

# City of Needles Waste Water

## Sewer System Management Plan (SSMP)



817 Third Street

Needles, CA 92363

March 2011

## Table of Contents

LIST OF ABBREVIATIONS .....	3
Section I - GOALS.....	5
Section II - ORGANIZATION .....	5
Section III - LEGAL AUTHORITY.....	10
Section IV - OPERATIONS AND MAINTENANCE PROGRAM .....	12
Section V - DESIGN AND PERFORMANCE PROVISIONS.....	14
Section VI - OVERFLOW EMERGENCY RESPONSE PLAN.....	15
Section VII - FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM .....	19
Section VIII - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN .....	20
Section IX - MONITORING, MEASUREMENT, AND PLAN MODIFICATIONS.....	21
Section X - SSMP PROGRAM AUDITS .....	21
Section XI - COMMUNICATION PROGRAM .....	21
APPENDIX .....	22
COLLECTION SYSTEM MAP.....	23

## LIST OF ABBREVIATIONS

CON	CITY OF NEEDLES
CIP	CAPITAL IMPROVEMENT PLAN
CIWQS	CALIFORNIA INTEGRATED WATER QUALITY SYSTEM
CWC	CALIFORNIA WATER CODE
CPO	CHIEF PLANT OPERATOR
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FOG	FAT, OILS, AND GREASE
I/I	INFILTRATION AND INFLOW
LRO	LEGALLY RESPONSIBLE OFFICIAL
OERP	OVERFLOW EMERGENCY RESPONSE PLAN
OES	OFFICE OF EMERGENC SERVICES
RCAC	RURAL COMMUNITY ASSISTANCE CORPORATION
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
SBR	SEQUENCING BATCH REACTOR
SSMP	SEWER SYSTEM MANAGEMENT PLAN
SSO	SANITARY SEWER OVERFLOW
SWRCB	STATE WATER RESOURCES CONTROL BOARD
WDR	STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS

## INTRODUCTION

The Sewer System Management Plan (SSMP) has been prepared in compliance with requirements of the State Water Resource Control Board (SWRCB) pursuant to Order No. 2006-0003, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WDR). The WDR requires development and implementation of a written SSMP, and defines eleven mandatory SSMP elements. The WDR also defines associated monitoring, record keeping, reporting, and public notification requirements.

The City of Needles owns and operates a wastewater system that includes both the collection and treatment systems. The City is responsible for monitoring and maintaining the existing collection systems. A total of 3 workers are employed to provide maintenance to all facilities.

### **City of Needles Wastewater Treatment Plant**

City of Needles Waste Water Treatment Plant is located at 516 E. Broadway in Needles California. The City of Needles built a new wastewater treatment plant utilizing a 1.2 MGD sequential batch reactor (SBR) system which is an activated sludge process designed to operate under non steady state batch condition.

## **Section I - GOALS**

In order to reduce and prevent SSO's as well as to mitigate any SSO's that occur, the City of Needles will establish the following goals.

1. To properly manage, operate, and maintain all parts of the wastewater collection system.
2. To provide adequate capacity to convey peak flows.
3. To jet or clean the entire Sewer System over three years.
4. To work cooperatively with local, state, and federal agencies to investigate the causes of, minimize, and mitigate the impacts of sanitary sewer overflows (SSOs)
5. To meet all applicable regulatory notification and reporting requirements.
6. To be available and responsive to the needs of the public to prevent and restore interruptions in service and to minimize public health and property impacts related to SSOs.
7. To implement regular, proactive maintenance of the system to remove and control roots, debris, and fats, oils and grease (FOG) that may cause SSOs.
8. To prioritize renewal and replacement of wastewater collection system facilities to maximize their useful life and optimize capital expenditures.
9. To identify need for redesign or re-engineer sections of sewer lines in certain tract's.
10. To have remaining pump stations above ground as major rebuild or retrofits are needed.

