

Provo City

Sewer System Management Plan

July 2016 Update

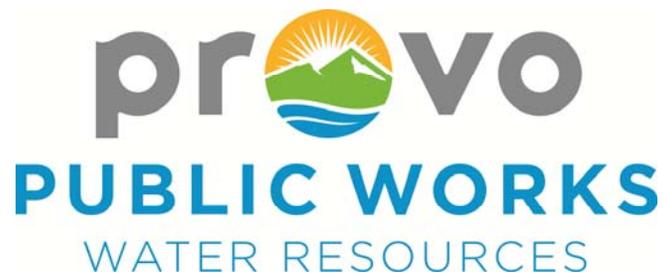


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SEWER SYSTEM MANAGEMENT PLAN

INTRODUCTION

Provo City is a Municipal Corporation established in Utah under the Utah State Code. Provo City provides sewage collection and treatment within its municipal boundary, to a few users in south Orem, and to one industrial user outside the city limits. This Sewer System Management Plan (SSMP) manual has been compiled to provide a plan and schedule to properly manage, operate, and maintain all parts of the sewer collection system to reduce and prevent SSOs, as well as minimize impacts of any SSOs that occur. The Provo City Council recognizes the responsibility it has to operate the sewer system in an environmentally and fiscally responsible manner. This manual covers aspects of the collection system program necessary to provide such an operation and refers to other programs or ordinances that by reference are incorporated into this manual.

DEFINITIONS

The following definitions are to be used in conjunction with those found in Utah Administrative Code R317. The following terms have the meaning as set forth:

- 1) "BMP" means "best management practice".
- 2) "CCTV" means "closed circuit television.
- 3) "CIP" means a "Capital Improvement Plan".
- 4) "DWQ" means "the Utah Division of Water Quality".
- 5) "FOG" means "fats, oils and grease". This is also referred to as a Grease Oil and Sand Program (GOSI).
- 6) "I/I" means "infiltration and inflow".
- 7) "Permittee" means a federal or state agency, municipality, county, district, and other political subdivision of the state that owns or operates a sewer collection system or who is in direct responsible charge for operation and maintenance of the sewer collection system. When two separate federal or state agency, municipality, county, district, and other political subdivision of the state are interconnected, each shall be considered a separate Permittee.
- 8) "SCADA" means "Supervisory Control and Data Acquisition".
- 9) "SECAP" means "System Evaluation and Capacity Assurance Plan".
- 10) "Sewer Collection System" means a system for the collection and conveyance of wastewaters or sewage from domestic, industrial and commercial sources. The Sewer Collection System does not include sewer laterals under the ownership and control of an owner of real property, private sewer

systems owned and operated by an owner of real property, and systems that collect and convey storm water exclusively.

- 11) "SORP" means "Sewer Overflow Response Plan"
- 12) "SSMP" means "Sewer System Management Plan".
- 13) "SSO" means "sanitary sewer overflow", the escape of wastewater or pollutants from, or beyond the intended or designed containment of a sewer collection system.
- 14) "Class 1 SSO" (Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that:
 - a) affects more than five private structures;
 - b) affects one or more public, commercial or industrial structure(s);
 - c) may result in a public health risk to the general public;
 - d) has a spill volume that exceeds 5,000 gallons, excluding those in single private structures; or
 - e) discharges to Waters of the State of Utah.
- 15) "Class 2 SSO" (Non-Significant SSO) means a SSO or backup that is not caused by a private lateral obstruction or problem that does not meet the Class 1 SSO criteria.
- 16) "USMP" means the "Utah Sewer Management Program".

GENERAL SSO REQUIREMENTS

The following general requirements for SSO's are stipulated in R317-801 and are included here as general information.

- 1) The permittee shall take all feasible steps to eliminate SSOs to include:
 - a) Properly managing, operating, and maintaining all parts of the sewer collection system;
 - b) training system operators;
 - c) allocating adequate resources for the operation, maintenance, and repair of its sewer collection system, by establishing a proper rate structure, accounting mechanisms, and auditing procedures to ensure an adequate measure of revenues and expenditures in accordance with generally acceptable accounting practices; and,
 - d) providing adequate capacity to convey base flows and peak flows, including flows related to normal wet weather events. Capacity shall meet or exceed the design criteria of R317-3.
- 2) SSOs shall be reported in accordance with the requirements below.
- 3) When an SSO occurs, the permittee shall take all feasible steps to:
 - a) control, contain, or limit the volume of untreated or partially treated wastewater discharged;
 - b) terminate the discharge;
 - c) recover as much of the wastewater discharged as possible for proper disposal, including any wash down water; and,

d) *mitigate the impacts of the SSO.*

SSO REPORTING REQUIREMENTS

R317-801 stipulates when and how SSO's are reported. Following are those reporting requirements as of 04/23/2012.

SSO REPORTING

SSOs shall be reported as follows:

- 1) A Class 1 SSO shall be reported orally within 24 hrs and with a written report submitted to the DWQ within five calendar days. Class 1 SSO's shall be included in the annual USMP report.
- 2) Class 2 SSOs shall be reported on an annual basis in the USMP annual report.
- 3) *ANNUAL REPORT. A permittee shall submit to DWQ a USMP annual operating report covering information for the previous calendar year by April 15 of the following year.*

SEWER USE ORDINANCE

Provo City has a sewer use ordinance that has been adopted by the governing body. This ordinance contains the following items as stipulated by Utah State Code R317-801:

- 1) Prohibition on unauthorized discharges,
- 2) Requirement that sewers be constructed and maintained in accordance with R317-3,
- 3) Ensures access or easements for maintenance, inspections and repairs,
- 4) Has the ability to limit debris which obstruct or inhibit the flow in sewers such as foreign objects or grease and oil,
- 5) Requires compliance with pretreatment program,
- 6) Allows for the inspection of industrial users, and
- 7) Provides for enforcement of ordinance or rules violations.

The following elements are included in this SSMP:

- General Information
- Operations and Maintenance Program
- Sewer Design Standards
- Sanitary Sewer Overflow Response Plan
- Grease, Oil and Sand Interceptor Management Program
- System Evaluation and Capacity Assurance Plan (By reference)
- SSMP Monitoring and Measurement Plan
- Sewer System Mapping Program
- Basement Backup Program

This program is intended to be a guidance document and is not intended to be part of a regulatory requirement. As such, failures to strictly comply with documentation requirements are, in and of themselves, not a failure of the program's effectiveness.

Documentation failures are intended to be identified during system self-audits and will be addressed as training opportunities. Significant system failures will be followed up with corrective action plans. This corrective action process will be implemented by all individuals involved in the SSMP program. Not all Provo City employees will be involved in the collection system operations. As such, not all employees will receive program training.

Although not a part of this SSMP program, Provo City is an active participant in the Blue Stakes of Utah Utility Notification system. This system, regulated under title 54-8A of the Utah State Code, stipulates utility notification of all underground operators when excavation takes place. The intent of this regulation is to minimize damage to underground facilities. Provo City has a responsibility to mark their underground sewer mainlines when notified an excavation is going to take place. Participation in the Blue Stakes program further enhances the protection of the collection system and reduces SSO's.



SSMP – GENERAL INFORMATION

This Sanitary Sewer Management Plan was adopted by the Provo City Council on _____, 2016.

