2015

City of South Salt Lake
Sewer System Management Plan

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City of South Salt Lake

8/28/2015

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Chapter 1 General Information

I. Requirement

The City of South Salt Lake (City) has prepared this Sewer System Management Plan (SSMP) in compliance with the requirements of the Utah Division of Water Quality's Utah Sewer Management Program (USMP). The program is authorized under State of Utah Administrative Code R317-801.

II. Adoption

This Sewer System Management Plan was adopted by the City Council on _____, 2015 at a regularly held City Council session located at the City Hall Council Chambers 220 East Morris Avenue, South Salt Lake City.

III. Legally Binding Methods

Central Valley Water Reclamation Facility, South Salt Lake City, and Salt Lake County have promulgated ordinances, rules, or regulations that have been adopted. Collectively, these regulations contain the following items as stipulated by Utah State Code R317-801: (a) Prohibition on unauthorized discharges, (b) Requirement that sewers be constructed and maintained, (c) Ensures access or easements for maintenance, inspections and repairs, (d) Has the ability to limit debris which obstruct or inhibit the flow in sewers such as foreign objects or grease and oil, (e) Requires compliance with pretreatment program, (f) Allows for the inspection of industrial users, and (g) Provides for enforcement of for ordinance or rules violations. These regulations can be found in Title 13 of the South Salt Lake Municipal Code, the Utah Sanitary Sewer Management Program Permit, the Central Valley Water Reclamation Facility Amended Agreement and the Utah Pollutant Discharge elimination System Permit and are included in the Appendix. (See Appendix 'A')

IV. Responsible Parties

The responsible representatives, position and phone number for the City with regard to this SSMP are:

- Wastewater/Stormwater Division Manager – Corby Talbot (801) 483-6045
- Central Valley Water Reclamation Facility (CVWRF)
  - Pretreatment Coordinator – Mike Christiansen (801) 973-9100

V. 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.

- *Chief of Staff:* This individual is responsible for the overall management of Public Works Department. The Chief of Staff reports directly to the Mayor.

- *City Engineer:* This individual is responsible for the development and maintenance of collection system design standards, maintenance of collection system mapping, and maintenance of the SECAP program. The City Engineer reports directly to the Mayor.
- *Wastewater Division Manager*: This individual is responsible for overall management of the Sanitary Sewer Collection System. 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. This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements. The Wastewater Division Manager reports to the Chief of Staff.

- *Wastewater Department Operator*: This individual is responsible for the day to day maintenance and operation of the Sanitary Sewer Collection System; maintenance of the sanitary sewer lift stations, and any emergency call outs for backups in the system. The Wastewater Department Operator reports to the Wastewater Division Manager.

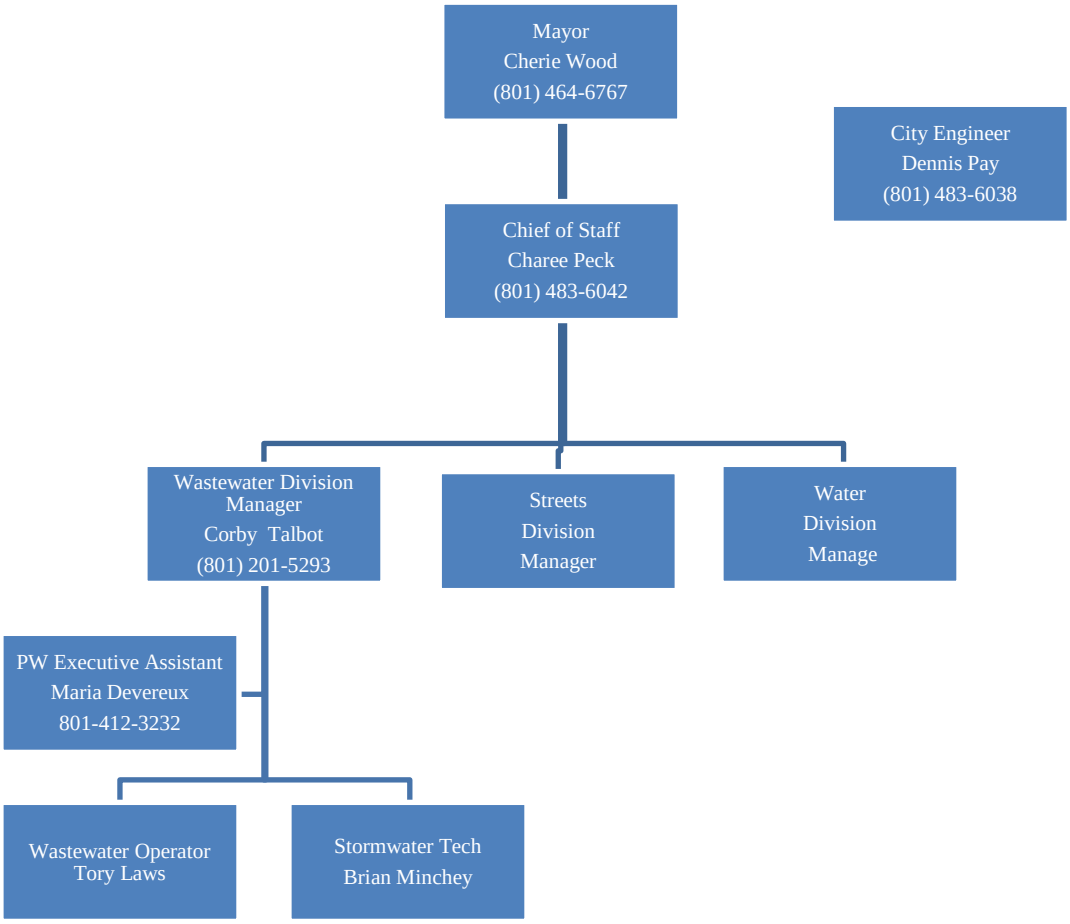
- *Stormwater Technician*: This individual is responsible for the day to day maintenance of the Stormwater System; operation and maintenance of the Stormwater pump station, and implementation of the SWMP. Storm Water Technician works under the direction of the Wastewater Division Manager.