## **Section II - ORGANIZATION**

**A. RESPONSIBLE OFFICIALS**

All the work of the City is done under the direction of the Chief Plant Operator. The Legally Responsible Officials (LRO) for the City of Needles is the Chief Plant Operator

**Chief Plant Operator**

- All work is done under the direction of the Chief Plant Operator
- In addition the (CPO) manages the SSO reporting process and the City's SSMP.
- Revises and implements the Overflow Emergency Response Plan (OERP).
- Establishes policy for implementation
- Legally Responsible Official (LRO).
- Responsible for reporting SSOs to the CIWQS, OES, and other agencies requiring notification of SSO's.
- Regulatory notifications and communications.
- Responsible for the overall operation of the regulated facility
- Supervises field crew.
- Contact manager for outside services
- Regular visual inspections of manholes and sewer pipes.
- Prioritizing and scheduling rehabilitation projects.
- Rehabilitation and replacement plan to identify and prioritize system deficiencies including potential sources and future SSOs.

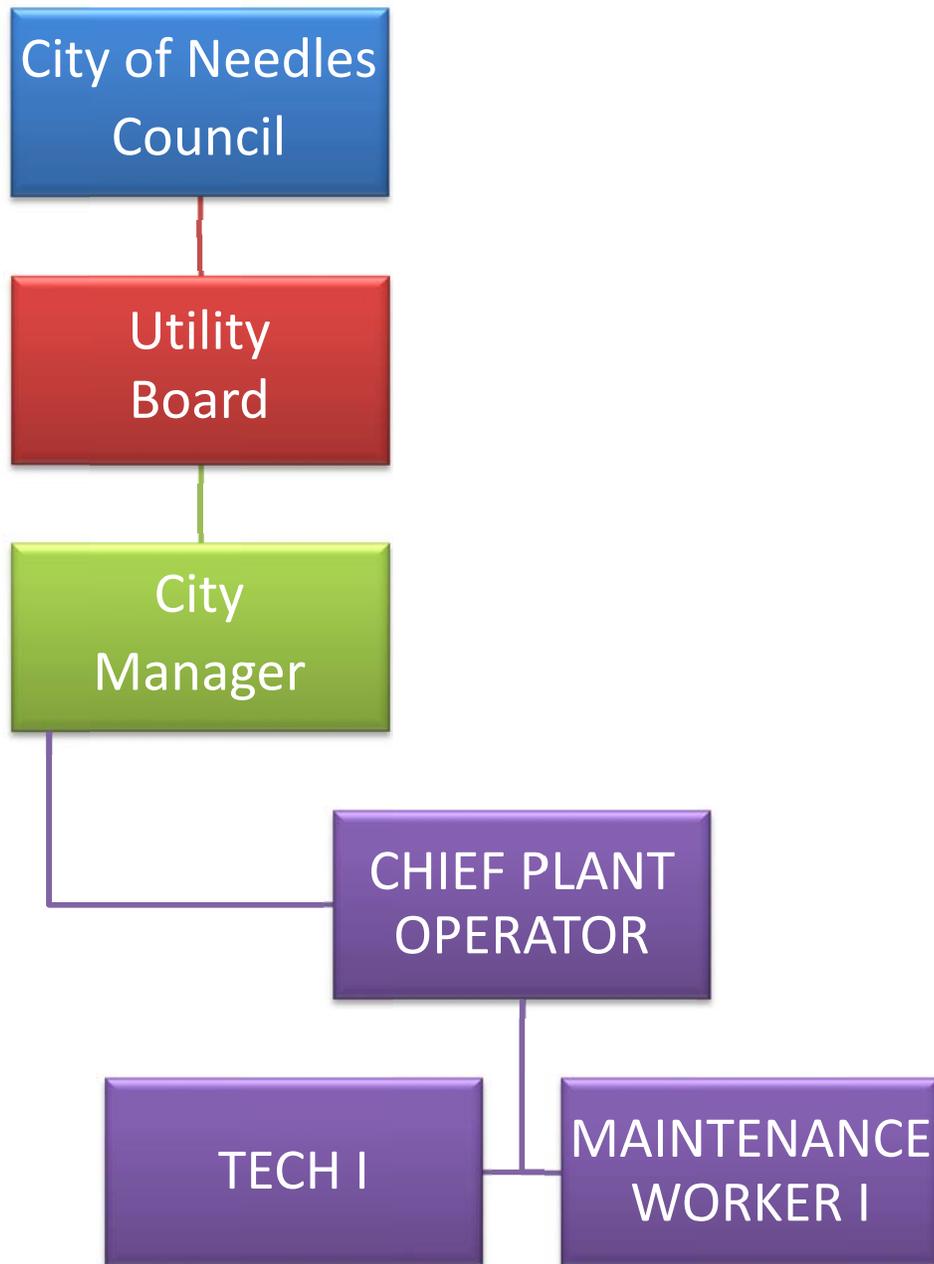
**Tech I**

- Responsible to complete all task as directed by CPO.
- Report all available information regarding collections system to CPO.

