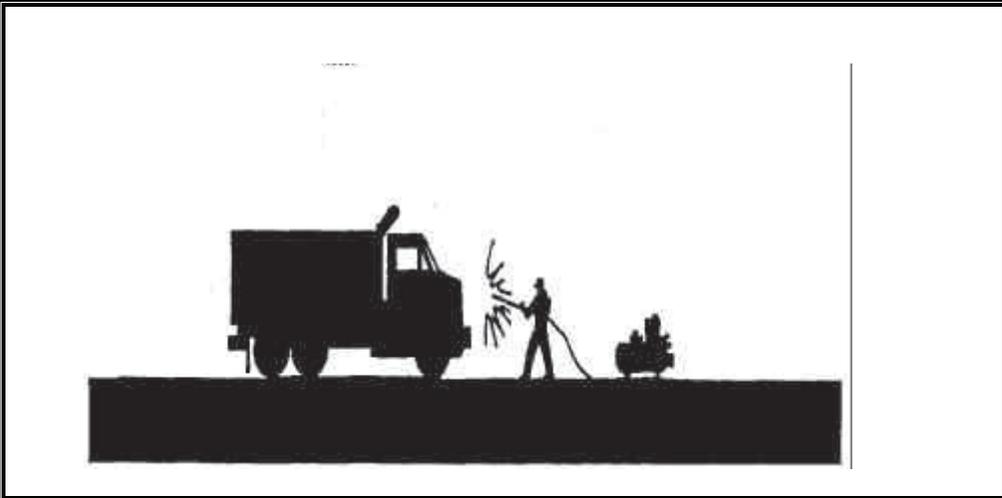
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



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



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

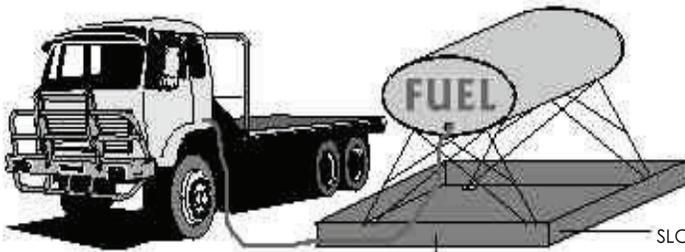
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



SLOPED OR OTHERWISE DESIGNED FOR EASY REMOVAL OF LEAKED FUEL

DESCRIPTION:

Prevent fuel spills and leaks, and reduce their impacts to storm water by using off-site facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors.

INSTALLATION/APPLICATION:

- Use off-site fueling stations as much as possible. Fueling vehicles and equipment outdoors or in areas where fuel may spill/leak onto paved surfaces or into drainage pathways can pollute storm water. If you fuel a large number of vehicles or pieces of equipment, consider using an off-site fueling station. These businesses are better equipped to handle fuel and spills properly. Performing this work off-site can also be economical by eliminating the need for a separate fueling area at your site.
- If fueling must occur on-site, use designated areas, located away from drainage courses, to prevent the runoff of storm water and the runoff of spills. Discourage "topping-off" of fuel tanks.
- Always use secondary containment, such as a drain pan or drop cloth, when fueling to catch spills/leaks. Place a stockpile of spill cleanup materials where it will be readily accessible. Use adsorbent materials on small spills rather than hosing down or burying the spill. Remove the adsorbent materials promptly and dispose of properly.
- Carry out all Federal and State requirements regarding stationary above ground storage tanks.(40 CF Sub. J) Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and perhaps forklifts, most vehicles should be able to travel to a designated area with little lost time. Train employees and subcontractors in proper fueling and cleanup procedures.

LIMITATIONS:

Sending vehicles/equipment off-site should be done in conjunction with Stabilized Construction Entrance.

MAINTENANCE:

- Keep ample supplies of spill cleanup materials on-site.
- Inspect fueling areas and storage tanks on a regular schedule.

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

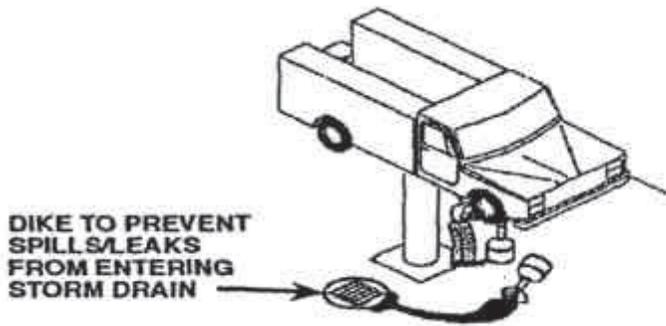
- Sediment
- Nutrients
- Toxic Materials
- Oil & Grease
- Floatable Materials
- Other Waste

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



(INSIDE MAINTENANCE FACILITY)

DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from vehicles and equipment maintenance and repair by running a dry shop.