- *Streets Division Manager*: This individual is responsible for the overall management of the City streets, Signs, Side Walks. The Streets Division Manager reports to the Chief of Staff.

- *Water Division Manager*: This individual is responsible for overall management of the water production and distribution system. The Water Division Manager reports to the Chief of Staff.

- *Pretreatment Coordinator*: This individual is responsible for implementation of the pretreatment program including the fats, oil and grease program. The Central Valley Water Reclamation Facility that operates the treatment facility for the City's sewage is responsible for pretreatment programs and inspections.

VI. Organizational Chart



Chapter 2 Introduction & Overview

I. SSMP Introduction

The City of South Salt Lake is a municipality established in 1938 under the Utah State Code. The City Public Works provides sewage collection services to the properties within the northern half of the City's boundary. This Sewer System Management Plan (SSMP) manual has been established to provide a plan and schedule to properly manage, operate, and maintain all parts of the sewer collection system to reduce and prevent Sanitary Sewer Overflows (SSO), as well as minimize impacts of any SSO that may occur. The management for the City recognizes the responsibility it has to operate the sewer system in an environmentally and fiscally responsible manner. As such, this manual will cover aspects of the collection system program necessary to provide such an operation. This manual may refer to other programs or ordinances and by reference may incorporate these programs into this manual.

II. Annual Reporting

Per Utah Administrative Code R317-801, the City shall submit to Utah Division of Water Quality (UDWQ) a Utah Sewer Management Program (USMP) annual operating report covering information for the previous calendar year by April 15 of the following year. (See Appendix 'K')

III. Definitions

The following definitions are to be used in conjunction with those found in Utah Administrative Code R317-1-1 and R317-8-1. The following terms have the meaning as set forth:

(a) BMP: Best Management Practices

(b) CCTV: Closed Circuit Television

(c) CIP: Capital Improvement Plan

(d) UDWQ: Utah Division of Water Quality

(e) FOG: Fats, Oils, and Grease

(f) GOSI: Grease Oil and Sand Interceptor

(g) I/I: Infiltration and Inflow

(h) Permittee: 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 agencies, municipality, county, district, and other political subdivision of the state are interconnected, each shall be considered a separate Permittee

(i) SECAP: System Evaluation and Capacity Assurance Plan

(j) Sewer Collection System: 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.

(k) SORP: Sewer Overflow Response Plan

(l) SSMP: Sewer System Management Plan

(m) SSO: Sanitary Sewer Overflow; the escape of wastewater or pollutants from, or beyond the intended or designed containment of a sewer collection system.

(n) Class 1 SSO(Significant Sanitary Sewer Overflow) means an SSO or backup that is not caused by a private lateral obstruction or problem that:

(i) Affects more than five private structures;

(ii) Affects one or more public, commercial or industrial structure(s);

(iii) May result in a public health risk to the general public;

(iv) Has a spill volume that exceeds 5,000 gallons, excluding those in single private structures; or

(v) Discharges to Waters of the State of Utah.

(o) Class 2 SSO: Non-Significant Sanitary Sewer Overflow; SSO or backup that is not caused by a private lateral obstruction or problem that does not meet the Class 1 SSO criteria.

(p) USMP: Utah Sewer Management Program.

IV. 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.

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.

V. SSO Reporting Requirements

Utah Administrative Code R317-801-4 stipulates when and how SSO's are reported. As of 08/15/2015. SSOs shall be reported as follows:

a) A Class 1 SSO shall be reported orally within 24 hours with a written report submitted to the UDWQ within five calendar days. Class 1 SSO's shall be included in the annual USMP report.

b) Class 2 SSOs shall be reported on an annual basis in the USMP annual report.

c) Further information in regard to SSO's, reporting and requirements may be found at:

1. Utah Department of Administrative Services, Division of Administrative Rules, retrieved from: http://www.rules.utah.gov/publicat/code/r317/r317-801.htm#T4.

2. Department of Environmental Quality, Emergency Phone Number: (800) 458-0145.

d) Annual Reporting shall be submitted in accordance with Chapter 2 Section II of this SSMP. (See Appendix 'A')

VI. Sewer Use Ordinance

a) The City has a sewer use ordinance that has been adopted by the governing body. This ordinance contains the following items as stipulated by Utah Administrative Code R317-801:Prohibition on unauthorized discharges, as listed in Chapter 13.28.050 of the City Municipal Code.

b) Requirement that sewers be constructed and maintained in accordance with Utah Administrative Code R317-3, as listed in Chapter 13.36.090 of the City Municipal Code.
c) Ensures access or easements for maintenance, inspections and repairs, as listed in Chapter 13.16 of the City Municipal Code.
d) Has the ability to limit debris which obstruct or inhibit the flow in sewers such as foreign objects, grease, or oil, as listed in Chapter 13.28.080 of the City Municipal Code.
e) Requires compliance with pretreatment program, as listed in Chapter 13.12.160 of the City Municipal Code.
f) Allows for the inspection of industrial users, as listed in Chapter 13.12.110 of the City Municipal Code.
g) Provides for enforcement of ordinance or rules violations, as listed in Chapter 13.08.060 of the City Municipal Code.

VII. SSMP Elements

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
- SSMP Monitoring and Measurement Plan
- Sewer System Mapping Program
- Basement Backup Program
- No Fault Sewage Backup Claims Program

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

Documentation failures are intended to be identified during system self-audits and will be addressed at 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 City employees will necessarily be involved in the collection system operations. As such, not all employees will receive program training. Wastewater Division employees will receive training.