**Maintenance Worker I**

- Responsible to complete all task as directed by CPO.
- Report all available information regarding collections system to CPO.

**ORGANIZATION CHART**



**B. CHAIN OF COMMUNICATION FOR REPONDING SSOs**

---

After receiving a complaint or report of a potential SSO, the Chief Plant Operator & the Sewer Tech are notified. In the case of a power failure or other emergency within a pumping station, an alarm auto-dialer system will call to inform in the following order: on call operator and Chief Plant Operator.

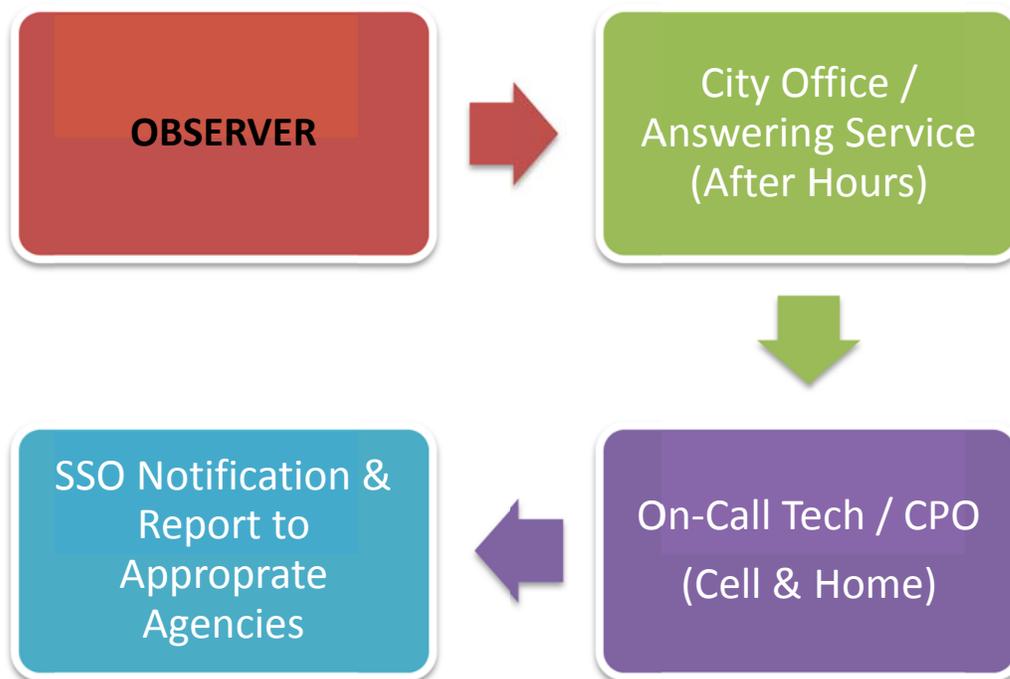
The first responder will report an overflow or hazard immediately to the Chief Plant Operator if significant and there is need for additional support and resources. The City of Needles wastewater crew is responsible for reporting the overflow to the appropriate regulatory agencies.

The City Chief Plant Operator is a legally responsible official (LRO) and is responsible for overseeing the reporting process. The City of Needles receives the spill report from the Tech crew and drafts up the required report. The draft is then reviewed with the Tech crew with consideration given to volume calculations, vacuum and wash down operations, cause of spill, timeliness of response, etc. After discussions are complete, the report is finalized, reviewed by the Chief Plant Operator and then transmitted to the appropriate authorities. The City reports all spills except private property spills where the spill is contained on-site.

As a priority during a sewer spill, wastewater crews notify the appropriate agencies by phone that a spill has occurred.

