Tahoe - Truckee Sanitation Agency
Sewer System Management Plan
(SSMP)

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Element 1: Sewer System Management Plan Goal and Introduction

1.1 T-TSA Goals and Introduction

This Sewer System Management Plan (SSMP) identifies the goals that Tahoe-Truckee Sanitation Agency (T-TSA) has set to (1) manage, operate, and maintain the Truckee River Interceptor (TRI); (2) reduce and prevent spills; and (3) contain and mitigate spills that do occur. It also identifies how the SSMP will provide guidelines to help achieve these goals.

1.2 Regulatory Context

In accordance with the State Water Resources Control Board (SWRCB) General Order No. WQ 2022-0103-DWQ, the goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system to reduce and prevent spills, as well as mitigate any spills that do occur.

T-TSA's SSMP goals for the TRI are as follows:

- Maintain the condition of the TRI to provide reliable service now and in the future.
- Minimize infiltration and inflow (I/I) in the TRI.
- Provide adequate sewer capacity to accommodate future sewer flows.
- Minimize the number and impact of spills that occur.
- Set aside specific funds for the TRI.

The SSMP supplements T-TSA's existing preventative and corrective maintenance procedures for the TRI. The SSMP provides guidelines for the proper management of the TRI and assists T-TSA staff in minimizing the frequency and impacts of spills by providing guidance for appropriate preventative and corrective maintenance procedures, capacity management, and emergency response.

1.3 Sewer System Management Plan Update Schedule

T-TSA will update the SSMP if the frequency and severity of root intrusion, sediment accumulation, corrosion, and other defects rise to unacceptable levels. T-TSA will also track sewer flows in the TRI to assess the impacts of population growth. Furthermore, if spills occur in the future, T-TSA will update the SSMP to correct any deficiencies.

In addition to updating SSMP elements based on monitoring and performance requirements, T-TSA will periodically update the SSMP to ensure the document remains current. The estimated schedule will be reviewed and updated in accordance with the updating and re-certification requirements and will update program elements as appropriate.

1.4 Sewer System Asset Overview

Tahoe Truckee Sanitation Agency (TTSA) provides regional wastewater treatment service to several Lake Tahoe area communities through the Agency's five-member sewage collection

districts. The five member entities involved are North Tahoe Public Utility District, Tahoe City Public Utility District, Alpine Springs County Water District, Olympic Valley Public Service District, and Truckee Sanitary District. The Northstar Community Services District is also served by TTSA facilities through an agreement with the Truckee Sanitary District.

T-TSA owns, operates, and maintains the TRI and Water Reclamation Plant (WRP). The TRI conveys wastewater from Tahoe City to the WRP in Martis Valley, east of the town of Truckee, California. The TRI collects flows from the five member districts listed above. The number of T-TSA and member district service connections is approximately 32,000 for residential and 7000 for industrial.

The tributary area served by the plant includes the portion of the Lake Tahoe Basin beginning at the California-Nevada stateline at the north end of the lake and extending along the west side of the lake to the northern edge of Emerald Bay. The tributary area also includes most of the California portion of the Truckee River Basin extending from its source at Lake Tahoe to the far eastern limits of the Town of Truckee, including Donner Lake and surrounding lands. The service area includes portions of El Dorado, Placer, and Nevada Counties of California (see Element 4 Sanitary Sewer System Service Area Map). The reinforced concrete pipe sewer is entirely a gravity flow system that is approximately 17 miles long and varies in diameter from 18 inches to 42 inches. The collections systems upstream of the TRI and the upper and lower sewer laterals are owned and maintained by T-TSA's member sewage collection districts and private homeowners.

Stormwater connections to the sewer system are prohibited. Reductions in infiltration and inflow (I/I) to the sewer system is an on-going goal for T-TSA. T-TSA has conducted I/I studies that focus on both overall system-wide estimates of I/I and estimates of I/I contributions from specific areas within the service area. It is in T-TSA's best interest to reduce I/I and, thus, maximize the capacity in T-TSA's treatment facility and conveyance interceptor pipeline.

T-TSA uses its Asset Information Management System (AIMS) to graphically store key information and documents on essential components of the TRI. It is a web-based modular asset management software application that provides a GIS-based data viewer for TRI features and member agency parcels. The asset information is stored in a secure cloud-hosted database accessible through a web browser. The interactive GIS mapping interface includes map layers related to the TRI and is also populated with boundaries, streets, rivers and lakes, aerial photos, parcel data, and other applicable topographical features. The system configuration allows for users to remotely tap into TRI knowledge while working in the field without the need to head back into the office for the required information.

T-TSA also utilizes Lucity Asset Management software for its computerized maintenance management system (CMMS) to manage the TRI maintenance operations. The database stores vital information regarding T-TSA's sewer collections assets, current work schedule, and work history. The CMMS ensures effective job performance by maintenance staff and informed decisions by management.

The area's rugged and rural landscape poses some unique challenges and service boundary

conditions for new construction when connecting to the appropriate member district sewage collection system. However, with proper planning and maintenance of the existing infrastructure, reliable sewerage services are available to surrounding industrial, commercial, and residential developments.

Element 2: Organization

2.1 Discussion

This section identifies the T-TSA staff and management responsible for implementing the SSMP, responding to spill events, and meeting Sanitary Sewer Overflow (SSO) reporting requirements. This section also identifies the roles for the key personnel.