Periodically the City should assess and audit the effectiveness of the elements of this SSMP. All elements should be reviewed for effectiveness and all records should be reviewed for completeness. An internal audit report should be prepared no less than 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 SSOs and the effectiveness of the response to the event including corrective action
- Review of Defect Reports and adequacy of response to eliminate such defects
- Opportunities for improvement in the SSMP or in SSO response and remediation

Finally, although not a part of this SSMP program, the City is an active participant in the Blue Stakes of Utah Utility Notification system. This system, regulated under Utah State Code §54-8A, requires utility notification of all underground utility operators prior to excavation.

The intent of this regulation is to minimize damage to underground facilities. The City has a responsibility to mark their underground sewer facilities when notified that an excavation will take place. Participation in the Blue Stakes of Utah program helps protect the collection system and reduces SSO's.

Chapter 3 Operations and Maintenance Program

I. Operations and Maintenance Program

The City of South Salt Lake has established this sanitary sewer system operations and maintenance program to ensure proper system operations, minimize any basement backups or SSOs, and provide for replacement, refurbishment, or repair of damaged or deteriorated piping systems. The combined maintenance program ensures that the environment and health of the public are protected 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
- Staff Training and Equipment Inventory

The City of South Salt Lake has an Operation and Maintenance Manual which was updated in 2015. This SSMP should be implemented in collaboration with the Operation and Maintenance Manual. (See Appendix 'H').

II. System Mapping

An up to date map is essential for effective system operations. The City has assigned the mapping responsibility to the Wastewater Division Manager or his designee who will prepare and maintain current mapping for the entire sanitary sewer system. Mapping will be maintained on both paper and in a geographic information system (GIS). Current mapping is available at the City Offices.

Should any employee identify an error in the mapping, they should document the error on a defect report and give it to the Wastewater Division Manager.

The City recently (Fall 2013) performed a manhole survey. The results of the survey can be seen on Figure A in the Appendix. Any discrepancies between the GIS inventory and past paper mapping should be reconciled as soon as convenient.

III. System Cleaning

The City currently owns a combination cleaning truck to flush and, if necessary, vacuum the sewer lines. The City has established a plan to ensure that the entire system is cleaned once every three (3) years. This frequency will reduce the probability of basement backups, control grease problems and flush bellies in the

system. The City has a list of identified hot spots which will be maintained at a higher frequency. The list was developed during the Operation and Maintenance Manual in 2010 and was updated during the Sanitary Sewer System Master Plan in 2014. The Wastewater Division Manager will determine the frequency of the maintenance of each hot spot. Figure B in the Appendix shows locations which require more frequent maintenance.

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 in the City on an as needed basis:

- Hydraulic Cleaning
- Mechanical Rodding.
- Chemical Root Control
- Chemical FOG Control

Cleaning Records will be maintained at the Public Works Office by the Wastewater Division Manager. Contractors are required to provide cleaning records associated with their work. Should the cleaning process identify a serious defect, the problem should be reported on the corresponding form. The Wastewater Division Manager should be given the defect reports for further action. The defect report should be specific as to location and type of problem. Copies of the corresponding forms are included in the appendix. A summary of all cleaning activities and actions shall be prepared annually by the Wastewater Division Manager. Upon completion, his summary will be presented to the City Engineer for review and comments.

IV. System CCTV Inspection

Closed Circuit TV inspections of the sanitary sewer system are used to assess pipe conditions and identify problems or possible future failures which need current attention. The CCTV process also identifies the piping condition allowing for replacement prior to failure. Inspections of the system will occur every four (4) years. Inspection frequency is based on the pipe aging process.

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 should be reported on the corresponding form and the form should be given to the Wastewater Division Manager for possible action. Documentation of CCTV activities will be maintained at the Public Works Office.

When contractors are employed to inspect the sanitary sewer system they will be required to submit records for their work. The Division ManagerDivision Manager will prepare an annual summary of CCTV completed for that calendar year.

V. Pump Station/Pressure Line Inspection

Staff inspects pump stations 1 & 2 daily, and pump station 3 weekly to verify correct operations. See Figure A for pump station locations. Included in this inspection is a visual observation of the pressure line alignment in order to ensure there are no leaks. Pump stations are also monitored via remote monitoring from the SCADA System. Operators inspecting the pump stations will complete the City's inspection form. Should a problem be encountered that cannot be corrected during the inspection, a corresponding defect form should be completed and the form given to the Wastewater Division Manager. If the defect has the potential to cause a sanitary sewer overflow, immediate action should be taken to insure no overflow occurs. During the inspection of the pressure sewer alignment, operators should be looking for unusual puddles. If a potential leak is identified a Defect Report should be completed and given to the Wastewater Division Manager for further action. An evaluation will be made to determine if there is an actual leak and appropriate action taken.

VI. Manhole Inspection

The City inspects sanitary sewer manholes (M/H) while performing system cleaning and system CCTV inspections. The M/H inspection involves the identification of foreign objects and surcharging that may be present. Crews inspecting the manholes will be given maps by the Wastewater Division Manager who will monitor the progress and completeness of the inspection process. When a potential defect is identified the manhole should be flagged. Flagged manholes should be checked by an operator within several days to determine further action. If, during the inspection process, the inspection crew believes a problem is imminent, they should immediately cease inspecting and inform the Wastewater Division Manager of the problem. A cleaning crew should be dispatched immediately to ensure correct system operations. All inspection records will be retained for documentation of work performed. (See Appendix 'B').

