

Spanish Fork City
Sanitary Sewer Management Plan

Submitted to:

State of Utah
Department of Environmental Quality
Division of Water Quality

Submitted by:

Spanish Fork City, Public Works Department



April 2015

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Chapter 1

Sanitary Sewer Management Plan

1.1 Introduction

Spanish Fork was established in 1855 and provides sewage collection and treatment to Spanish Fork City and Mapleton. 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 (SSOs), as well as minimize impacts of any SSOs. The Management for this entity 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.

1.2 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) "BOD" means Biochemical Oxygen Demand or the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five days at twenty degrees centigrade, expressed in milligrams per liter.
- (3) "CCTV" means "closed circuit television".
- (4) "CIP" means a "Capital Improvement Plan".
- (5) "DWQ" means "the Utah Division of Water Quality".
- (6) "FOG" means "fats, oils and grease". This is also referred to as a Grease Oil and Sand Program (GOSI).
- (7) "I/I" means "infiltration and inflow".
- (8) "Permittee" means a federal or state agency, municipality, county, district, and other political subdivision City 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.

- (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 stormwater 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) "TSS" means Total Suspended Solid. The total suspended matter that floats on the surface of or is suspended in water, wastewater, or other liquids, and which is removable by laboratory filtering in accordance with procedures set forth in Standard Methods.
- (17) "USMP" means the "Utah Sewer Management Program".

1.3 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.*

1.4 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.*

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.*

1.5 Sewer Use Ordinance

The City has a utility ordinance Title 13 that has been adopted by the governing body. This ordinance contains Chapter 13.32 for Public Sewer System Pretreatment Regulations contain items as stipulated by Utah State Code R317-801 including:

- (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 for 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
- 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 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 City employees will necessarily be involved in the collection system operations. As such, not all employees will receive program training.

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 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. The City has a responsibility to mark their underground sewer facilities 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.

Chapter 2 SSMP – General Information

This Sanitary Sewer Management Plan was adopted by the Spanish Fork City Council on [REDACTED].

The responsible representative(s), position and phone number for the City with regard to this SSMP is/are

<u>Name</u>	<u>Position</u>	<u>Phone Number</u>
Chris Thompson	Public Works Director and City Engineer	(801) 804-4556
Jered Johnson	Engineering Division Manager	(801) 804-4575
Dennis Sorensen	Wastewater Division Manager	(801) 804-4466
Shawn Beecher	GIS Administrator - Mapping	(801) 465-5266
Junior Baker	City Attorney	(801) 804-4676
Seth Perrins	Risk Manager	(801) 804-4535

2.1 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.

2.2 Public Works Director/City Engineer

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.

2.3 Engineering Division Manager

This individual is responsible for the development and maintenance of collection system design standards, maintenance of collection system mapping, and maintenance of the wastewater master plan (SECAP program).