The City responsible representatives, positions and phone numbers with regard to this SSMP are:

Representative	Position	Phone Number
Dave Decker	Public Works Director	801-852-6771
TBD	Water Resource Division Director	801-852-6782
Terry Welsh	Wastewater Collections Manager	801-852-6792
Chris Thomas	Wastewater Systems Maintenance Foreman	801-852-6792
Mark Ogren	Wastewater Reclamation Plant Manager	801-852-6790
Nathan Parr	Pretreatment Program Coordinator	801-852-6793
Shane Jones	Water Resources Principal Engineer	801-852-6773
Rebecca Andrus	Water Resources Principal Engineer	801-852-7788
Elizabeth Nezbit	Water Resources Engineering Technician	801-852-6775
Laramie Gonzalez	Water Resources Engineering Technician	801-852-6774
Water Resources Emergency Number		801-852-6789
Provo City Customer Service		311

DESCRIPTION OF ROLES AND RESPONSIBILITIES

The following positions have the described responsibility for implementation and management of the specific measures as described in the SSMP.

Public Works Director

This individual is responsible for overall management of Provo City's Public Works Department and works with the City Council, Chief Administrative Officer, Water Resource Department Director and others to facilitate the SSMP.

Water Resource Division Director

This individual is responsible for overall management of the culinary water system and sanitary sewer collection system, wastewater reclamation plant, lift stations and all other water and wastewater facilities. Responsibilities include working with governance to assure sufficient budget is allocated to implement the SSMP, maintenance of the SSMP documentation, development of a capital improvement program and general supervision of all staff.

Wastewater Collections Manager

This individual is responsible for daily implementation of the SSMP for the wastewater collection system excluding the lift stations. This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements.

Wastewater Reclamation Plant Manager

In addition to duties at the Wastewater Reclamation Plant, this individual is responsible for operation and maintenance activities relating to the lift stations and related SCADA equipment, compliance with SORP requirements, and monitoring and measurement reporting requirements.

Pretreatment Program Coordinator

This individual is responsible for implementation of the pretreatment program including the fats oil and grease program.

Water Resources Engineers/Technicians

These individuals are responsible for the development and maintenance of collection system design standards, maintenance of collection system mapping and maintenance of the SECAP program.

Wastewater Collections System Maintenance

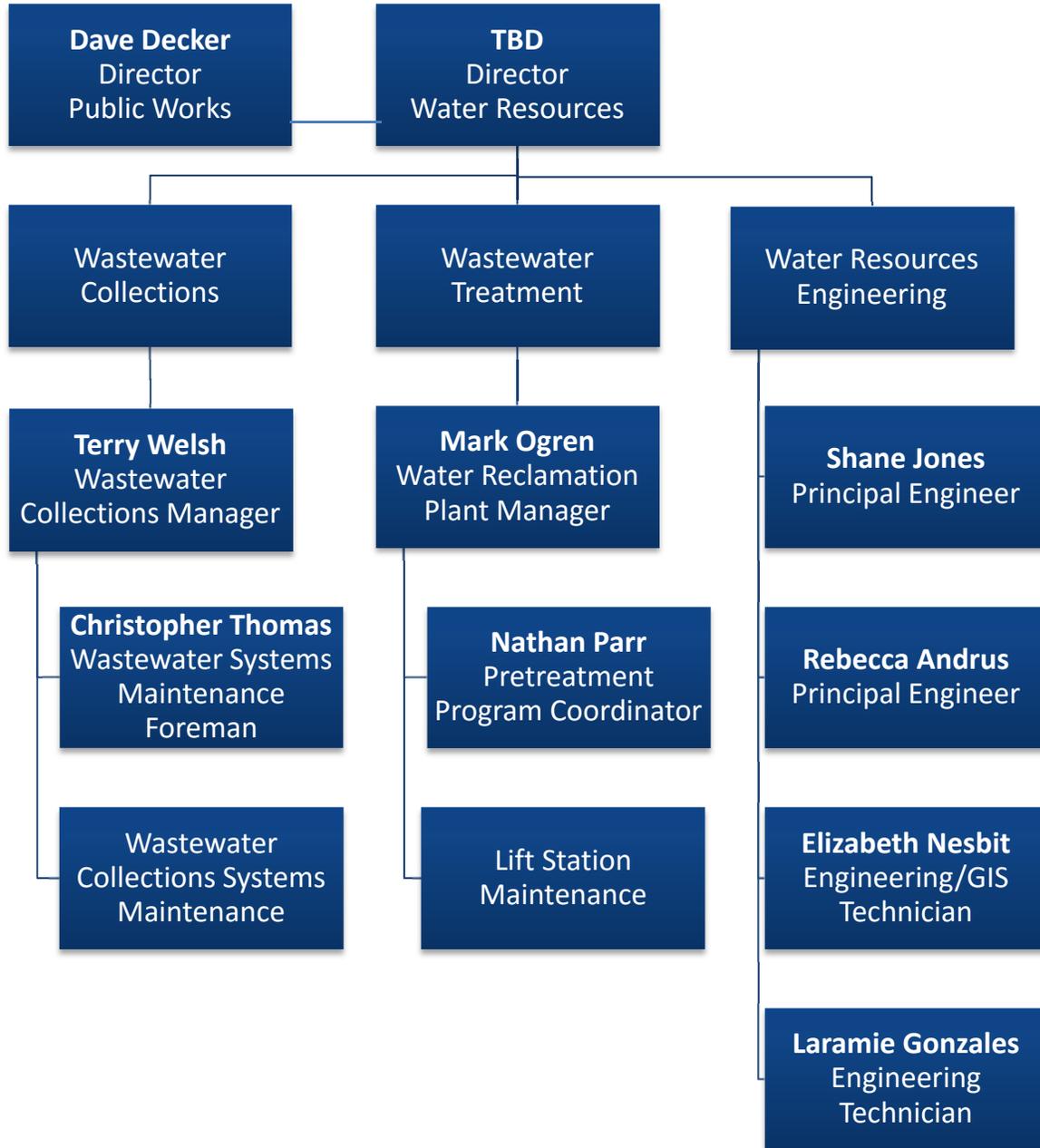
These individuals are responsible for the day to day operation, maintenance and inspection activities relating to the wastewater collection system excluding the lift stations.

Lift Station Maintenance

Under Direction of the Wastewater Reclamation Plant Manager, these individuals are responsible for the day to day operation, maintenance and inspection activities relating to the lift stations.

ORGANIZATION CHART

Below is the organization chart associated with the SSMP:



OPERATIONS AND MAINTENANCE PROGRAM

Provo City has established this sanitary sewer system operations and maintenance program to ensure proper system operations, to minimize any basement backups or SSOs, and to provide for replacement, refurbishment, or repair of damaged or deteriorated piping systems. The combined maintenance program is established to protect the environment and health of the public at a reasonable cost for the end users. To this end, the following areas are described and included in this maintenance program:

- System Mapping
- System Cleaning
- System CCTV Inspection
- Pump Station/Pressure Lines Inspection
- Manhole Inspection
- Defect Reporting
- Damage Assessment

SYSTEM MAPPING

An up-to-date map is essential for effective system operations. Provo City has assigned the mapping responsibility to the Water Resources Engineering/GIS Technician who maintains current mapping for the entire sanitary sewer system. Mapping is maintained in the graphical information system (GIS) format. Current mapping is available online at gishome.provo.org and on Provo City's map server.