## CHAIN OF COMMUNICATIONS

for responding to SSO's



### **Section III - LEGAL AUTHORITY**

Sanitation collection for the City of Needles is authorized under California Health and Safety Code Section 5471 and City of Needles ordinance #405-AC Chapter 17. These codes give the City legal authority to:

- a. Prevent illicit discharges into its sanitary sewer.
- b. Require that sewers and connections be properly designed and constructed
- c. Ensure access for maintenance, inspection, or repairs for portions of the main owned or maintained by the City
- d. Limit the discharge of fats, oils, and grease and other debris that may cause blockages.
- e. Enforce any violations of its sewer ordinances.

#### **A. PREVENT ILLICIT DISCHARGES INTO ITS SANITARY SEWER SYSTEM**

The City of Needles operates, maintain, repair, and replace wastewater system facilities as needed to provide wastewater service in compliance with applicable standards and regulations.

A permit from the City is required to connect to, use, or maintain a connection to the City's facilities. Any person, firm or corporation that connects or discharges to the City's sewerage system without a valid permit is guilty of a misdemeanor.

**B. REQUIRE THAT SEWERS AND CONNECTIONS BE PROPERLY DESIGNED AND CONSTRUCTED.**

The City addresses proper design and construction of sewers and connections. Section 17.2 of the Sewer Use Ordinance regulates sewer construction. The type of materials and inspection requirements by the City is provided in Section 17.2

Customer shall install & maintain all premise connection sewers & the interconnection to the sewer main, such installations shall comply with requirements of the City conditions governing extensions of waste water collection & services.

**C. ENSURE ACCESS FOR MAINTENANCE, INSPECTION, OR REPAIRS**

The City of Needles may inspect, as often as deemed necessary, every main-line sewer, industrial sewer connection, interceptor, or other similar appurtenance to ascertain whether such facilities are maintained and operated in accordance with the provisions of this ordinance.

**D. LIMIT THE DISCHARGE OF FATS, OILS, AND GREASE AND OTHER DEBRIS THAT MAY CAUSE BLOCKAGES**

Every owner, tenant and person using property shall have a duty not to cause, permit or allow the accumulation of grease in the City's sewer line so that sewage spills may occur. Such person shall use reasonable methods to reduce grease accumulation in the City's sewer lines including but not limited to reducing or eliminating grease that is deposited in the sewer and utilizing enzymes and similar products that prevent grease build-up. No person shall discharge grease into the sewer system so as to cause an accumulation in the City's lines so as to substantially contribute to the possibility of a sewage overflow.

No food service establishment shall discharge into the City's system without obtaining a permit from the City describing the business operations and discharge and any FOG prevention measures being undertaken or to be undertaken to reduce the discharge of FOG into the City's system.

**E. ENFORCE ANY VIOLATIONS OF ITS SEWER ORDINANCES**

Any person, firm, or corporation violating the penal provisions of this ordinance shall be guilty of a misdemeanor and punishable by a fine of \$500.00 for each violation. Each day in which any violation shall continue, shall be deemed a separate offense.

**Section IV - OPERATIONS AND MAINTENANCE PROGRAM**

**A. THE CITY SEWER SYSTEM MAP**

The City has a collection system mapping system in place. Full size master sewer map is located at the City office. When errors are discovered, the error is communicated to the engineering department for correction. All new sewer connects are provided to engineering through the building permit process.

**B. PREVENTATIVE MAINTENANCE PLAN**

**Sewer Pipeline Cleaning**

The City has historically cleaned the sewer system between once a year and once every three years and continues to do so. Between once a year and once every three years is the industry standard for agencies with comprehensive sewer maintenance programs. Areas needing more frequent cleaning and are known as hot spots for enhanced maintenance areas are cleaned as frequently as necessary.

**Manhole Inspection**

Wastewater crew visually inspects manholes for corrosion, debris or damage around the base, cracks or holes, and condition of manhole during daily operations.

**Pump Station Maintenance**

Wastewater crew performs a weekly inspection of the City's pump stations from the surface. Check list of inspections & work performed are kept at Wastewater Plant.

**Investigation of Customer Complaints**

The City responds to customer complaints about sewer service. Complaints are generally related to sewer stoppages, overflows, or odors. Response is performed by the Wastewater staff during working hours and the on-call worker during after hours. Response includes assessing the complaint and resolving the problem.