VII. Defect Reporting

Defect Reports generated through the cleaning, CCTV inspection, pump station inspection or manhole inspection programs will be prioritized for correction by the Wastewater Division Manager. Any defects which have the potential for catastrophic failure and thus create a SSO should be evaluated immediately and discussed with the Wastewater Division Manager for repair. 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 should be considered for placement on the "hot spot" list. This will allow for vigilant maintenance to ensure that failure and a subsequent sanitary sewer overflow do not take place. Defect reports should be used in the budget process to determine what financial allocation should be made in the next budget year. The Division Manager should include outstanding defects in the annual report. (See Appendix 'C')

VIII. Collection System Damage

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

IX. 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:

- Collections Maintenance Activities
- CCTV Inspection Activities
- Manhole Inspection Activities

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

External activities which identify damage include:

- Contractor Notification of Damage
- Directional Drilling Notification of Damage
- Public Complaints

All three of these notifications generally require immediate response. Staff should respond and evaluate the seriousness of the damage and the effect on the environment. Damages resulting in a release to the environment should be handled in accordance with the SORP. Damages resulting from a basement backup should trigger the Basement Backup program. Damages which remain in the trench do not require more action than the repair of the damage.

Whatever the cause of collection system damage, the response should be expedited to prevent environmental or economic harm. City staff should consider all damages in an emergency until it is shown by inspection to be a lower priority.

X. 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.

a. 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 but may be postponed. When stable damage is identified and not acted upon immediately, a defect report should be 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.

b. Unstable Damage

Unstable damage 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, if possible, consideration should be given to trenchless repairs which may be able to be completed quicker than standard excavation. Immediately after identification the Division Manager should be contacted to review and take care of budget considerations.

c. 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 should be given to an immediate repair. Since excavation damage may be a result of contractor negligence or a failure of the City to adequately protect the line by appropriately following the Utah Code §54-8a Damages to Underground Utilities Statute, priority should be given to effecting a repair and not to determining the responsible party.

As evidenced by the above action plans, priority should always be given to preventing SSO's and attendant environmental damage, preventing basement backups and financial impacts, and preventing public health issues.

XI. Staff Training and Equipment Inventory

Wastewater system operators on staff for South Salt Lake are licensed as Grade II Collection System operators with at least one operator licensed as a Grade IV operator as certified by the State of Utah. Operators are required to renew their Wastewater Operator Certifications every three (3) years and earn Continuing Education credits applicable to the certificate they obtain.

Continuing education and on-going training is provided to Public Works maintenance employees and Division Managers. Training includes but is not limited to:

1. Confined Space Training
2. First Aid
3. Traffic Control
4. Work Zone Safety
5. SORP

The wastewater Division Manager will maintain an inventory of the department's equipment critical in maintaining the sewer system. The Operation and Maintenance Manual also inventories critical parts of the sewer system. A vendor list is maintained for service and parts for the Pump stations. See Critical Equipment List.

Critical Equipment List		
Main Lift Station		
12" ABS pumps	Nickerson Company	(801) 973-8888
Grinder	JWC Environmental	(800) 331-2277
Generator	City Fleet Dept.	(801) 412-3240
SCADA	NKD Technologies	(801) 819-2004
2280 Lift Station		
8x6" Pumps	Utility Management Systems	(801) 486-7700
Grinder	JWC Environmental	(800) 331-2277
Generator	City Fleet Dept.	(801) 412-3240
SCADA	NKD Technologies	(801) 819-2004
2610 Lift Station		
4" Pumps	Utility Management Systems	(801) 486-7700
Grinder	JWC Environmental	(800) 331-2277
SCADA	NKD Technologies	(801) 819-2004

Chapter 4 System Evaluation and Capacity Assurance Plan

The City of South Salt Lake 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. Should a collection sub-system exceed the capacity of the pipes, the system will be immediately re-evaluated and corrective action taken. The following elements are all part of the City's SECAP program.

a) Initial Capacity Modeling and Master Planning
b) Flow Monitoring
c) Surcharge Flow Analysis
d) Re-evaluation Modeling and Analysis
e) Flow Reduction Evaluation and Implementation
f) Capacity Increase Evaluation and Implementation

The actual implementation process associated with each of the elements above is shown in the figure on the next page. This flow chart process forms the backbone of the SECAP.

I. Initial Capacity Evaluation:

The City has performed an analysis and modeling of each critical subsystem contained within its collection system. In 2014, Hansen Allen & Luce completed the City's Sanitary Sewer Master Plan. The master planning included modeling of the entire system, flow monitoring, and determination of an equivalent flow for residential unit, recommendations, and a Capital Facility Plan. The Master Plan may be viewed at the City Offices. The City plans to update the Master Plan with modeling as appropriate in compliance with the USMP requirements.