If any employee identifies an error in the mapping, they document the error and give it to the Water Resources Engineer or Engineering/GIS Technician. If possible, a manhole record, detail, and/or GPS survey of the correction is provided.

SYSTEM CLEANING

Sanitary sewer system cleaning is accomplished through various means and methods. Provo City has established a goal to clean the entire system every four (4) years. Based on experience, this frequency significantly reduces the number of basement backups, controls grease problems and flushes any bellies in the system. In addition Provo City has a listing of identified hot spots which are maintained at a higher frequency. Systems which may have roots are mechanically rodded or hydraulically cut out and areas where restaurants are close together are hydraulically flushed with a high pressure jet truck. The following methods are employed to provide system cleaning:

- Provo City Hydraulic Cleaning
- Contractor Hydraulic Cleaning [if contractors are used]
- Provo City Mechanical Rodding
- Chemical Root Control
- Chemical FOG Control

Provo crews maintain cleaning records at the Wastewater Collections office. If contractors perform cleanings, they are required to provide cleaning records associated with their work. Cleaning history

may also be entered into the GIS; however, this process has not yet been implemented. If the cleaning process identifies a serious defect, the problem is reported on a Work Order. The report is then given to the Wastewater Collections Manager for further action.

A summary of cleaning activities shall be prepared annually by the Wastewater Collections Manager or designee. This summary will normally be presented to the Water Resources Director and Administration.

SYSTEM CCTV INSPECTION

Closed Circuit TV inspections of the sanitary sewer system are used to assess pipe condition and identify problems or possible future failures which need current attention. The CCTV process also identifies the piping condition to allow for replacement prior to failure. Generally Provo City staff will conduct CCTV inspection. Inspections of the system will occur every 10 to 15 years with the goal to complete inspection of approximately 10% of the system each year. All new lines are inspected by CCTV before acceptance of the line. CCTV will also be employed when a systems operation or capacity is questioned or when an SSO occurs. Any defects identified during the CCTV process are reported, and the form is given to the Wastewater Collections Manager for possible repairs.

Documentation of CCTV activities will be maintained at the Wastewater Collections Office. When contractors are employed to inspect the sanitary sewer system they will be required to submit records for their work. The Wastewater Collections Manager will prepare an annual summary of CCTV completed for that calendar year.

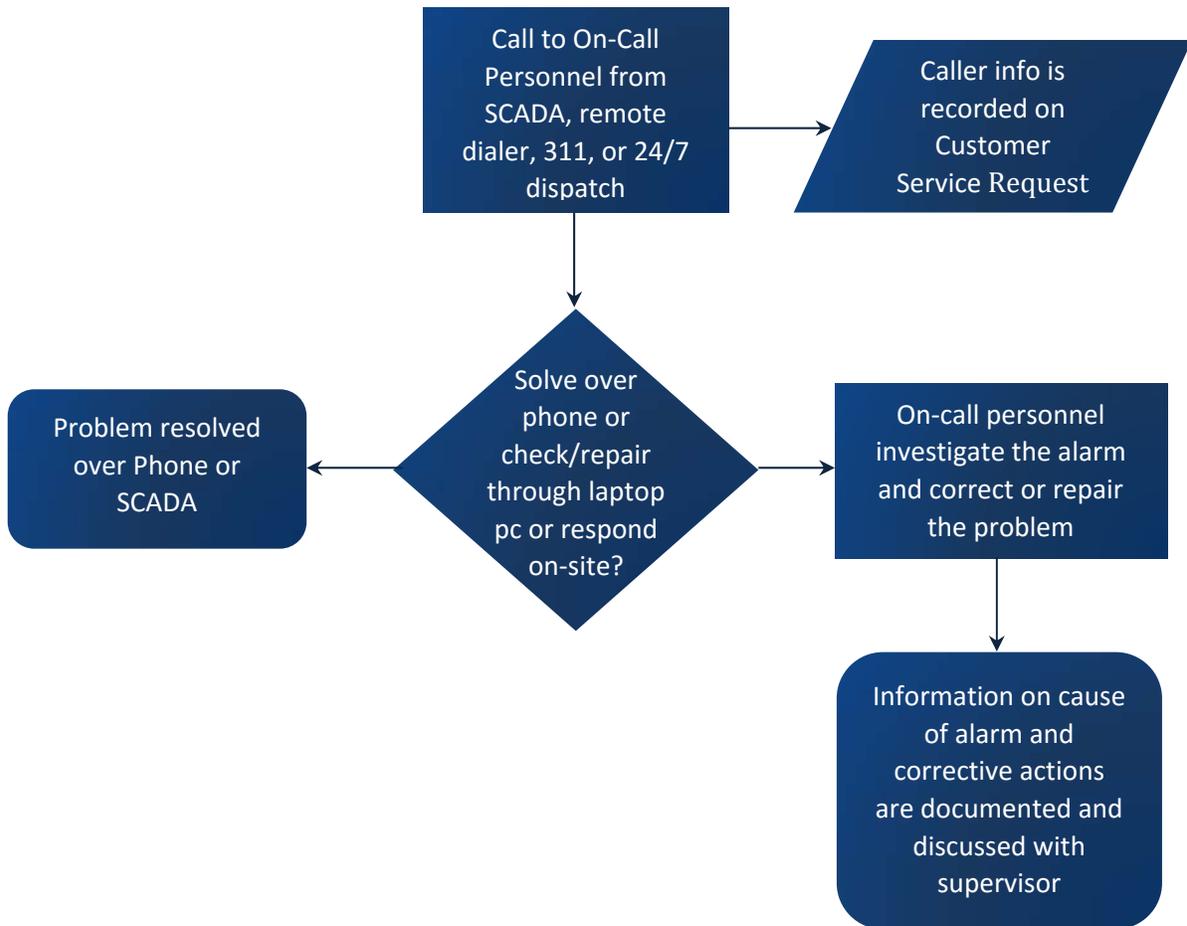
LIFT STATION/PRESSURE LINE INSPECTION

All of the lift stations owned by Provo City are equipped with PLC controls with central SCADA alarm monitoring. Each lift station is equipped with a remote telemetry unit (RTU) to establish radio based telemetry communication data connection 24 hours per day and is monitored at the Provo Wastewater Reclamation Plant. Alarm parameters for each lift station include a loss of communication, power failure, high levels in the wet well and if pump run time is longer than programmed. All lift station SCADA boxes have battery backup and security systems. Lift stations identified as critical have onsite generators or other redundant power sources. In addition, the Water Resources Division has several spare pumps.

Lift station trends are reviewed daily. Each lift station is inspected weekly. Inspections are tracked on a log sheet maintained electronically and in the Wastewater Reclamation Plant files.

- If a problem is encountered that cannot be corrected during the inspection, a report is completed and the form given to the Wastewater Reclamation Maintenance Supervisor.
- If the defect has the potential to cause a sanitary sewer overflow, immediate action is taken to insure no overflow occurs. During the inspection of the sewer force mains, operators look for indications of leaks such as unusual puddles.
- If a potential leak is identified, a Work Order is completed and given to the Wastewater Reclamation Maintenance Supervisor for further action. An evaluation will be made to determine if there is an actual leak and appropriate action taken.