The majority of the complaints are related to stoppages. Most of the stoppages occur in laterals. Although crews respond to all stoppages complaints, they are not responsible for clearing stoppages in laterals. The City's initial response time goal is one (1) hour. During non-work hours, the City has staff on-call to address complaints. Customer complaints are recorded in the Wastewater Daily Log.

**C. REHABILITATION AND REPLACEMENT PLAN**

Rehabilitation and replacement is done on an as need basis and capital replacements/upgrades are included in the annual budget. The Chief Plant Operator determines the replacement or rehabilitation of pipelines or machinery.

**D. TRAINING**

On a yearly basis, the Wastewater crew attends formalized collection systems training seminars. The seminars include use of combination vacuum/jetting vehicles, hoses and nozzles, sewer cleaning procedures, and emergency response including blocking storm drains and recovering spilled effluent. The City Wastewater crew takes advantage of many wastewater workshops presented by Rural Community Assistance Corporation (RCAC) funded by State of California Water Quality Control Board.

**E. EQUIPMENT AND REPLACEMENT PARTS INVENTORY**

For the City, keeping critical replacement parts available encompasses stocking spare pumps that can be used as replacements while pumps are serviced or replaced. All lift stations are duplex style which allows the system to continue to operate even when 1 pump has failed. Essentially our spares are installed and ready to operate at all times. Small consumable parts such as gaskets, seals and fuses are stored at WWTP and are reordered whenever quantities get low. The City attempts to use the same model pumps in as many stations as possible to simplify maintenance and replacement. The City also attempts to use the identical equipment in each of the pumping stations.

## Section V - DESIGN AND PERFORMANCE PROVISIONS

### A. STANDARDS FOR INSTALLATION, REHABILITATION AND REPAIR

The City of Needles Ordinance 405-AC include requirements for public sewer construction application, permit, easements, plans, profiles, and specifications prior to the acceptance of the sewer work by the City. The primary design and performance standards the City uses in design and installations of new sewer systems are:

- Cleanout required at property line
- Easements – minimum 10 feet wide
- Some of the City’s sewer lines are at a depth of (5) five feet, therefore any sewer line leaving a structure at more than thirty inches below floor grade will not be connected.
- No sewer lateral shall leave a building more than Thirty (30) inches below floor slab height and extend to the rear easement line where the sewer is in the rear easement and extended to the front connection point where the sewers are in the front.
- Lateral will be inspected and approved by the City (at the same time as the house soil pipe).

The standards listed above outline construction specifications for installing laterals and other appurtenances. Design criteria include specifications for items such as pipe materials, minimum sizes, minimum slope, trenching and backfill, structure standards, and other related provisions. All new construction of laterals adheres to these standards. Pump station plans and specifications are not included in the standards. Design standards and construction specifications for pump stations have historically been developed on a case-by-case basis as needed for construction of specific pump stations facilities or for improvements to existing pump station facilities. Specifications for pump stations will be developed as needed on a project-specifications basis for any new pump stations or pump station rehabilitation being implemented.

Design standards and construction specifications for rehabilitation and repair of existing sewer systems have historically been developed on a case-by case basis as need for a specific project. Specifications for rehabilitation and repair of existing sewer systems will be developed as needed on a project-specific basis for any new rehabilitation projects being implemented.

**B. STANDARDS FOR INSPECTION AND TESTING OF NEW AND REHABILITATED FACILITIES**

The City's standard public works contract provides and work is not placed into service and accepted by the City until inspection and testing is completed. Additionally, no dedication will be accepted and no tie into City facilities will be allowed where the Building Inspector has not approved the plans and drawings and has not inspected the project during its course of construction.

The City provides continuous inspection during the construction of the sewer facilities and believes that proper installation is the key element to insure proper operation and maximum life expectancy. Inspection and testing of new or rehabilitated facilities ensure that the established standards are being implemented in the field. Wastewater & Building Exp. Adheres to these standards for inspection and testing of new or rehabilitated facilities.

## **Section VI - OVERFLOW EMERGENCY RESPONSE PLAN**

The purpose of the Overflow Emergency Response Plan (OERP) is to establish guidelines and measures to protect public health and the environment in case of an accidental overflow.