II. Flow Monitoring

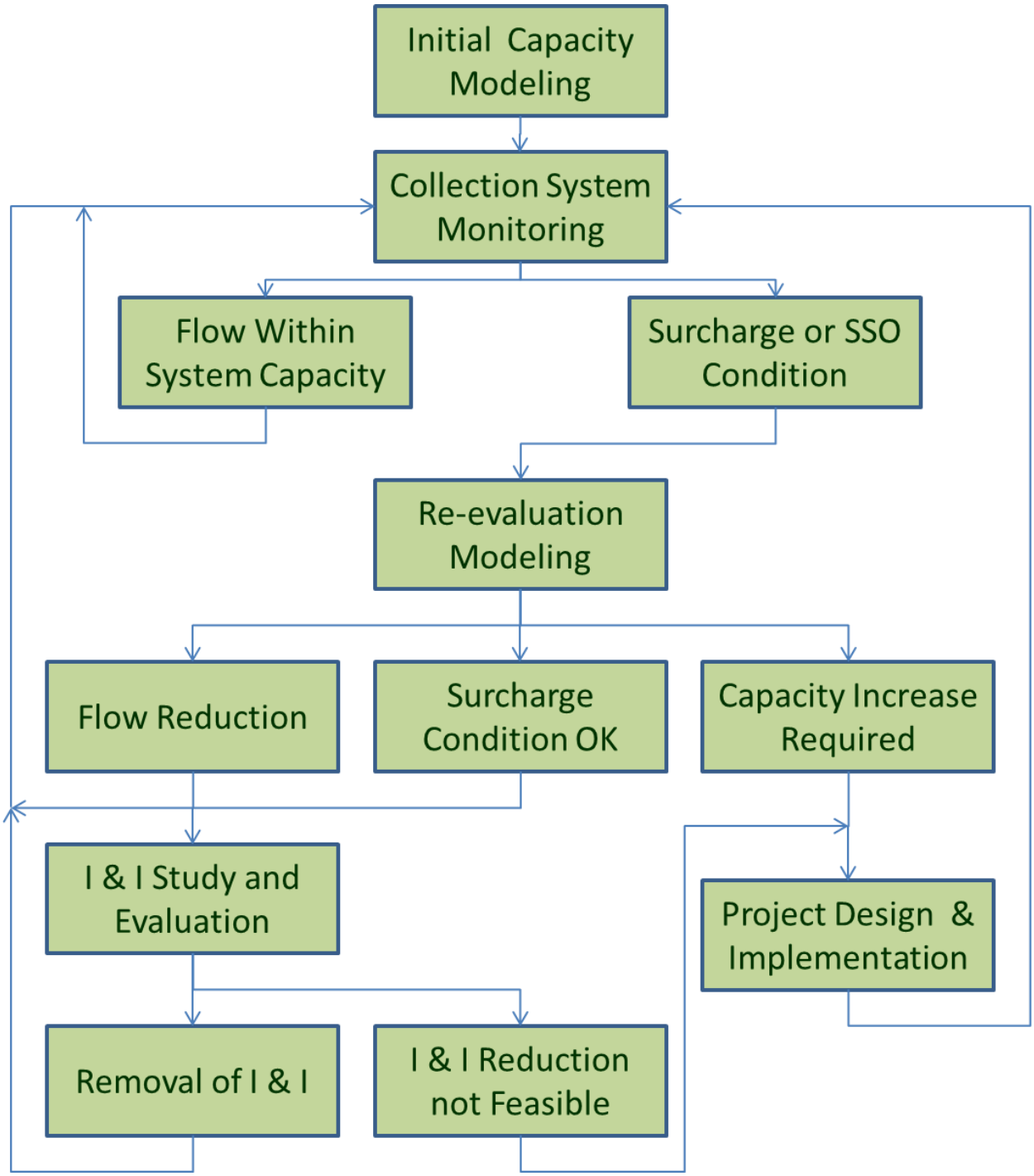
Flow from the City is predominantly monitored through a master influent meter into the CVWRF. The flows are reported to the City by CVWRF monthly. The City of South Salt Lake is planning on installing permanent meters at lift station 1 and on the 2700 South gravity line to verify flows from the system. Other metering is done periodically using portable meters. Selection of meter locations is based on key features of the system, for example, metering flow to lift stations, major trunk lines, or in areas experiencing problems. During the Master Planning process flow metering in City collection lines was provided. The flow monitoring of collection lines provides a basis for model flows, normal use patterns, and quantification of inflow & infiltration.

III. Surcharge Flow Analysis

If any collection subsystem is identified as having any of the following problems the system will be evaluated to determine future action. These problems are:

a) Sanitary Sewer Overflow to the Environment
b) Sanitary Sewer Break Remaining in the Trench
c) Basement Backup
d) Observed Subsystem Surcharging.

SECAP Flow Chart



(Surcharge Flow Analysis – continued)

The flow evaluation may result in multiple conclusions, some of which may require further action. Possible conclusions and their further action are listed below. This list is not inclusive nor does it require the specific action detailed. These are given as possible examples and will be used by the Wastewater Division Manager to determine correct future action.

a. Flow Reduction Evaluation

Should excessive flows be identified during the surcharge analysis, the solution may be to proceed with an inflow and infiltration study with the ultimate goal of reducing flows. These flow reductions may be achieved by reconstruction of specific areas, internal spot repairs, removing illegal storm water or sump pump connections from homes or storm water systems, and system grouting. Tools used in flow reduction may include extensive in line camera inspection, smoke testing, dye testing, and increased inspection or flow monitoring.

b. Foreign Objects or Obstructions

There are multiple foreign objects which may be found in sewers. These may include objects knocked into sewers during construction, illegally placed in sewer manholes, roots, grease and soaps, bellies in piping systems, etc. Each of these problems should be found during the backup investigation and a plan developed to insure the problem does not reoccur. Types of action may include increased cleaning frequency, spot repairs, greater pretreatment activity, lining of pipes, and other corrective actions which resolve the problem.

c. Allowable Surcharging

Some piping systems may be able to accept surcharges without creating problems. Such systems may be deep and surcharging occurs below the level of basements or manhole rims, or they may be in areas where there are no connections. In such cases the resolution of the observed surcharge may just be additional monitoring.

d. Revised System Modeling

Where piping system problems cannot be resolved in a less expensive way, the system may be further modeled to determine upgrade needs. Modeling should include known flow information and future projections. Since the system has been shown to have problems, further modeling should be more conservative in flow projections.

IV. Re-evaluation Modeling and Analysis

When a subsystem's problems cannot be resolved through less costly means, the subsystem should be re-modeled to determine the required action. Revised modeling

may show that flow reduction may still be viable or that the system can allow current surcharge conditions. Most likely, the modeling will form the basis for construction to enlarge the subsystem capacity. Modeling should be done either by the City's Consultant or City Staff with appropriate software.

It is important to insure the modeling is comprehensive and includes all the potential flow sources. While the current area zoning and land use planning should be used in the model development, care should be taken to discuss possible changes with appropriate officials. Where possible zoning changes appear likely, the model should be re-run with the revised zoning alternatives.

V. Capacity Increase Evaluation and Implementation

The capacity evaluation should be expedited based on the impact of the problem on the environment and the possible repeat of the overflow/backup/surcharging. Details on prioritization are given in the next section.