Lift Station Emergency Response



Manhole Inspection

Provo City performs inspection of the sanitary sewer manholes at the time of cleaning or CCTV work. The manhole inspection involves the identification of foreign objects and surcharging that may be present as well as noting the overall the structural integrity of the manhole. Crews inspecting the manholes will utilize mapping provided by Water Resources Engineering. When a potential, non-critical defect is identified, the manhole is flagged and will be rechecked as necessary by an operator to determine if further action is necessary. The inspecting crew will address concerns such as cleaning and removal of foreign objects immediately. Concerns requiring more time, materials, and expense than the inspecting crew has at their immediate disposal are reported to the supervisor for follow up. All inspection records are retained at the Wastewater Collections Office for documentation of work performed for the required retention period.

DEFECT REPORTING

Defect reports are generated when concerns are identified during cleaning, CCTV inspection, pump station inspection or manhole inspection and are prioritized for correction. Any defects which have the potential for catastrophic failure and thus create a sanitary sewer overflow will be evaluated immediately. Repair methods may include:

- Spot Excavation Repairs
- Spot Band Repairs
- Segment Excavation Replacements
- Segment Lining
- Manhole Rehabilitation

When a defect is not flagged for immediate repair, it will be considered for placement on the “hot spot” list. This will allow for vigilant maintenance to ensure failure and a subsequent sanitary sewer overflow do not take place. Summaries of unresolved defects are used in the Budget process to determine what financial allocation should be made in the next budget year for repair and maintenance. The Wastewater Collections Manager will include outstanding defects in the annual report.

COLLECTION SYSTEM DAMAGE

Collection system damage may occur as a result of multiple factors, some identified during inspection activities and some identified as a result of damage by third parties such as contractors.

Damage Identification

The identification of system damage which may result in an SSO or basement backup is important to prevent environmental, public health, or economic harm. Identification of damage may be from either internal activities or external activities.

Internal activities which may result in the identification of damage include the following:

- 1) Collections Maintenance Activities

- 2) CCTV Inspection Activities
- 3) Manhole Inspection Activities

These three activities are discussed in this Maintenance Program and the identification of damage will result in the generation of a Work Order. Generally, damage identification is an iterative and continuous process.

External activities which identify damages include:

- 1) Contractor Notification of Damage
- 2) Directional Drilling Notification of Damage
- 3) Damage Complaints reported by individuals or businesses

All three of these notifications generally require immediate response. Staff responds and evaluates the seriousness of the damage and the effect on the environment. Damages which include a release to the environment are handled in accordance with the SORP. Damages which cause a basement backup trigger the Basement Backup program. Damages which remain in the trench are typically considered de minimis and do not require more action than the repair of the damage.

Whatever the cause of collection system damage, the response is expeditious to prevent environmental, health, property or economic harm. Provo City personnel consider all damages an emergency until it is shown by inspection to be a lower priority.

Damage Response Actions

When damages occur in the collection system, the following actions help define the path staff should take. These action plans are not inclusive of all options available but are indicative of the types of response that may be taken.

Stable Damage

Inspection activities may show system damage which has been there for an extended period of time. Such damage may not require immediate action and may be postponed for a period of time. When stable damage is identified and not acted upon immediately, a defect report is prepared. If such a defect is identified and repaired immediately, a defect report is not needed. An example of stable damage could be a major crack in a pipeline or a severely misaligned lateral connection where infiltration is occurring.

Unstable Damage

Unstable damage is damage which has a high likelihood that failure will occur in the near future. Such damage may be a broken pipe with exposed soil or a line which has complete crown corrosion. In these cases, action should be taken as soon as there is a time, a contractor, materials and other necessary resources available. When such unstable damage is identified, consideration will be given to all types of repair options including trenchless repairs, which may be able to be completed quicker than standard excavation. Immediately after identification the Water Resource Division Director is contacted to review options and take care of budget considerations.

Immediate Damage

When a contractor or others damage a collection line such that the line is no longer capable of functioning as a sewer, this immediate damage must be handled expeditiously. Such damage allows untreated wastewater to pool in the excavation site, spill into the environment or possibly backup into a basement. Under such conditions priority is be given to an immediate repair. Since excavation damage may be a result of contractor negligence or it could be a failure of Provo City to adequately protect the line by appropriately following the Damages to Underground Utilities Statute 54-8A, priority will be given to effecting a repair and not to determining the eventual responsible party.

As can be determined from the above action plans, Provo City's priority is always to prevent SSO's and attendant environmental damage, to prevent basement backups and financial impacts, and to prevent public health issues.



SEWER DESIGN STANDARDS

All sanitary sewer lines shall be constructed to Provo City Design Standards and Specifications. These design standards are intended to be used in conjunction with Utah Administrative Code R317-3. Where a conflict exists between these two standards, the Administrative Code shall prevail.



SANITARY SEWER OVERFLOW ACTION PLAN

Whenever sanitary sewage leave the confines of the piping system, immediate action is necessary to prevent environmental, public health or financial damage from occurring. In addition, quick action is normally needed to mitigate damage which may have already occurred. For the purpose of this section, the following are part of the emergency action plan.

- 1) Basement backups
- 2) Sanitary sewer overflows
- 3) Sanitary sewer breaks which remain in the trench
- 4) Sewer lateral backups

All of the above conditions are likely to cause some damage. Each is treated as an emergency, and corrective actions taken in accordance with Provo City directions. Items 1 & 2 above are reported immediately based on whether they constitute a Class 1 or Class 2 SSO. As stated in the definition section of the SSMP Introduction, a Class 1 SSO is an overflow which affects more than five private structures; affects a public, commercial or industrial structure; results in a significant public health risk; has a spill volume more than 5,000 gallons; or has reached Waters of the State. All other overflows are Class 2 SSO's.

Class 1 SSO's should be reported immediately. Class 2 SSO's are documented and reported in the annual SSMP report and included in the Municipal Wastewater Planning Program submitted to the State. Item 3 may be reported to the local health department if, in the opinion of the responsible staff member there is potential for a public health issue. An example of where a public health issue may be present is when an excavator breaks both a sewer and a water line in the same trench. In such cases, the local health department representatives will be contacted and the situation explained. If the health representative requests further action on the part of Provo City, staff will attempt to comply. If, in the opinion of the responsible staff member, the health department request is unreasonable, the Water Resource Department Director should be immediately notified. Care should always be taken to err on the side of protecting public health over financial considerations. When a basement backup occurs, the staff member responding should follow the Basement Backup Program procedures. Lateral backups, while the responsibility of the property owner, should also be treated as serious problems. Care should be taken to provide advice to the property owner in such cases, but the property owner is ultimately the decision maker about what actions should be taken.