In the case of an overflow, City Wastewater or on call personnel shall dispatch the appropriate crews to investigate, identify the cause, and provide appropriate action to minimize the effects of the overflow on public health and quality of surface waters. The OERP further specifies the required notification and reporting that is necessary for local and state agencies.

Appropriate Wastewater personnel will be required to read the OERP and familiarize themselves with the procedures. The OERP is kept in an easily available location for all utility personal and public access reference.

**A. SSO NOTIFICATION PROCEDURES**

Outside of regular business hours, the City has an Answering Service who has information on who to call for after-hours emergencies.

All City staff and wastewater crews have preprogrammed cellular phones to facilitate instant communications. Should cellular phone communications be down during the emergency, the wastewater personnel has two-way 800 MHz radio for use to communicate between City staff and field crews.

**B. APPROPRIATE RESPONSE TO ALL OVERFLOWS**

City policy is to respond to all spills within the City whether on public or private property and to take all steps possible to prevent the spills from reaching the storm drains, flood control channels, or waters of the State, all in accordance with the waste discharge requirements.

Organization of this document details the lines of authority and responsibilities of City personnel during an emergency. (Because the City provides wastewater & sewer service, the City has manpower dedicated solely to Wastewater & sewer system maintenance, operation and emergency response).

**C. REGULATORY NOTIFICATION PROCEDURES**

If a SSO occurs, it is required that certain regulatory agencies be contacted. The following reporting criteria explain when notifications should be sent and the various forms that are required. Regulatory notification procedures are administered by the Wastewater staff.

**1) Oral Notification**

As a priority during a Category i sewer spill, Wastewater staff immediately notify the appropriate agencies (no later than two hours after becoming aware of the discharge) by phone that that a spill has occurred. In addition category 1 sewer spill has to be reported as soon as possible but no later than 3 business days. The wastewater staff follows the same procedure for Category 2 spills instead of depending on a written report as a means of notification, well within the requirement for Category SSOs of reporting to the Online SSO Database within 30 days after the end of the calendar month in which the SSO occurs.

Category 1 sewer spill are spill from the City's sanitary sewer system equal to or greater than 1,000 gallons or where the spill enters the waters of the state or where the spill enters a storm drain system and is not recovered, and require notification to the appropriate State agencies.

**2) Written Report**

The City reports all Category 1 spills within 24 hours as required in the Monitoring and Reporting Program, and the City also reports all Category 2 spills within 3 business days. Both Category 1 and Category 2 spills are included in the monthly spill report. The City does not submit written reports of private property spills, only verbal reports when it is discovered a private property spill is not, and cannot be, fully contained. Where there are no public spills during the month, the City submits a monthly no-spill report. The City reports the spills in accordance with the on-line CIWQS reporting forms and State Water Resources Control Board Monitoring and Reporting Program SSO Reporting Timeframes.

The City's Chief Plant Operator is responsible for overseeing the reporting process. The Wastewater crew drafts up the required report. The drafts is then reviewed with the Chief Plant Operator with consideration given to volume calculations, vacuum and wash down operations, cause of spill, timeliness of response, etc. After discussions are complete, the report is finalized.

**D. TRAINING PROCEDURES**

The role of each person during an emergency has been established and is clear and concise. The City has pre-established responsibilities for staff members that work concurrently with the Wastewater crews to provide an efficient response. Each City crewmember is required to read and sign off having read and understood the sewer system management plan (SSMP) and spill reporting form.

If the emergency is during normal working hours both field crews and the supervisor are working as appropriate to handle the emergency.

**E. EMERGENCY RESPONSE OPERATIONS**

The City wastewater staff responds to all emergencies. Sewer service calls and lift station alarms are considered high priority events that demand a prompt response to the location of the problem. Upon notification of a sewer overflow, the Sanitary Sewer Collection System Supervisor and / or on-call personnel shall be dispatched within 1 hour of the notification to attend to the emergency.

**F. PROGRAM TO CONTAIN AND PREVENT SEWAGE DISCHARGES TO SURFACE WATERS**

The City's continues to maintain in-house a crew who is responsible for cleaning the system and for being the first responders in the event of a sewer main spill. During normal working hours, the response time is a few minutes and after hours the field crew member that is on call is usually at the scene within 1 hour or less.