Systems requiring additional capacity should be engineered for expansion by qualified staff or engineering consultants. Project design should be based on acceptable engineering standards and should comply with State of Utah regulations found in R317-3. Easements should be obtained, where needed and the design should include an analysis of other utilities in the vicinity. Design review should be done by the applicable regulatory agency, as appropriate. A design report should be prepared for each project. Where appropriate, the subsystem modeling may be substituted for the design report.

Finalized projects should be placed on the CIP.

VI. System Improvement Prioritization

The priority for improvement should follow the following general guidelines:

a. High Priority Projects

When there is significant potential for sanitary sewer overflows, or frequent basement backups, the improvement should be considered a high priority and any available budget should be allocated to the project.

b. Medium Priority Projects

When the problem is infrequent and the possibility exists that it may not repeat in the near future, the priority for correction is medium. Medium priority projects may be delayed until appropriate budget is available or the priority is adjusted to high priority. Should an SSO or basement backup repeat in the same area, the priority should be immediately revised.

c. Low Priority Projects

If the observed problem is infrequent, there is possibility that it may not repeat in the near future and the possibility that increased flow in the subsystem is low, the priority for correction is low. Low priority projects will be placed in the budget process and evaluated against other needs. These projects will eventually be completed, but the work is not prioritized above plant and equipment needs.

VII. Capital Improvement Plan

The CIP is part of the City's budgeting process to insure sufficient revenue to address identified weaknesses in the sanitary sewer system. Items which have been identified as needing a structural fix are placed on the CIP list and the cost for each estimated. Sources of funding should be identified for all high priority projects so that SSO's or other failures do not re-occur. Forecasts of available funding for medium and low priority projects should be made to facilitate future revenue needs. A Capital Improvement Plan is in the Sanitary Sewer Master Plan (2015).

Chapter 5 Sanitary Sewer Overflow Response Plan

Whenever sanitary sewage leaves 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.

a) Basement backups
b) Sanitary sewer overflows
c) Sanitary sewer breaks which remain in the trench
d) Sewer lateral backups

All of the above conditions are likely to cause some damage. Each should be treated as an emergency, and corrective actions taken in accordance with City directions.

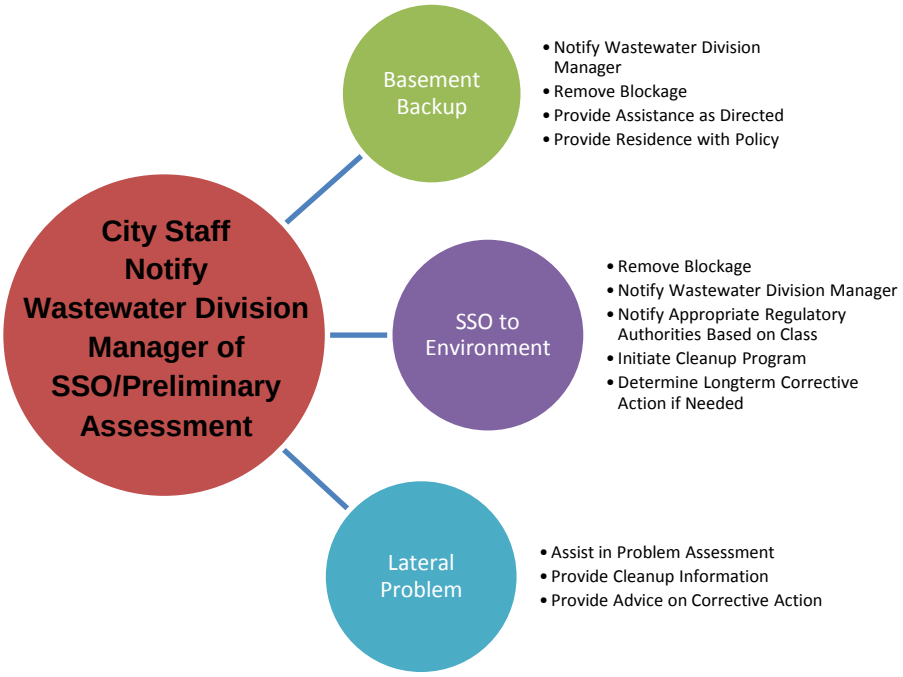
Items a and b above should be reported immediately based on whether they constitute a Class 1 or Class 2 SSO. As stated in the definition section of the SSMP, a Class 1 SSO is an overflow which affects more than five private structures; affects a public, commercial or industrial structure; results in 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. All Class 1 SSO's should be reported immediately. The Wastewater Division Manager will oversee all reporting to the State Regulatory Agencies.

Class 2 SSO's should be documented and reported in the annual SSMP report and included in the Municipal Wastewater Planning Program submitted to the State. Item c 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 should be contacted and the situation explained. If the health representative requests further action on the part of the City, staff should comply. If, in the opinion of the responsible staff member, the health department or state request is unreasonable, the Wastewater Division Manager should be immediately notified. Care should always be taken to error 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.

I. Response Activities

There are specific steps that should be followed once notification is received that an overflow may be occurring. The following figure outlines actions that could be taken when the City receives notice of a possible overflow.



General Notification Procedure

General Response Protocol

The following outlines a procedure for when a call is received by the City from an outside Source regarding a SSO.