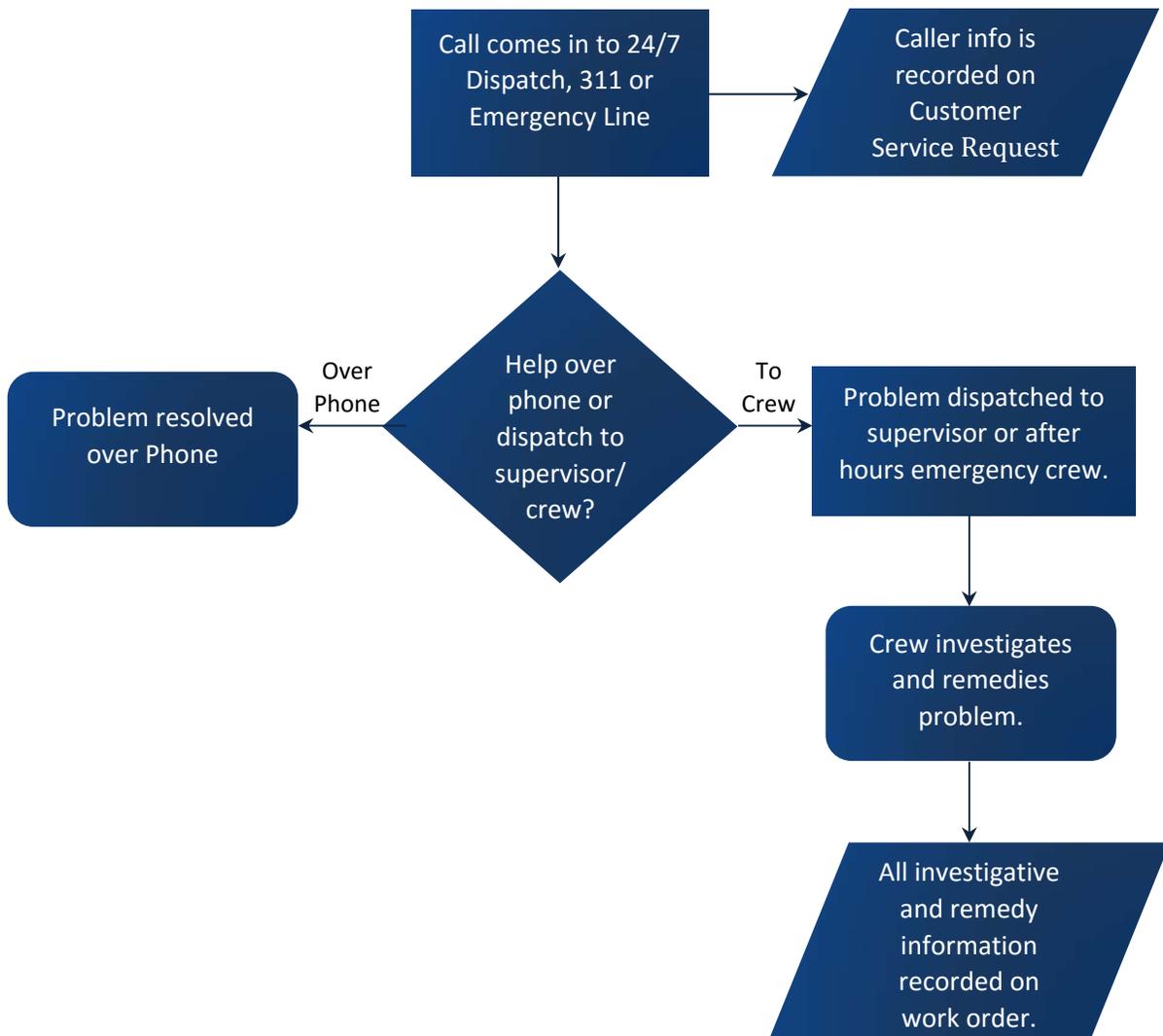
RESPONSE ACTIVITIES

Provo City has developed a SSO Response Plan which outlines notification and response procedures in the event of an SSO. Provo City Water Reclamation and Collections Divisions each have one trained operator on call 24 hours a day, 7 days a week. Provo City's help line (311) operates 24 hours a day 365 days a year. Provo City Water Resources also has a 24 hour emergency phone line. Call information is recorded on a customer service request form before it is dispatched. When calls come in to either line or

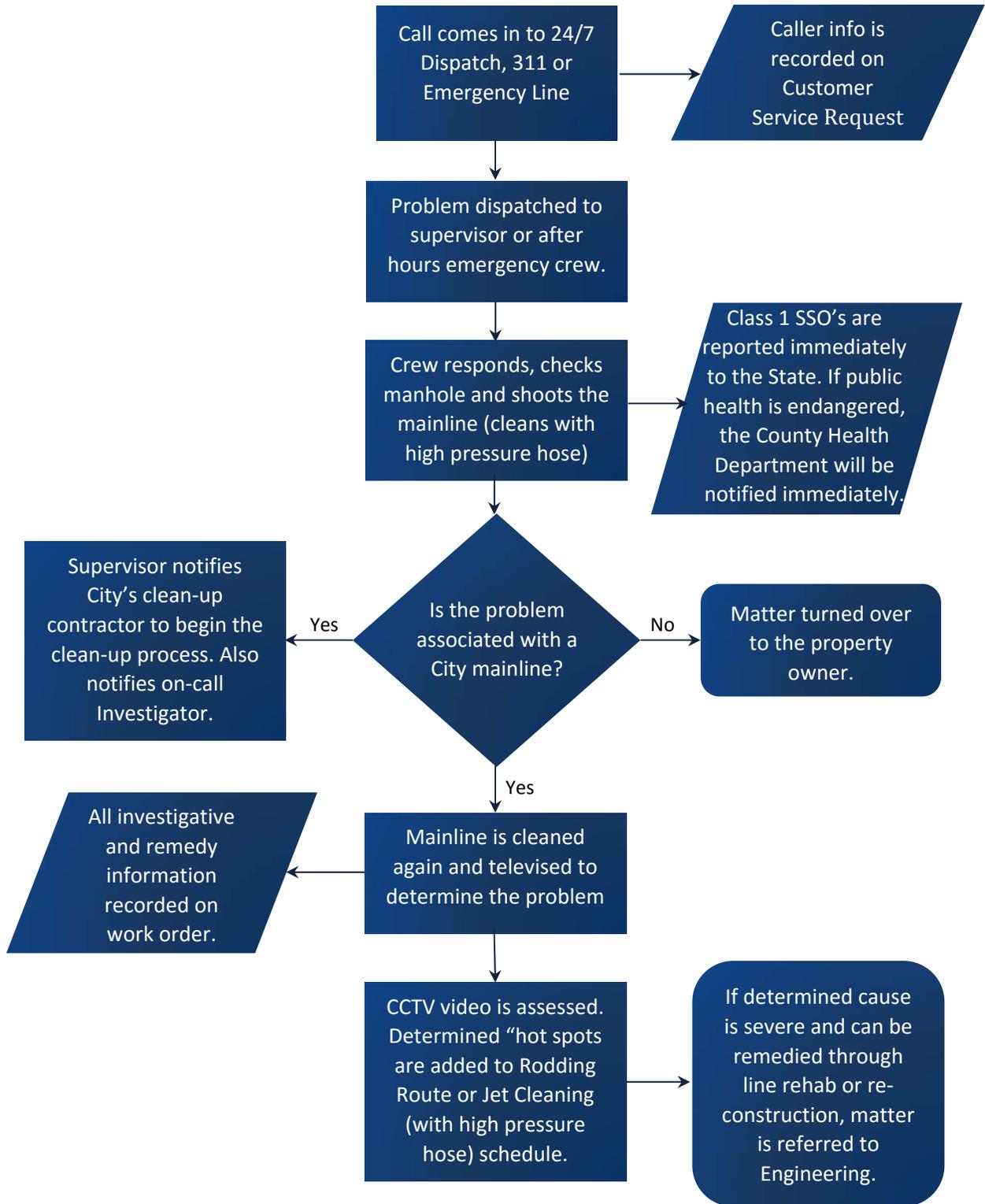
through normal police dispatch, they are dispatched to the collections or water reclamation operator or the operator on-call for response.