The City has a jetting / trailer, traffic control equipment, a portable generators, and a fixed emergency back-up generators.

## **Section VII - FATS, OILS, AND GREASE (FOG) CONTROL PROGRAM**

### **FOG Control Program Discussion**

Currently, City performs preventive sewer cleaning for identified grease hot spots and has the legal authority to require grease traps or interceptors. The City does not have a formal FOG program. At this time we feel we do not need one because San Bernardino County's inspection program and our cleaning program seem to be controlling any problem in our sewer lines.

Identification of Grease Problem Areas and Sewer Cleaning The City has identified sewer line segments in the system that is in need of an increased schedule of routine cleaning. These segments include line segments that have been known problem areas due to grease buildup, grit accumulation, and construction flaws such as poor grade in the line. Additional sewer lines can be added, or frequency of cleaning modified as routine inspection is completed in the affected areas.

## **Section VIII - SYSTEM EVALUATION AND CAPACITY ASSURANCE PLAN**

### **A. EVALUATION**

In 1999 the City of Needles opened the new City of Needles Waste Water Treatment Plant. The City is empowered to construct, operate, maintain, repair, and replace wastewater system facilities as needed to provide wastewater service in compliance with applicable standards and regulations.

The WWTP is located on the east end of Smith road within the City limits and consists of headwork's, two SBR tanks, one Digester tank; one Equalization Tank; Four Percolation / Evaporation ponds; 24 sludge drying beds; site piping; miscellaneous pumps, valve, and electrical equipment; and a fence enclosing all sites. Based on the current population of approximately 5000, the City treats about 400,000 to 650,000 GPD of sewage. The sewer system consists of approximately 25 miles of sewer lines with approximately 500 manholes and 5 sewage lifts.

### **B. DESIGN CRITERIA**

The WWTP has a design capacity of 1,200,000 GPD. The minimum size for force mains within the City is 2-inch in diameter. The City's collection system has gravity lines ranging between 6 and 18 inches in diameter and force mains range between 2 and 8 inches in diameter.

### **C. CAPACITY ENHANCEMENT MEASURES**

Currently no hydraulic deficiencies have been noted either at the WWTP or within the collection system. During weekly checks and services of lift stations, pump performance and hours of run time are recorded to continually monitor capacity of the collection system relevant to actual current flows. Based on this information, no system capacity enhancements are scheduled in order to provide service for the current population.

### **D. CAPITAL IMPROVEMENT PLAN (CIP) SCHEDULE**

The City reviews capital improvement plans for the waste water department on an annual basis. If a hydraulic deficiency is noted in the future, it will be added to the capital projects list and it will be assigned the appropriate priority.

## **Section IX - MONITORING, MEASUREMENT, AND PLAN MODIFICATIONS**

The SSMP will be reviewed yearly to insure all the provisions are implemented and effectiveness discussed at a meeting of all field and management staff. Updates will occur as appropriate.

## **Section X - SSMP PROGRAM AUDITS**

The City will perform an internal audit evaluating its SSMP and its compliance with the WDR every two years and will report the results of the audits along with recommendations and suggested improvement to the Needles City Council or Utility Board.

## **Section XI - COMMUNICATION PROGRAM**

The Utility Manager will provide interested parties with status updates on the implementation of the components of the SSMP and will also consider comments made by interested parties. The City also maintains the Utility Board meeting two times a month to inform the public about its activities including wastewater. Additionally, the City's utility Manager has a monthly report for the board meetings.