1. Notification (from public) is received
   A. City representative receiving the call should seek to gather the following information:
      i. Location of the spillage/overflow
      ii. Estimated quantity and extent of spillage
      iii. A brief description of measures that have been taken to confine and/or treat the sewage and prevent further spillage
      iv. Identify if spillage/overflow is entering a water course or storm drain
2. City representative who received the call will then notify the Wastewater Division according to the following priority:
   i. Wastewater Division Manager 801-201-5293
   ii. Wastewater Operator 801-419-2726
   iii. Stormwater Technician 801-726-5849
3. Either the Wastewater Division Manager, Wastewater Operator, or Stormwater Technician will respond to the scene and assess the SSO
   A. When assessing the situation, the following factors should be considered:
      i. Does the SSO involve public or private responsibilities
         a. Private

- Notify property owner that they need to call a plumber and rectify the situation as soon as possible
- Inform property owner of proper clean-up procedures

b. Public
- Risk to the Environment
- Determine the cause
- Asses the size of the spill/ overflow
- Document (take digital pictures)

4. Either the Wastewater Division Manager, Wastewater Operator, or Stormwater Technician will plan the response, taking into consideration:
   A. What resources are needed
   B. What agencies need to be notified
      i. Class 1 SSO (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) Must be reported Immediately. Utah Division of Water Quality at (801) 538-6146.
      ii. Class 2 SSO (all other overflows) 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. Salt Lake County Health Department 801-580-6681
   C. Notify Blue Stakes of Utah if excavation is required @ 801-208-2100
5. If the response is a Primary Response:
   A. Stop the spill/overflow
      i. Pumping from overflowing manhole to a functioning manhole
      ii. Removing blockage from pipe or water course
      iii. Contain spill/overflow from spreading using soil damns, dikes, or berms to prevent it from entering a storm drain or waterway
   B. Correct the cause of the spill/overflow

   C. Documentation

      i. Wastewater employee shall photograph all of the affected area, and document all Actions taken, parties involved, and any property damage.

6. If the response is a Secondary Response (Clean Up Overflow)
   A. Small Overflow Cleanup
      i. Trained personnel shall use materials such as agricultural lime to contain and treat small spills. Small spills are defined as those in which:

         a. The identity of the spilled material is known
         b. Sufficient resources (personnel and equipment) are onsite to contain and cleanup the spilled material without it getting in storm drains or surface water drainage ways.
   B. Large Overflow Cleanup

i. Cleanup of overflow should consist of sweeping or raking of the area to remove debris discharged by the sewer overflow followed by a light covering of the area with lime. The cleaned up debris is to be disposed of in a dumpster.

ii. Lime and response materials are located in the Spill response trailer at the Wastewater Lift Station 2280 S. 900 W. One pallet of fifty pound bags of lime should be in inventory at all times.

C. Private Property Cleanup

If private property has been impacted by the SSO the Wastewater employee will contact Utah Disaster Kleenup @ 801-553-1010 to perform any actions on private property. Other companies that may need to be contacted:
A Company Inc. (portable restrooms) 800-456-1200
Enviro Care (environmental cleanup) 800-820-9058

7. Follow Up

Wastewater manager may follow up with affected parties to ensure that cleanup was made in a timely fashion and to their satisfaction Wastewater Manager may also photograph the cleaned up area for documentation.

When a Class 1 SSO occurs, specific notification requirements are needed. In such cases the following notification procedure should be followed and documented. Failure to comply with notification requirements is a violation of Utah Administrative Code R317-801.

II. Agency Notification Requirements

Both the State of Utah Division of Water Quality and the local health department should be immediately notified when an overflow is occurring. Others that may require notification include local water suppliers, affected property owners, and the Utah Division of Emergency Services 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 completed, 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.

III. 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.

Should the City need to provide notification it could include 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 ensure that the public health is protected. ,If and when 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.

IV. Overflow Cleanup

When an overflow happens, care should be 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 toilet paper, disinfection of standing water with environmentally adequate chemicals or partitioning of the affected area from the public until natural soil microbes reduce the hazard.

Following a sanitary sewer blockage or overflow event, the following steps will be taken to restore the area and minimize the threat to public health and safety and the environment:

1. All solid materials remaining after the cessation of a discharge event will be cleaned up and removed from the site. Persons performing and persons affected by clean-up activities will be informed of the personal health and safety threats of handling raw sewage and sewage affected debris and will be provided with personal protective equipment necessary to protect them from the biological hazards of raw sewage.

2. When available and necessary, the area affected shall be hosed clean. Flushing waters will be directed or pumped to the sanitary sewer when possible. Lime and other stabilizing or disinfecting agents will be used as necessary to ensure the threat to human health and safety and the environment is minimized.

3. Equipment including sewer jets, pumps, root cutters and other maintenance equipment shall be used when safe and practical to reduce or eliminate current and future discharge at the response location.

4. The response crew shall report to the Superintendent in charge at the conclusion of the clean-up activities. A report shall be logged that indicates location, date, time and suspected cause.

Cleanup is usually specific to the affected area and may differ from season to season. 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 Wastewater Division Manager should be contacted.

V. Corrective Action

All SSO's should be followed up with an analysis as to the cause of the SSO and possible corrective actions. An SSO which is the result of grease or root plug may be placed on the preventative maintenance list for more frequent cleaning.

Serious or repetitive plugging problems may require the reconstruction of the sewer lines. An overflow that results from inadequate capacity should be 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 agencies to try and rectify the cross connection from the storm sewer to the sanitary sewer or from home drainage systems and sump pumps. Finally, should a problem be such that it is not anticipated to reoccur, no further action may be needed. (See Appendix 'C')

VI. Customer Satisfaction

To ensure good public relations and customer satisfaction, the appropriate system personnel will follow up with the reporting party. This follow up will include either a personal visit or telephone call. The Division Manager will determine the information to be disclosed to the reporting party.

Chapter 4 Grease, Oil and Sand Interceptor Management Program (GOSI)

I. Purpose

The purpose of a GOSI program is to provide for the control and management of grease, oil and sand discharges to the collection system. The City of South Salt Lake will implement a GOSI program to inspect businesses in the area which are required to use a sand and/or grease separator before discharging into the Sewer System.

II. Regulatory Authority

Regulatory authority to implement this program is found in the Code of Federal Regulations in 40 CFR 403, General Pretreatment Regulations. State authority for the program is given in the Utah Administrative Code R317-8-8, Pretreatment. Local Authority is found in South Salt Lake City Municipal Code 13.01.