There are specific steps that should be followed once a notification is received that an overflow may be occurring. The following graphics explain the Wastewater Collections Emergency Response and SSO Emergency Response procedures.

Wastewater Collections Emergency Response



SSO Emergency Response



Provo has developed detailed standard operating procedures (SOPs) or standard operating guidelines (SOGs) for spill containment and cleanup, overflow/bypass containment, lift station and generator monthly inspections, lift station bypass and emergency response for lift stations. These documents are attached herein by reference. Further details regarding Provo City's emergency response protocols and capabilities are as follows:

- Respond to call in 15 to 20 minutes during business hours, 30 to 45 minutes on after hours calls. (Response times are from time call was received to arrival on the job site.)
- Notify supervisor of spill immediately.
- Assess situation to decide what equipment is needed to contain the spill and/or if a bypass is needed.
- Contain spill using sandbags, absorbent booms, or dirt. Dirt can be hauled from Water Resource stockpiles, and absorbent booms acquired from the Fire Department.
- SSO's reported immediately to State if it is a Class 1 SSO. If public health is endangered the County Health Department will be notified immediately.
- If need arises to bypass, 3 inch pumps, as well as discharge hose are available in Wastewater Collections Equipment Building. If a larger pump is needed, a 6 inch pump is located in the Wastewater Collections Equipment Building with discharge hose. The older 6 inch pump is located in the filter building at the Water Reclamation Facility.
- Jet trucks, backhoes, and/or dump trucks may also be used to contain and clean-up the spill.
- Make a determination of the spill volume in gallons –
 - Determine volume of spill by using best professional estimate
 - Time frame can be determined by noting the accumulated wastewater
 - If the spill was flowing to waters of the State, time estimation could be more difficult. Further investigation is required.
 - Take photographs if possible for documentation and reports.

AGENCY NOTIFICATION REQUIREMENTS

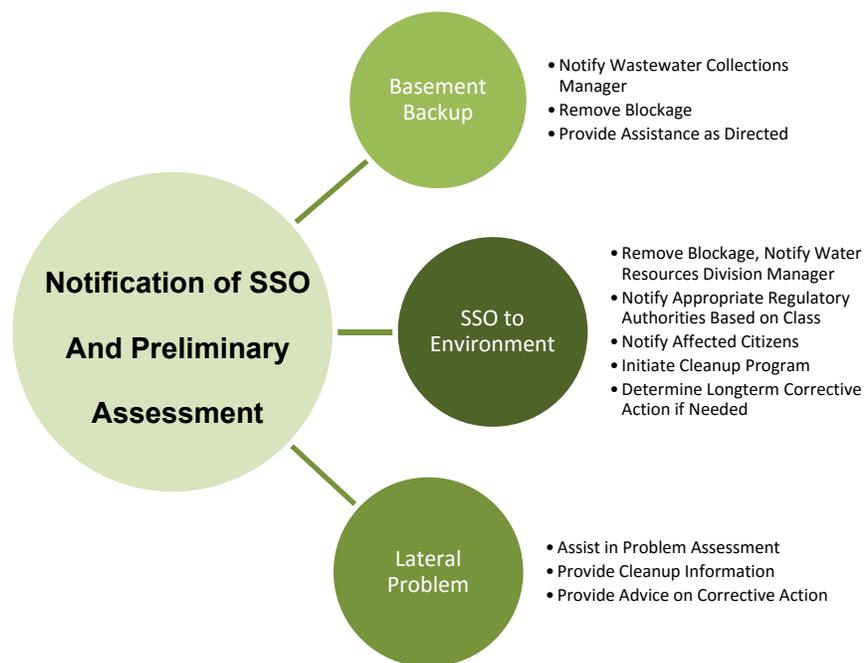
When a Class 1 SSO occurs, the following notification procedure should be followed and documented. Failure to comply with notification requirements is a violation of R317-801.

Both the State of Utah Division of Water Quality and the local health department should be immediately notified when a Class 1 SSO is occurring. Others that may require notification include local water suppliers, affected property owners and notification may be required to Utah Division of Emergency Response and Remediation if hazardous materials are involved. The initial notification must be given within 24 hours. However, attempts should be made to notify them as soon as possible so they can observe the problem and the extent of the issue while the problem is happening. A notification form is provided to document notification activities. After an SSO has taken place and the cleanup has been done, a written report of the event should be submitted to the State DEQ within five days (unless waived). This report should be specific and should be inclusive of all work completed. If possible the report should also include a description of follow-up actions such as modeling or problem corrections that has or will take place.

PUBLIC NOTIFICATION

When an SSO occurs and the extent of the overflow is significant and the damage cannot be contained, the public may be notified through proper communication channels. Normally the local health department will coordinate such notification. If Provo City needs to provide notification it could include reverse 911, Facebook notifications, information on the city website, press releases to the local news agencies, publication in an area paper, and leaflets delivered to home owners or citizens in the area of the SSO. Notification should be sufficient to insure that the public health is protected. When and if Federal laws are passed concerning notification requirements, these legal requirements are incorporated by reference in this document. In general, notification requirements should increase as the extent of the overflow increases.

General Notification Procedure



OVERFLOW CLEANUP

When an overflow happens, care is taken to clean up the environment to the extent feasible based on technology, good science and financial capabilities. Cleanup could include removal of contaminated water and soil saturated with wastewater and associated materials, disinfection of standing water with environmentally safe chemicals or partitioning of the affected area from the public until natural soil microbes reduce the hazard.

Cleanup is usually specific to the affected area and may differ from season to season. As such, this guide does not include specific details about cleanup. The responsible staff member in conjunction with the State DEQ, the local health department and the owner of real property should direct activities in such a manner that they are all satisfied with the overall outcomes. If, during the cleaning process, the responsible staff member believes the State or the County is requesting excessive actions, the Manager should be contacted.

CORRECTIVE ACTION

All SSO's are followed up with an analysis as to cause and possible corrective actions. Depending on the cause, the following actions may be taken:

- Severe root problems or pipe deterioration is referred to the Water Resources Engineers for a possible rehabilitation project. A SSO which is the result of grease or root plug may be placed on the preventative maintenance list for more frequent cleaning.
- Determined "hot spots" are added to the Rodding Route or Jet Cleaning (with high pressure hose) schedule.
 - Hot spots are identified by type: grease, roots, or structural
 - Hot spot activity is tracked
 - All hot spots are cleaned quarterly
 - Serious or repetitive plugging problems may require the reconstruction of the sewer lines. Sewer modification is always a possibility
- Structural problems may be excavated and repaired immediately based on severity.
- An overflow that results from inadequate capacity is followed by additional system modeling and either flow reduction or capacity increase.
- If a significant or unusual weather condition caused flooding which was introduced to the sanitary sewer system incorrectly, the corrective action may include working with other departments to try and rectify the cross connection from the storm sewer to the sanitary sewer or from home drainage systems and sump pumps.
- If a problem is such that it is not anticipated to reoccur, no further action may be needed.