2.4 Wastewater Division Manager

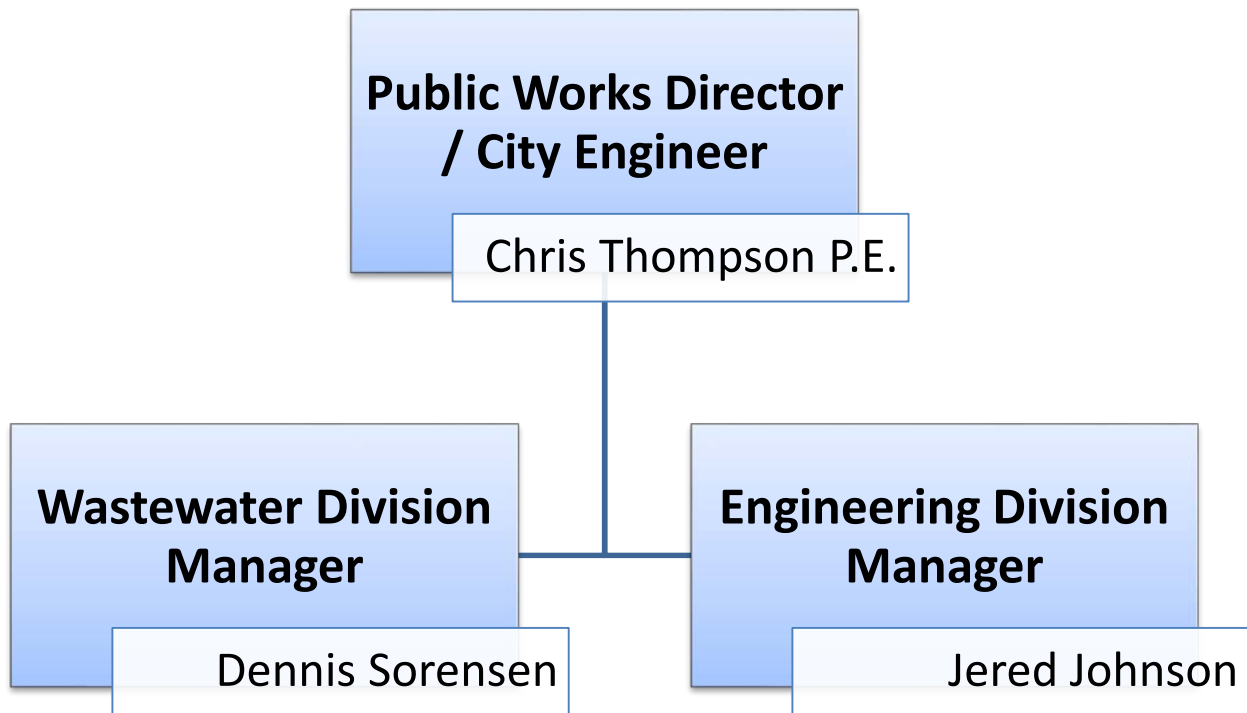
This individual is responsible for daily implementation of the SSMP. This includes maintenance activities, compliance with SORP requirements, and monitoring and measurement reporting requirements.

2.5 GIS Administrator

This individual is responsible for maintenance of the City's infrastructure map. This includes the continuous inventory of sewer infrastructure including manholes, sewer mains, sewer laterals, and sewer fittings.

2.6 Organization Chart

Below is the organization chart associated with the SSMP:



Chapter 3

Operations and Maintenance Program

Spanish Fork 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 should ensure 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:

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

3.0 Operator Training

The City will require the following levels of training and certification of the operators of the sanitary sewer system.

- 1) Wastewater Division Manager
 - a. Collection IV Wastewater Operator unrestricted DRC.
 - b. Treatment IV Operator unrestricted DRC.
- 2) Senior Wastewater Operator
 - a. Collection IV Wastewater Operator unrestricted DRC.
 - b. Treatment IV Operator unrestricted DRC.
 - c. Class A Utah Commercial Driver's License (CDL) with the ability to obtain tanker and hazardous material endorsements.
- 3) Wastewater Operator III
 - a. Collection III Wastewater Operator unrestricted DRC.

- b. Treatment III Operator unrestricted DRC.
 - c. Class A Utah Commercial Driver's License (CDL) with the ability to obtain tanker and hazardous material endorsements.
- 4) Wastewater Operator
- a. Required to obtain Sewer Collections Class III Unrestricted Certification AND Treatment III Operator or higher in 5 years of date of hire.

The city will pay for and provide reasonable opportunities to acquire the appropriate training and certifications for each job title.

3.1 System Mapping

An up to date map is essential for effective system operations. The City has assigned the mapping responsibility to the Engineering Division who will prepare and maintain current mapping for the entire sanitary sewer system. Current mapping is available on the City Website at the links below.

Downloads: www.spanishfork.org/dept/pubworks/engineering/maps/

Interactive: <http://suvgis.spanishfork.org/SFWebMapApp/>

Should any employee identify an error in the mapping, they should document the error on and email the documentation to the Engineering Division Manager. The Engineering Division Manager shall ensure that sanitary sewer maps are updated with each new development.