APPROACH:

- Keep equipment clean, don't allow excessive build-up of oil and grease.
- Keep drip pans or containers under the areas that might drip.
- Do not change motor oil or perform equipment maintenance in non-appropriate areas.
- Inspect equipment for leaks on a regular basis.
- Segregate wastes.
- Make sure oil filters are completely drained and crushed before recycling or disposal.
- Make sure incoming vehicles are checked for leaking oil and fluids.
- Clean yard storm drain inlets regularly and especially after large storms.
- Do not pour materials down drains or hose down work areas; use dry seeping.
- Store idle equipment under cover.
- Drain all fluids from wrecked vehicles.
- Recycle greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
- Switch to non-toxic chemicals for maintenance when possible.
- Clean small spills with rags, general clean-up with damp mops and larger spills with absorbent material.
- Paint signs on storm drain inlets to indicate that they are not to receive liquid or solid wastes.
- Train employees, minimize use of solvents.

LIMITATIONS:

- Space and time limitations may preclude all work being conducted indoors.
- It may not be possible to contain and clean up spills from vehicles/equipment brought on-site after working hours.
- Dry pans are generally too small to contain antifreeze, which may gush from some vehicles, so drip pans may have to be purchased or fabricated.
- Dry floor cleaning methods may not be sufficient for some spills.

MAINTENANCE:

Should be low if procedures for the approach are followed.

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

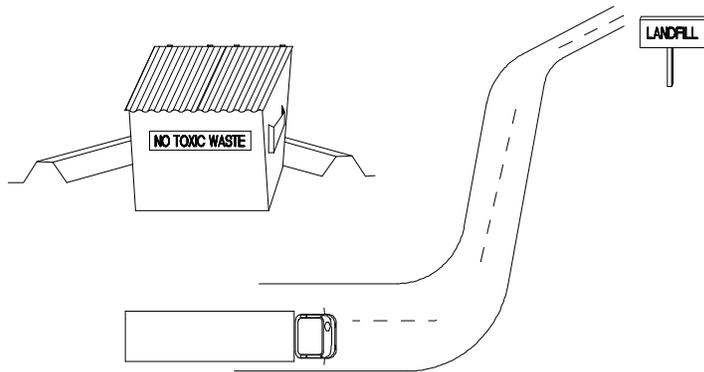
- Sediment
- Nutrients
- Heavy Metals
- Toxic Materials
- Oxygen Demanding Substances
- Oil & Grease
- Floatable Materials
- Bacteria & Viruses

IMPLEMENTATION REQUIREMENTS

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document



DESCRIPTION:

Controlled storage and disposal of solid waste generated by construction activities.

APPLICATION:

All construction sites.

INSTALLATION:

- Designate one or several waste collection areas with easy access for construction vehicles and personnel. Ensure no waterways or storm drainage inlets are located near the waste collection areas.
- Construct compacted earthen berm (See Earth Berm Barrier Information Sheet), or similar perimeter containment around collection area for impoundment in the case of spills and to trap any windblown trash.
- Use water tight containers with covers to remain closed when not in use. Provide separate containers for different waste types where appropriate and label clearly.
- Ensure all on site personnel are aware of and utilize designated waste collection area properly and for intended use only (e.g. all toxic, hazardous, or recyclable materials shall be properly disposed of separately from general construction waste).
- Arrange for periodic pickup, transfer and disposal of collected waste at an authorized disposal location. Include regular Porto-potty service in waste management activities.

LIMITATIONS:

- On-site personnel are responsible for correct disposal of waste.

MAINTENANCE:

- Discuss waste management procedures at progress meetings.
- Collect site trash daily and deposit in covered containers at designated collection areas.
- Check containers for leakage or inadequate covers and replace as needed.
- Randomly check disposed materials for any unauthorized waste (e.g. toxic materials).
- During daily site inspections check that waste is not being incorrectly disposed of on-site (e.g. burial, burning, surface discharge, discharge to storm drain).

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

Materials Adopted From Salt Lake County Engineering Division Guidance Document



APPLICATIONS

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



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DESCRIPTION:

Prevent or reduce the discharge of pollutants to stormwater from waste handling and disposal by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, re-use, and recycling; and preventing runoff and runoff from waste management areas.