## APPENDIX

### **City of Needles Administration Offices**

(760) 326-5700

### **Acting City Manager - David Brownlee**

(760) 326-5700 x 323

### **Acting Chief Plant Operator - Terry Smith**

(760) 326-4568 Home

(760) 574-4927 Cell

### **Operator On-Call - Robert Benoit**

(760) 326-6533 Home

(760) 221-8233 Cell

### **Contract Operator - Ken Robinson**

(928) 763-5742 Home

(928) 715-5689 Cell

### **Office of Emergency Services**

(800) 852-7550

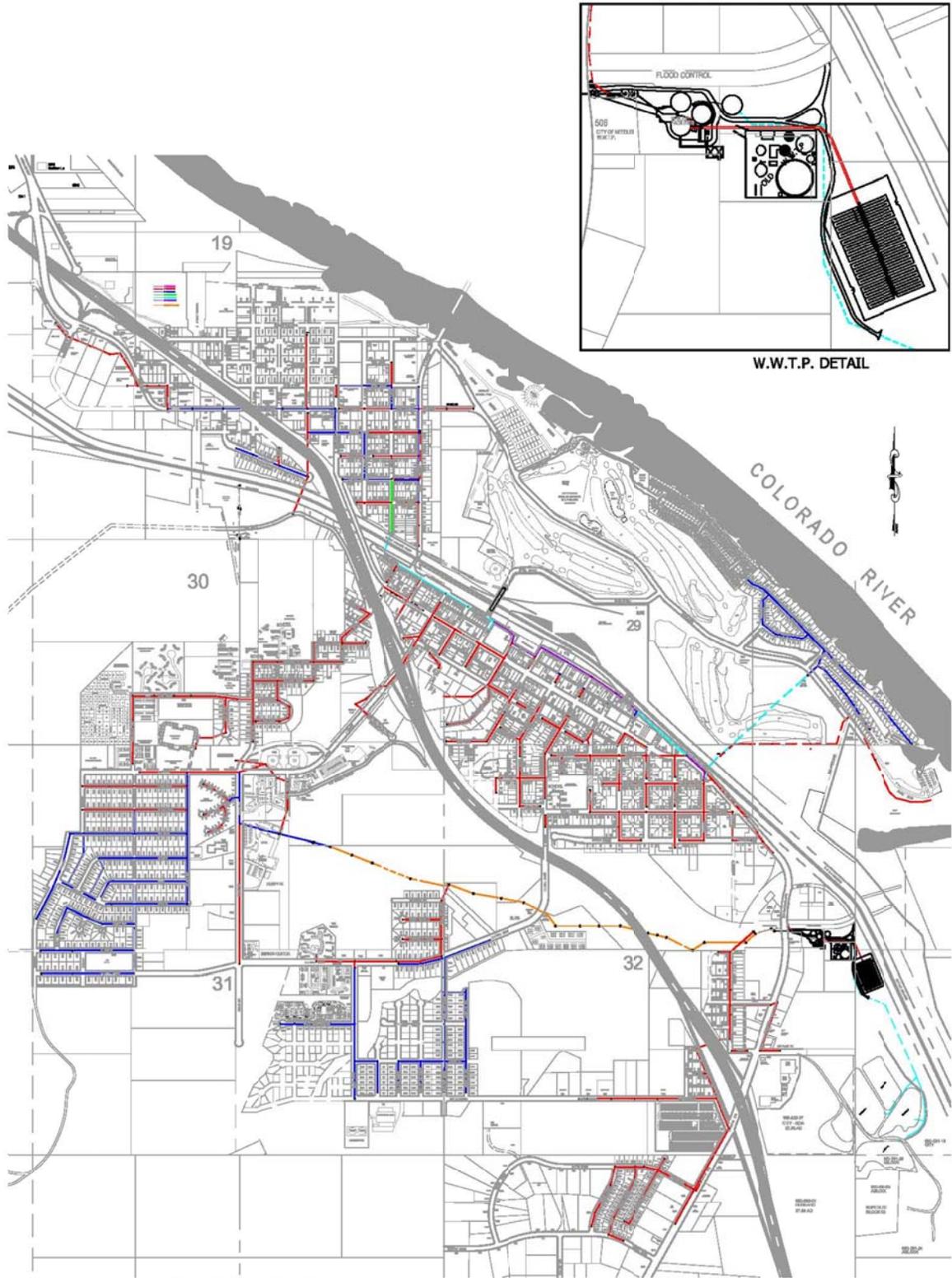
### **Environmental Health**

(909) 387-4666

### **State of California Regional Water Quality Control Board**

(760) 346-7491

### COLLECTION SYSTEM MAP



M:\JLMORE\My DRAWINGS\SEWER 2003 - C Ref.dwg, 24 X 36, 3/1/2011 1:51:57 PM, Drawn by: Tammy Elmore