3.2 System Cleaning

Sanitary sewer system cleaning is accomplished through various means and methods. The City has established a goal to clean the entire system every three (3) years. Based on experience over the past 20 years, this frequency significantly reduces the number of basement backups, controls grease problems, and flushes any bellies in the system. In addition, the 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:

- City Hydraulic Cleaning
- Contractor Hydraulic Cleaning

- City Mechanical Rodding
- Chemical Root Control
- Chemical FOG Control

As part of this cleaning, the City also schedules an inspection of the sanitary sewer manholes (SSMH) once every three (3) years. The SSMH inspection involves the identification of foreign objects and surcharging that may be present.

Crews inspecting the manholes and cleaning sewer main lines will note which manholes and lines were cleaned on maps provided by the Engineering Division. A quarterly report of the lines televised will be sent to the Wastewater Division Manager, Public Works Director/City Engineer and City Manager.

When a potential defect is identified the manhole or main line will be flagged on the map and reported to the Wastewater Division Manager 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 crew should be dispatched immediately to ensure correct system operations.

3.3 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. Inspections of the system will occur every 3 years.

CCTV will also be employed when a systems operation or capacity is questioned or when an SSO caused by a problem in the main line occurs. Any defects identified during the CCTV process should be reported to the Wastewater Division Manager to be placed on a repair prioritization list.

Crews televising sewer main lines will note which lines were televised on maps provided by the Engineering Division. A quarterly report of the lines televised will be sent to the Wastewater Division Manager, Public Works Director/City Engineer and City Manager.

3.4 Lift Stations

Staff inspects each lift station daily for correct operations. Included in this inspection is a visual observation of the pressure lines in order to insure there are no leaks. Pump stations are also monitored via SCADA

Operators inspecting the pump stations will note the inspection on the Pump Station Inspection log at each lift station. Should a problem be encountered that cannot be corrected during the inspection it shall immediately be reported 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.

3.5 Root Intrusion Problem Areas (Bi-annual Cleaning)

A map of sewer main lines with significant root intrusion will be maintained by the Engineering Division. These lines will be televised annually and a root cutting nozzle or root killing chemicals will be used as needed.

3.6 Collection System Damage

Collection system 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.

3.6.1 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 Defect Report.

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) Public Damage 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 which include a release to the environment should be handled in accordance with the SORP. Damages which cause a basement backup should trigger the Basement Backup program. Damages which remain in the trench should be de minimis and do not require more action than the repair of the damage.

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

3.7 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.

3.11.1 Stable Damage

Inspection activities may show a system damage which has been there for an extended period of time. Such damage may not require immediate action. 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.

3.11.2 Unstable Damage

Unstable damage is damage which has a high likely hood 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 Wastewater Division Manager and Public Works Director should be contacted to review and take care of budget considerations.

3.11.3 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 it could be a failure of the City to adequately protect the line by appropriately following the Damages to Underground Utilities Statute 54-8A, priority should be given to effecting a repair and not to determining the eventual responsible party.

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

Chapter 4 Sewer Design Standards

The sanitary sewer design standards are found at:

<http://spanishfork.org/dept/pubworks/engineering/standards/>

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.

A copy of the Administrative Code is found at:

<http://www.rules.utah.gov/publicat/code/r317/r317-003.htm>

Chapter 5

Sanitary Sewer Overflow Action Plan

The Utah administrative code governing sanitary sewer overflow is found at:

<http://www.rules.utah.gov/publicat/code/r317/r317-801.htm>

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 needed to mitigate damage which may have already occurred. For the purpose of this plan, 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 should be treated as an emergency, and corrective actions taken in accordance with City directions. Items 1 & 2 above should be reported according to Section 1.4.

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 should be contacted and the situation explained. If the health representative requests further action on the part of the City, staff should endeavor to comply.

If, in the opinion of the responsible staff member, the health department request is unreasonable, The Public Works Director/City Engineer 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 Sanitary Sewer Management Plan

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.