Log of Contact with Other Agencies/People

Location of SSO: _____ Date of SSO: _____

Agency	Phone Number	Contact Made Yes/No	Time	Remarks
Utah DWQ	801-536-4300 or 801-231-1769			
Utah County Health Department	801-851-7000 or 801-851-7525			
Utah DERR	801-536-4123			
Provo City Police Department	911 or 801-852-6210			
Provo City Fire Department	911 or 801-852-6300			
Provo City Water Resources	801-852-6780			
US EPA Region VIII	Consult with DWQ			

Other Contacts:

Contact Made With	Phone Number	Contact Made Yes/No	Time	Remarks



GREASE, OIL AND SAND MANAGEMENT PROGRAM

PURPOSE

The purpose of this program is to set forth a system to control and reduce grease, oil and sand from entering the collection system. This system will provide a means to mitigate the impact of sanitary sewer overflows in the collection system, reduce public exposure to sewage backups, and decrease interference and pass through at the Wastewater Reclamation Facility.

REGULATORY AUTHORITY

Authority to implement and enforce the Grease, Oil and Sand Management Program is found in the Code of Federal Regulations in 40 CFR 403, General Pretreatment Regulations for Existing and New Sources of Pollution. State authority to implement the Program is found in the Utah Administrative Code R317-8-8, Pretreatment. Local authority for the Program is found in Provo City Code Chapters 10.03 and 10.04, Sewer Service—General Provisions and Pretreatment Program. Citations from Provo City Code are as follows:

10.03.130. Grease, Oil and Sand Interceptors.

(1) Grease, oil, and sand interceptors shall be provided when, in the opinion of the Director, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand and other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Director and shall be located as to be readily and easily accessible for cleaning and inspection.

(2) Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight, and equipped with easily removable covers which when bolted in place shall be gas tight and watertight.

10.03.140. Maintenance of Grease, Oil and Sand Interceptors

Where installed, all grease, oil, and sand interceptors shall be maintained by the owner, at the owner's expense, in continuously efficient operation at all times. The City will periodically inspect interceptors to determine compliance. If the interceptor is found to be in noncompliance, the owner shall properly clean the interceptor within the time period designated by the inspector. If the owner encounters unforeseen delays in cleaning the interceptor, the owner shall contact the inspector for an extension which may be granted for good cause. (Am1995-12)

PROGRAM IMPLEMENTATION

This program shall be implemented in such a manner as to minimize the impact on businesses which may be affected by this program. In all cases Provo City will maintain a uniform decision making process. Provo City shall allow for appeals of program requirements in accordance with the appeal process approved by Provo City.

The following steps detail the procedure that Provo City personnel shall follow in implementing this program.

Assessment:

Approval for applicable businesses is required by the Pretreatment Coordinator. The requirement of Grease, Oil, and Sand management is determined by:

1. Application for a business license, license renewal, or business license location change.
2. Issuance of a building or remodeling permit at food service establishments and other commercial or industrial users with a potential to impede sewer flow.
3. Inspection and maintenance of downstream collection system reveals the need for a Grease, Oil and Sand Management Program.
4. The collection system flow and components which are or have a history of being plugged or impacted by oil, grease, or sand discharges.
5. Processes or services have been changed requiring a reevaluation of need for Grease, Oil and Sand Management.
6. When deemed necessary by Pretreatment Coordinator.

Applicants for business licenses are required to complete an Industrial Pretreatment Questionnaire and/or a Food Service Questionnaire describing their process and facility equipment. No requirement will be made if it is determined there is no potential for significant enrichment of the wastewater with grease, oil or sand.

Enrichment is defined as a discharge with a higher volume or concentration of grease, oil, or sand than what is discharged from a typical residence. For oil and grease, the typical residential discharge has less than 100 mg/L of oil and grease for any sample taken. Greater concentrations would be enrichment. Also, a significant build-up of oil and grease in a lateral would indicate enrichment. Sand and dirt are not typically discharged from a residential connection. Any potential for sand or dirt discharge would be enrichment.

Inspection and Enforcement:

Users who enrich or have the potential to enrich wastewater are required to install a grease, oil, or sand device. Device is defined as any form of a grease, oil or sand interceptor, trap, or sump designed to prevent grease, oil or sand from entering the sewer. All devices must be in compliance with Provo City Code 10.03.130 and 10.03.140. The device is required to be maintained by the owner, at the owner's expense, in continuously efficient operation at all times. The owner will be responsible to ensure routine maintenance is being performed. Upon request, users are required to provide the City with documentation of maintenance of the device going back three years. Records are to be kept on site for one year.

All known and marked devices will be inspected periodically by the Industrial Pretreatment Coordinator.

During inspection, if the device is determined to be in non-compliance or the function of the device is failing, the owner is verbally given one week to return the device to compliance.

After one week, the device is reevaluated. If the device fails to meet compliance again, a written notice is given to the responsible party. A new time of five working days is given to the owner to return their device into compliance.

When continued failure or neglect to clean the device is evident, the owner will be held responsible under Provo City Code 10.04.270 Administrative, Civil and Criminal Penalties. In addition, a Show Cause Hearing will also be required. Provo City will order any user which causes or contributes to violations of the Pretreatment standards and requirements to show cause as to why a proposed enforcement action should not be taken. A termination of services may also be imposed until compliance is met.

The Utah County Department of Health will be notified of noncompliance.

10.04.270 Administrative, Civil and Criminal Penalties.

(1) Any person who is found to have violated an order of the Mayor or the Mayor's designee, or who willfully or negligently fails to comply with any provision of this Chapter or any orders, rules, regulations and permits issued hereunder, and upon a showing that the violation occurred after notice and hearing as provided in Section 10.04.250, Provo City Code, shall be subject to an administrative penalty not to exceed one thousand dollars (\$1,000.00) per day per violation. Each day on which a violation shall occur or continue shall be deemed a separate and distinct offense.

(2) In lieu of the administrative penalties provided herein, pursuant to authority granted by the Utah Water Quality Act, any person who violates this Chapter, or any permit rule, or order adopted under it, upon a showing that the violation occurred, is subject in a civil proceeding in the District Court, to a civil penalty not to exceed ten thousand dollars (\$10,000.00) per day.

(3) A fine not exceeding twenty-five thousand dollars (\$25,000.00) per day may be assessed against any person who willfully or with gross negligence:

(a) discharges pollutants in violation of Section 10.04.040, Provo City Code or in violation of any condition or limitation included in a permit issued under Section 10.04.150, Provo City Code;

(b) violates Section 10.04.190, Provo City Code; or

(c) violates a pretreatment standard or toxic effluent standard for publicly-owned treatment works.

(4) The City may recover reasonable attorney's fees, court costs, court reporters' fees and other expenses of litigation in the civil proceeding against

the person and/or entity found to have violated this Chapter or the orders, rules, regulations, and permits issued hereunder.

(5) It shall be unlawful and a class B misdemeanor for any person to knowingly violate any provision of this Chapter. (Am 1989-60, Am 1991-41, Am 1993-33, Am 2005-17, Am 2006-49) Chronic noncompliance could result in the establishment of a sampling and surcharge program, termination of services or further penalties under Provo City Code 10.04.270.

The Pretreatment Coordinator works closely with Provo City Waste Water Collections Division in locating, monitoring, and cleaning of collection system. The Collections Division is notified when a potential trouble spot is identified. Collections notify the Pretreatment Coordinator when an area is recognized as a problem. The Provo City Water Reclamation Facility Management is involved when a user persists in non-compliance. When there is further noncompliance, the Provo City Public Works Director is involved along with the City Attorney's Office.