APPROACH:

- Maintain usage inventory to limit waste generation.
- Substitute or eliminate raw materials.
- Modify process or equipment.
- SARA Title III, Section 313 requires reporting for over 300 listed chemicals and chemical compounds. This requirement should be used to track these chemicals although this is not as accurate a means of tracking as other approaches.
- Track waste generated.
- Use design data and review: process flow diagram, materials and applications diagram, piping and instructions, equipment list, plot plan.
- Use economic data and review: Waste treatment and disposal cost. Product utility and economic cost. Operation and maintenance labor cost.
- Recycle materials whenever possible.
- Maintain list of and the amounts of materials disposed.
- Segregation and separate waste.
- Cover, enclose, or berm industrial wastewater management areas whenever possible to prevent contact with runoff or runoff.
- Equip waste transport vehicles with anti-spill equipment.
- Minimize spills and fugitive losses such as dust or mist from loading systems.
- Ensure that sediments or wastes are prevented from being tracked off-site.
- Training and supervision.
- Stencil storm drains on the facility's property with prohibitive message regarding waste disposal.

LIMITATIONS:

Hazardous waste that cannot be re-used or recycled must be disposed of by a licensed hazardous waste hauler.

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

- High
- Medium
- Low

Materials Adopted From Salt Lake County Engineering Division Guidance Document

Appendix C

Training Log

Appendix D

Spill Reports

NON-STORM WATER DISCHARGE INSPECTION REPORT



Springville

Date of Spill: _____ Time: _____

Location: _____

Date of Investigation: _____ Time: _____

Method of Discovery: _____

REGULATORY AGENCIES NOTIFICATION (document: date, time, 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
 Other: _____
 1 to 5 Gallons
 5 to 10 Gallons
 10 to 25 Gallons
 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
 Absorbent Material
 Removal from site
 Other: _____

Method of removal and verification: _____

Additional comments: _____

Analytical Monitoring: _____

Enforcement Action: _____

Report prepared by: _____

Signature

Date

Appendix E
Corrective Action Log

Appendix F
Monthly Visual Inspection Log



Collections-WWTP Monthly 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:	Date:	White Head and Electric Operations Center:			
		<input type="checkbox"/> Garbage can lid closed	<input type="checkbox"/> Parking areas clean	<input type="checkbox"/> Clean and organize shop	<input type="checkbox"/> Chemicals, solvents and oils labeled and stored
		<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Spill clean up	<input type="checkbox"/> Material Storage Containment	
		Lift Stations:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		Detention Ponds:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		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:	Date:	White Head and Electric Operations Center:			
		<input type="checkbox"/> Garbage can lid closed	<input type="checkbox"/> Parking areas clean	<input type="checkbox"/> Clean and organize shop	<input type="checkbox"/> Chemicals, solvents and oils labeled and stored
		<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Spill clean up	<input type="checkbox"/> Material Storage Containment	
		Lift Stations:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		Detention Ponds:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		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:	Date:	White Head and Electric Operations Center:			
		<input type="checkbox"/> Garbage can lid closed	<input type="checkbox"/> Parking areas clean	<input type="checkbox"/> Clean and organize shop	<input type="checkbox"/> Chemicals, solvents and oils labeled and stored
		<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Spill clean up	<input type="checkbox"/> Material Storage Containment	
		Lift Stations:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		Detention Ponds:			
		<input type="checkbox"/> Access road maintenance	<input type="checkbox"/> Trash picked up	<input type="checkbox"/> Vegetation control and proper disposal	
		Notes:			

Appendix G

Annual Post-construction Facilities Inspections



Springville

Post-Construction Facility Inspection Report

Site Name: _____ Inspection Date: _____

Site Address: _____

Owned/Operated by: _____

Contact Person: _____ Telephone Number: _____ e-mail: _____

Existing Weather Conditions: _____ Date of last rain event > .5" of precipitation: _____ Approximate rainfall: _____

Description of the condition of the storm water control measure	Are controls operating effectively		Describe Corrective Action Needed
	yes	no	
1. Grass lined detention pond: is the lawn healthy, is it being mowed, are there any signs of soil erosion?			
2. Catch basins, Curb and gutter: are the catch basin grate, and gutters free of sediment and garbage?			
3. Detention pond cross gutter, spill way or overflow structure: is the cross gutter free of sediment and garbage?, is the overflow free of garbage?			
4. Inlet structure: Is the snout properly installed? Do the floatables and sediments need to be removed?			
5. Flow control orifice: is the orifice plate secure? Is there any blockage?			
6. Outfall structure: are there any signs of erosion?			
7. Other:			

Inspector Name

Inspector Signature

Date

Appendix H

Dry Weather Screening Inspections



Dry Weather Screening Field Report

Date: _____

Outfall # _____

Picture # _____

Flow : Yes No

Estimated Flow: _____

INFORMATION	DISCHARGE	DESCRIPTION / NOTES
CONTINUOUS/INTERMITTENT		
COLOR		
ODOR		
TURBIDITY		
FLOATABLES		

RECOMMENDED FUTURE ACTION:

INSPECTION DONE BY: _____