5.1 Response Activities

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

- 1) Backup response.
 - a. Report backup to one of the following management personnel. Contact in the order until one is reached.
 - i. Wastewater Manager
 - ii. Public Works Director
 - iii. Risk ManagerManagement personnel will determine the class of the SSO and follow notification procedures.
 - b. Backups into a building/home.
 - i. Determine if main line is blocked.
 - ii. If main line is blocked.
 1. Clear the blocked line.
 2. Give owner copy of the "Sewer Backup No-fault Assistance Policy".
 - iii. If Main line is not blocked.
 1. Suggest resident contact a plumber.
 - c. Backup to the environment.
 - i. Clear the blocked line.
 - ii. Determine long term corrective action needed.

5.2 Class 1 SSO Notification Requirements

The notification requirements for SSOs are found in Section 1.4 and at:

<http://www.rules.utah.gov/publicat/code/r317/r317-801.htm#T4>

When a Class 1 SSO occurs the following shall be notified orally within 24 hours:

- 1) State of Utah Division of Water Quality.

- 2) When appropriate also notify:
 - a. Local health department.
 - b. Local water suppliers.
 - c. Affected property owners.
 - d. Utah Division of Emergency Response and Remediation (if hazardous materials are involved).

See Chapter 7 for contact information for these agencies.

After a Class 1 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.

5.3 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 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.

5.4 Overflow Clean

When an overflow happens, care should be taken to clean up the environment to the extent feasible based on technology 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. 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 be all be consulted in the cleanup. If, during the cleaning process, the responsible staff member believes the State or the County is requesting

excessive actions, the Wastewater Division Manager and Public Works Director should be contacted.

5.5 Corrective Action

All SSO's should be followed up with an analysis as to cause 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.

Chapter 6 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			
Utah DERR	801-536-4123			
Spanish Fork Police Department	801-804-4700			
Spanish Fork Fire Department	801-804-4750			
Spanish Fork Public Works	801-804-4500			
US EPA Region VIII	Consult with DWQ			

Other Contacts:

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

Chapter 7

Grease, Oil and Sand Management Program

The purpose of this program is to provide for the control and management of grease, oil and sand discharges to the City's Sanitary Sewer collection system. This program will provide a means to reduce interference with the collection system operation and pass through at the treatment plant.

7.1 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 the Spanish Fork City Ordinance Title 13 Utilities.

7.2 Program Implementation

This program shall be implemented in such a manner as to minimize the impact on businesses. The City shall allow for appeals of program requirements in accordance with the appeal process approved by the City.

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

7.2.1 Evaluation

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

- Issuance of a construction or remodeling building permit.
- When the collection line in front of the business is CCTV inspected as part of the sanitary sewer system preventative maintenance program.
- When a downstream sanitary sewer pipeline plugs due to oil, grease, or sand.

Enrichment is defined as a discharge with greater volume or concentration of

grease, oil, or sand than that discharged from a typical residential connection. 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 buildup of oil and grease in the lateral would indicate enrichment. Sand and dirt is not typically discharged from a residential connection. Any potential for sand or dirt discharge would be enrichment.

7.2.2 Implementation

IU's 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. A monthly enrichment fee shall be adopted by the City Council in a resolution or in the budget for all of these IU's. Twice the monthly enrichment fee will be charged these IU's that do not have a grease trap. This fee will be designed to help cover inspection, testing, and additional City treatment costs for grease, oil, sand, FOG, BOD and TSS.

All new IU's with the potential to enrich the wastewater with grease, oil or sand will be required to have a grease and/or sand trap on their premises. IU's with these traps shall maintain records of the means and dates of the trap cleaning and disposal of contents as directed in Ordinance 13.24.160E. The City shall inspect and have tested grease traps annually.

Should the testing reveal grease and oil in excess of 100 mg/L, the IU shall be subject to a surcharge per pound of grease and oil as adopted by the City Council in a resolution or in the budget. The pounds of grease and oil shall be determined by using the following equation:

$$(\text{Total Reporting Period water use in MG})(\text{mg/L O\&G} - 100)(8.34)$$

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, the IU shall be subject to a surcharge per pound of TSS discharged for the past reporting period as adopted by the City Council in a resolution or in the budget. The pounds of TSS shall be determined by using the following equation:

$$(\text{Total Reporting Period water use in MG})(\text{mg/L TSS} - 250)(8.34)$$

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. Another inspection and testing fee will be assessed. 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.