Tracking:

Each device will be inspected periodically. Previously noncompliant users and high volume users will be inspected more frequently. When a previously noncompliant user returns to compliance, routine inspections will be conducted and the user will be required to provide continued documentation of device maintenance. All Industrial Pretreatment Questionnaires and Food Service Questionnaires filled out will be kept on file. A history database will be maintained to track device inspections, compliance, location, specifications and brief maintenance records.

Training and Education:

To more effectively ensure the reduction and mitigation of grease, oil and sand related backups or obstructions, the Industrial Pretreatment Coordinator will be involved in providing educational information to residential, commercial and industrial sewer users. In residential areas where backups or potential backups occur, newsletters or pamphlets may be distributed in an effort to reduce grease related problems. Information may also be distributed in the Mayor's Blog, on the city website, city Facebook page and in Provo City utility bills. During inspection of food service establishments, informational pamphlets may be given in order to educate the employees about grease related problems.

List of Acceptable Entities that Recycle Oil and Grease

The following list of grease and oil recyclers should be given to all Industrial Users who operate a grease trap. This list may not be all inclusive and is not an endorsement of any company by Provo City. Other recyclers may be used if it can be shown that they discharge of the waste appropriately.

Recycler	Phone Number	Address
A-1 Pumping Services	(801) 768-8686	7005 W 9600 N, Lehi, UT
Beck's Sanitation	(801) 226-0100	Provo and Orem, UT
Renegade Oil	(801) 973-7912	1141 South 3200 West, Salt Lake City, UT
WRE Recyclers	(801) 521-7369	670 E 3900 S Ste 300, Salt Lake City, UT



SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN

Provo City believes that one of the keys to preventing sanitary sewer overflows is to evaluate system capacity and to monitor flows throughout the system in order to ensure that capacities are not exceeded. If the flow in a collection sub-system exceeds the capacity of the pipes, the system will be immediately re-evaluated and corrective action taken. The following elements are all part of Provo City SECAP program.

- 1) Initial Capacity Modeling and Master Planning
- 2) Flow Monitoring
- 3) Surcharge Flow Analysis
- 4) Re-evaluation Modeling and Analysis
- 5) Flow Reduction Evaluation and Implementation
- 6) Capacity Increase Evaluation and Implementation

The actual implementation process associated with each of the elements above is detailed in Provo's SECAP, which is a separate document included herein by reference.



SSMP MONITORING AND MEASUREMENT PLAN

PURPOSE

The purpose of this plan is to provide appropriate monitoring and measurement of the effectiveness of the SSMP in its entirety.

RECORDS MAINTENANCE

Provo City intends to maintain appropriate records on operations and maintenance of the sanitary sewer system to show compliance with this SSMP. However, failure to meet standards set by State DWQ or other regulatory agency during an inspection does not constitute a violation of the SSMP. Instead, deficiencies identified during inspections should be viewed as an opportunity for improvement.

OPERATIONS RECORDS

Operations records that should be maintained include the following:

- Daily cleaning records
- CCTV inspections records
- Manhole inspection records
- Hot spot maintenance list
- Spot repairs
- Major repairs
- System capacity information
- SSO or basement backup records including notification documents to appropriate agencies (call logs, etc.)
- Capital Improvement Plan

Records will be maintained by the Wastewater Collections Manager at the collections office. Lift station records are maintained by the Wastewater Reclamation Plant Manager. Records may be maintained either on an electronic record or as a paper record. The records shall contain sufficient information to demonstrate that the activity recorded was completed appropriately.

PERFORMANCE MEASUREMENT (INTERNAL AUDIT)

On an annual basis, Provo City will assess and audit the effectiveness of the elements of this SSMP. All elements will be reviewed for effectiveness and all records will be reviewed for completeness. An internal audit report will be prepared preferably annually a minimum of once every five years which comments on the following:

- Success of the operations and maintenance program
- Success of other SSMP elements
- Adequacy of the SECAP evaluations
- Discussion of SSO's and the effectiveness of the response to the event including corrective action
- Review of Work Orders and adequacy of response to eliminate defects
- Opportunities for improvement in the SSMP or in SSO response and remediation

The annual audit report will be sufficient to document compliance with the standards set in the SSMP and will be maintained in accordance with Provo City's records retention schedule.

SSMP UPDATES

When a plan deficiency is identified through an audit, inspection or plan review, and the deficiency requires an SSMP update, the plan may be updated at the discretion of the Water Resources Division Director. SSMP updates are recorded in a revision index maintained by the Water Resources Division.

SSO EVALUATION AND ANALYSIS

At least annually in the internal audit and more frequently as needed, Provo City will evaluate SSO trends based on frequency, location and volume. Trend evaluation will be empirical unless a large number occur sufficient to make a statistical analysis viable. If a trend is identified, a corrective action may be appropriate.

PUBLIC COMMUNICATION AND OUTREACH

Provo City will reach out to the public about the development, implementation and performance of the SSMP. This communication may be accomplished by any of the following methods:

- Public hearings
- Public meetings
- Newsletters
- City Website
- Online Postings on Social Media
- Direct mailing
- Leaflets
- Other effective methods

Provo City will accept comments, either written or verbal and will review such comments for applicability.



SANITARY SEWER SYSTEM MAPPING

Provo City maintains records on the locations of sewer lines and manholes in a computer based GIS system. Facilities were input into the GIS system at two quality levels, mapping grade and survey grade:

- Mapping Grade data was digitized into the GIS using orthorectified aerial imagery. These manholes are denoted in the GIS by an asterisk. Mapping grade manholes are updated when survey grade mapping is available.
- Survey grade mapping is done via GPS survey. Wastewater Collection crews have a GPS unit that is assigned to them, which is used on a regular basis as repairs and inspections are done. This data is downloaded by the city surveying department and input into the GIS by the Engineering/GIS technician.

In addition to the location on the mapping, the GIS system contains attributes of the manholes and pipes including sizes, installation dates and even the attached manhole record where available.



BASEMENT BACKUP PROGRAM

Basement backups are a serious impact on a home or business owner. As such, all reasonable efforts should be taken to prevent such backups from occurring. Sewer system backups are the result of several system problems. Such problems include any one or a combination of the following:

- 1) Laterals serving real properties are owned by the property owner and lateral maintenance is their responsibility. Roots, low points, structural failure, and grease are primary problems lateral owners face.
- 2) Backups caused by main line plugs are usually caused by roots, grease, low points, foreign objects and contractor negligence.
- 3) Piping system structural damage may cause basement backups. Such structural problems include age or deterioration damage, installation damage, excavation damage and trenchless technology damage.
- 4) Excess flow problems may surcharge a piping system and cause backups into homes. Excess flows usually occur when major storm waters inflow into sanitary sewers. Sanitary sewers are not designed for such flow. In addition, some homeowners may illegally connect foundation drains and sump pumps to the sanitary sewer system.

BASEMENT BACKUP RESPONSE

When Provo City is notified about a basement backup, staff will log the complaint in a complaint log. The person receiving the call may log the backup complaint or may ask administrative staff to document the complaint.

All backup complaints shall be investigated by staff. If the investigation determines that the cause of the backup is only in the lateral, staff may offer technical information but should not take responsibility for cleanup or subsequent restoration.

When it is determined that the basement backup is the result of a mainline problem, Provo City typically brings in a restoration company to ensure that the affected property is properly cleaned and ready for habitation. It should be noted that all action Provo City takes are on a no-fault basis. Provo City does not accept liability nor does it waive its governmental immunity.