III. Public Outreach

The City will encourage residents to correctly dispose of fats, oils, and grease (FOG) through public education. The City utilizes several methods to educate the public on FOG disposal guidelines. Periodically the City includes Best Management Practices (BMPs) in the Utility bills about the GOSI Program. The City also includes an article in its newsletter that is mailed to every resident; information is posted on the City webpage. In the event of a Grease, Oil or Sand related back-up in a residential area, the City distributes a flyer to educate residents in the area.

IV. 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 the City will maintain a uniform decision making process. The City shall allow for appeals of program requirements in accordance with the appeal process approved by City.

The Wastewater Division Manager will determine the personnel and resources used in implementing the program. The following steps detail the procedures City personnel shall follow in implementing this program.

Evaluation:

City staff will evaluate an industrial user (IU) discharge to determine if grease, oil or sand management is required at the following events:

1. Issuance of a construction or remodeling building permit.
2. When the collection line in front of the business is CCTV inspected as part of the sanitary sewer system preventative maintenance program.

3. When a downstream sanitary sewer pipeline plugs due to oil, grease or sand.

No further action will be taken if it is determined that no potential exists for significant enrichment of the wastewater with grease, oil or sand. Enrichment is defined as a discharge with greater volume or concentration of grease, or oil greater than 100 mg/L or with a potential of sand or dirt discharge. A significant buildup of oil and grease in the lateral indicates enrichment.

Implementation:

IUs which are determined to enrich or have the potential to enrich the wastewater with grease, oil, or sand will be required to develop a management plan in accordance with the following tracks.

TRACK 1

This track is available for IUs which exist at the time of program implementation. However, not all existing IUs may be permitted to use it. Determination will be made on a case by case basis. IUs on this track will be permitted to either pay a contractor or the City to clean the main sewer line from their place of business to the nearest trunk line. A trunk line is any sewer line which has an inside diameter of eighteen inches or larger or has been classified as a trunk line by City. Cleaning frequency will be determined by inspections performed by the City.

TRACK 2

This track requires the IU to install and maintain a grease, oil and/or sand trap on their premises. Installation and construction of grease, oil, and sand interceptors shall be done according to City Code 13.28.080 and City Standards at the user's expense. Cleaning reports may be required at the discretion of the City. The City shall inspect and test the grease trap on a periodic basis.

Should the testing reveal grease and oil in excess of 100 mg/L, a fine may be assessed for each pound of oil and grease discharged for the past reporting period shall be assessed. The pounds of grease and oil shall be determined by using the following equation:

(Total Reporting Period water use in MG)(mg/L O&G - 100)(8.34)

The IU will also be ordered to return to compliance immediately. Retesting will be done within thirty days if the trap has not been cleaned and a cleaning report submitted. Should the test results still not comply with the 100 mg/L oil and grease limit, enforcement will be escalated in accordance with the Cities Enforcement Response Plan. In addition, an entity which is frequently violating

the 100 mg/L limit may be issued a pretreatment permit in order to further regulate the IU.

Should the testing reveal TSS in excess of 250 mg/L, a fine may be assessed for each pound of TSS discharged for the past reporting period. The pounds of TSS shall be determined by using the following equation:

(Total Reporting Period water use in MG)(mg/L TSS - 250)(8.34)

The IU will also be ordered to return to compliance immediately. Retesting will be done within thirty days if the trap has not been cleaned and a cleaning report submitted. Should the test results still not comply with the 250 mg/L TSS surcharge limit, the IU will be placed on a continuous inspection, testing and the surcharge schedule for TSS.

By following the steps discussed above, the City hopes to maintain a collection system free from excessive backups and a treatment plant in compliance with UPDES discharge conditions.

List of Entities That Accept Recycled Oil and Grease

The following list of grease and oil recyclers should be given to all IUs who operate a grease trap. This list may not be all inclusive. Other recyclers may be used if it can be shown that they discharge of the waste appropriately.

Recycler	Phone Number	Address
Renegade Oil	801-973-7912	1141 S. 3200 W, SLC, Utah 84104
WRE Oil Recyclers	801-327-8694	3950 S 700 E Ste.100, Salt Lake City, UT. 84107
Utah Biodiesel Supply	801-820-5753	2863 W 1010 N, Clinton, UT. 84015

Chapter 5 Sewer Design Standards & Mapping

I. Design Criteria and Standards

The City of South Salt Lake uses the latest edition of the APWA Standard Specifications and Standard Drawing for new sewer design, inspection, and testing.

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. (See Appendix 'G')

II. System Mapping

The City currently maintains records on the Sewer System through the City GIS system and as-built drawings. As-built drawings are prepared for each new development and Capital Facility Project. City GIS information is updated periodically. (See Appendix 'J')

Chapter 6 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.

I. Basement Backup Response

When the 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 case 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, the City will follow the policy approved by its governing authority. A copy of this policy should be given to the home owner. It should be noted that all action the City takes are on a no-fault basis. The City does not accept liability nor does it waive its governmental immunity.

II. Backup Prevention Design Standard

The City promotes system designs which minimize backups and insure proper operations. To this end the City uses the APWA design standards for all sewer system construction. In addition, the City complies with state design standards contained in R317-3.

Appendix A.

SOUTH SALT LAKE CITY

MUNICIPAL CODE

Appendix B.

MANHOLE INSPECTION

Appendix C.

DEFECT REPORT

Appendix D.

SSO REPORT

Appendix E.

CVWRF AGREEMENT

Appendix F

CVWRF UPDES PERMIT

Appendix G

APWA SPECIFICATIONS

Appendix H

OPERATIONS & MAINTENANCE MANUAL

Appendix I

NOTICE OF INTENT

Appendix J

SYSTEM MAPS

Appendix K

GENERAL PERMIT FOR OPERATION OF SANITARY SEWER

Appendix L

ANNUAL REPORTS