Chapter 8

System Evaluation and Capacity Assurance Plan

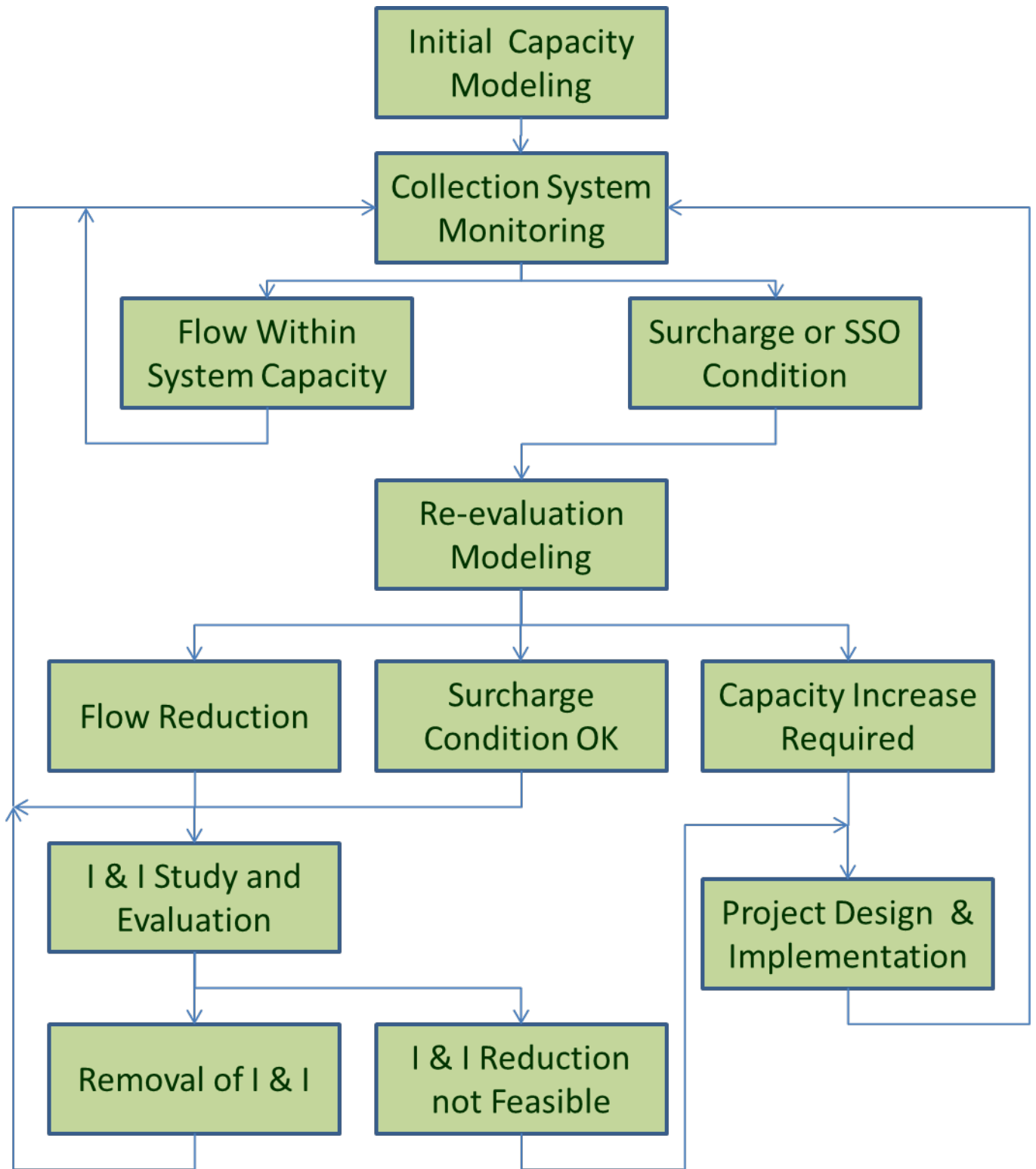
Spanish Fork City believes that one of the keys to preventing sanitary sewer overflows is to evaluate system capacity and to monitor flows throughout the system in order to ensure that capacities are not exceeded. Should a collection sub-system exceed the capacity of the pipes, the system will be immediately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

- 1) Initial Capacity Modeling and Master Planning
- 2) Flow Monitoring
- 3) Surge 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 shown in figure on the next page. This flow chart process forms the backbone of the SECAP.

8.1 Initial Capacity Evaluation

The City has performed an analysis and modeling of each critical subsystem contained within its collection system. Subsystems are segregated based on the branching of the collection system. Trunk lines and collector lines are evaluated until the system reaches a point where less than 400 residential dwelling unit equivalents (RE) are upstream of that point in the system. The 400 RE point was chosen based on the minimum slope requirements of the State of Utah. An 8-inch pipe constructed on minimum slope will carry the flow from 400 RE based on 3.2 persons per dwelling unit, 75 gpcd and a peaking factor of 4. The RE equivalent is based on typical Utah information and assumes the peaking factor will account for a reasonable amount of inflow and infiltration. If an area is known to have, or flow metering identifies, a significant amount of inflow and infiltration, additional evaluation will be needed. In these areas the capacity of an 8-inch pipe system may be significantly reduced below 400 RE.



SECAP Flow Chart

In addition to developing an equivalent flow for a residential unit, consideration should also be given to time of concentration in the collection system. Based on typical diurnal flow patterns, if the transit time in the branch system is less than 2 hours, time of concentration can be ignored.

8.2 Flow Monitoring

Flow will be checked when the Wastewater Master Plan is updated or problems are found using the portable Flow-Dar units. In addition flow records shall be taken and recorded daily at the WWTP

8.3 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:

- 1) Sanitary Sewer Overflow to the Environment
- 2) Sanitary Sewer Break Remaining in the Trench
- 3) Basement Backup
- 4) Observed Subsystem Surcharging.

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 City to determine correct future action.

8.3.1 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.

8.3.2 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.

8.3.3 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 or approved siphons. In such cases the resolution of the observed surcharge may just be additional monitoring.

8.3.4 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. Revised modeling should follow the guides given next.

8.4 Re-evaluation Modeling and Analysis

When a subsystem needs demonstrate problems that are unresolvable by less costly means, the subsystem should be re-modeled and required action determined. Revised modeling may show that flow reduction may still be viable or it may show that the system can allow current surcharge conditions. Most likely, however, the modeling will normally form the basis for construction to enlarge the subsystem capacity. Modeling should be done either by one of the following:

- 1) City staff using commercially available software
- 2) City staff using spreadsheet models
- 3) Engineering firms using available software or spreadsheets

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. Once a resolution has been selected, the resulting project should be placed on the capital improvement plan (CIP).

8.5 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.

8.6 System Improvement Prioritization

The priority for improvement should follow the following general guidelines:

8.6.1 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.

8.6.2 Medium Priority Projects

Where 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.

8.6.3 Low Priority Projects

If the observed problem is infrequent, there is the possibility that it may not repeat in the near future and the possibility that increased flow in the subsystem is low, the correct priority 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.

8.7 Capital Improvement Plan

The CIP is part of the Cities 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.

Chapter 9

SSMP Monitoring and Measurement Plan

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

9.1 Records Maintenance

Spanish Fork City intends to maintain appropriate records on operations and maintenance of the sanitary sewer system to validate 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. Rather, deficiencies identified during inspections should be viewed as an opportunity for improvement.

9.2 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
- Capital Improvement Plan

Records will be maintained by the City in a central location. Records may be maintained either on an electronic record or as a paper record. The extent of the record should be sufficient to demonstrate the activity recorded was completed appropriately.

9.5 SSO Evaluation and Analysis

At least annually in the internal audit and more frequently as needed, the 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.

Chapter 10

Sanitary Sewer System Mapping

Spanish Fork City keeps sewer line records in two ways. One is the plan drawings of all developments including utility drawings showing pipe size and location. The drawings also include planned sewer line clean out locations and elevations, sewer manhole locations and elevations and invert-in and invert-out elevations.

Two is the City's computer based mapping system GIS. The City's Sanitary Sewer System is analyzed by a computer model coupled with the spatial data obtained from GIS including all of the piping and the outfall to the treatment plant locations, conductivity by structures such as manholes and fittings, pipe sizes, lengths, inverts, material, and roughness. The wastewater flows of the users of the Sanitary Sewer System are applied to the lateral associated with the user's property. In the model, wastewater flows through the piping network is performed by the Kinematic Wave or Hydrodynamic routing methods.

Chapter 11

Basement Backup Program

Basement backups have 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 faced by lateral owners.
- 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.

11.1 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 main line problem, the City will follow the policy approved by its governing authority. A copy of the No-Fault Assistance Letter should be given to the property 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.

11.2 Backup Prevention Design Standard

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

11.3 Reference Regulatory Documents

The following regulations are referenced in the establishment of this policy:

- Utah Code Title 15A-2-103(c). This code section adopts the 2009 edition of the International Plumbing Code.
- The 2009 International Plumbing Code, section 715 Sewage Backflow.
- City Ordinance 13.28.085 for Backflow Prevention Devices

11.4 Spanish Fork City Policy

- The State of Utah has adopted the International Plumbing Code(IPC) as its plumbing building standard;
- The City uses the IPC as their statute for plumbing construction and installation;
- And the IPC requires the installation of a sewage backwater valve “where the overflow rim of the lowest plumbing fixtures are below the next upstream manhole in the public sewer.”

Therefore, for new construction, the City requires the installation of backwater valves as stipulated by the IPC already propagated for all new construction.

Chapter 12

No-Fault Sewage Assistance Program

The purpose of this program is to assist property owners whose personal property is destroyed or damaged as the result of a backup of City main lines. These backups result for many different reasons: paper towels, grease, food waste, feminine products or other insoluble objects that may have been flushed or otherwise put into the sewer system.

The City follows a sewer maintenance program. However, the City is not legally liable for sewer backups when sewer mains are clogged by foreign objects that do not belong in the sewer system because those objects can be put into the sewer system at any time by anyone. The City, however, recognizes that the property owner is likely not responsible as well, therefore the City provides limited assistance through its no-fault assistance program.

The goal of this assistance is to help minimize the damage and offset the expenses to clean your home or business and make it habitable again. No-fault assistance is not provided to replace personal or business property that may have been damaged by the backup. Property owners are encouraged to review their insurance policy to see if coverage exists, any city assistance given would be secondary to insurance payments.

12.1 Cleanup of Real and Personal Property

- 1) Upon discovering backup described in this Policy, a property owner should immediately notify the City of such event.
- 2) The City will determine if the backup originated in the main line or lateral.
- 3) If the backup originated in the lateral the property owner will be encouraged to contact a plumber for further assistance. No additional assistance will be given by the City.
- 4) If the backup originated in the main line an employee from the City Wastewater Division will provide the property owner with the City's approved No-Fault Assistance Letter.
- 5) The employee will inform the property owner that the city will try to determine the cause of the backup and fault. A preliminary cleanup estimate will be given to the property owner while fault / no-fault is determined
 - a. If fault is assigned, the backup will be assigned to the responsible party and handled as an insurance claim or similar.

- b. If there is no fault, then the city will follow the no-fault policy and the employee will inform the property owner what assistance is authorized and prepare a check for the property owner. The employee will review the damage and prepare an assistance estimate.
- 6) Based on the total area affected, assistance will be offered up to a maximum of \$7,500. A maximum of \$4,000 will be allocated for clean-up. Property owners should not expect that the maximum amount available will necessarily be given in their situation.
- 7) The City will not review invoices for clean-up, reconstruction, or personal or business property.
- 8) If the property owner has insurance coverage, assistance from the City may only be given after the limits of the insurance have been exhausted and only if there are expenses for clean-up or repair that were not otherwise covered by insurance.
 - a. The property owner shall provide information regarding insurance before any no-fault assistance payments are made.