Roles for the key personnel are as follows:

- The General Manager is the designated Legally Responsible Official (LRO) and has ultimate responsibility for the development and implementation of the SSMP. The LRO is responsible for reviewing and certifying the SSMP and for electronically reporting SSOs to the SWRCB. He may designate data submitters within T-TSA, who may enter draft data into the California Integrated Water Quality System (CIWQS) database. However, only the designated LRO may certify reports in CIWQS.
- The Engineering Manager is responsible for reviewing the SSMP and overseeing that the elements of the SSMP are being properly implemented.
- The Safety Officer is the project manager responsible for planning, preparation, and implementation of the SSMP.
- The Operations Manager has overall responsibility for all operations activities for T- TSA's WRP and TRI.
- The Maintenance Manager has overall responsibility for all maintenance activities for the WRP and TRI.

2.2 Chain of Communication

This section describes T-TSA's protocol for chain of communications in case of a spill. In the event the plant is notified that a SSO or spill has occurred, it is the responsibility of the person receiving the call to immediately contact the on-duty shift supervisor. The decision maker will be the shift supervisor or acting shift supervisor until more senior officials are available and the on-site Incident Command System (ICS) can be established. Until the ICS is established, the supervisor will have authority to begin spill response activities.

The nature and extent of the release will determine the notification requirements and whether external resources will be needed to aid in the mitigation of any damage that may result from the release. The Spill Notification Checklist with outside entity phone numbers is provided in this section and includes agencies such as the Lahontan Regional Water Quality Control Board, Truckee Meadows Water Authority, California Office of Emergency Services, Nevada County Environmental Health, Placer County Environmental Health, and T-TSA's member districts.

The LRO will either contact the required agencies or delegate this responsibility.

In addition to outside entities, the following T-TSA personnel will be notified in case of a spill:

- General Manager, LRO:
  Richard Pallante (530) 559-0040 rpallante@ttsa.ca.gov

- Safety Officer:
  Mike Smith (805) 603-8051 msmith@ttsa.ca.gov

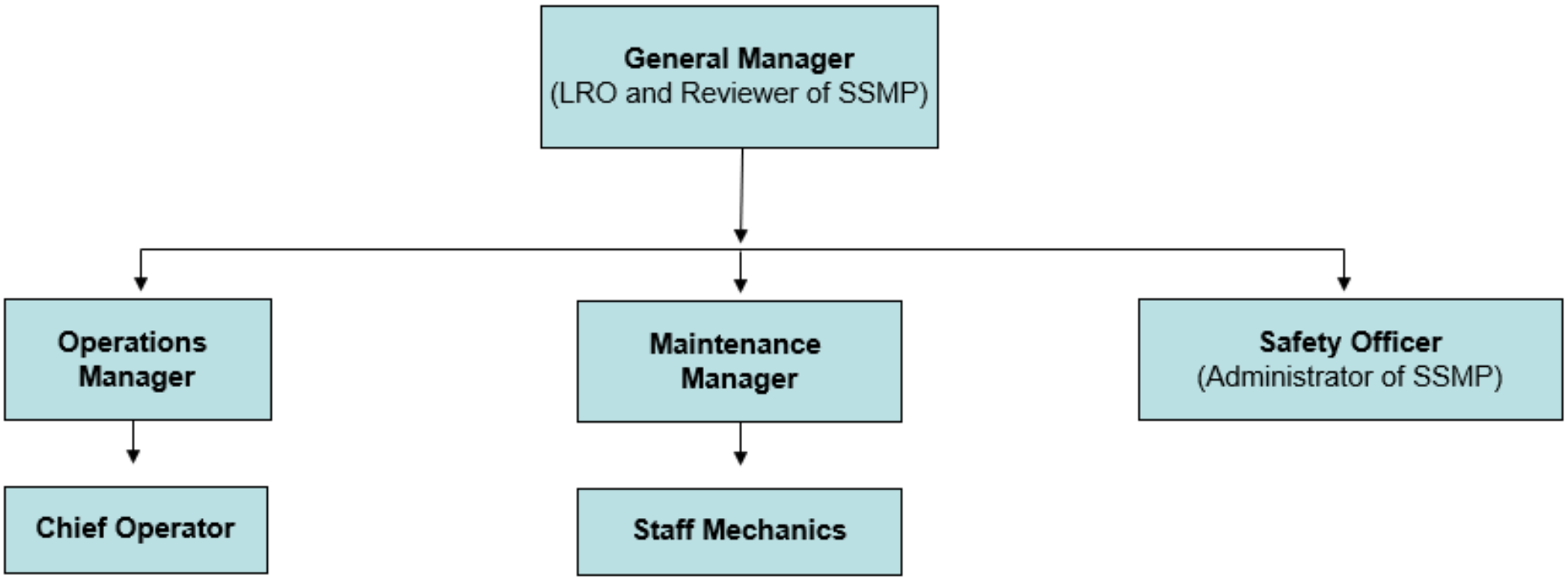
- Maintenance Manager:
  Paul Shouse (530) 448-7300 pshouse@ttsa.ca.gov

- Operations Manager:
  Michael Peak (530) 990-1499 mpeak@ttsa.ca.gov

- On-duty shift supervisor
  (530) 587-2525

Element 2 – Table 1

T-TSA SSMP Organizational Chart



Spill Notification Checklist

Notification Person _____

In case of a spill, the following notifications are required:

Agency	Time of Call	Who You Talked To	Notes
California Office of Emergency Services (800) 845-8510			
Lahontan Regional Water Quality Control Board 542-5400			
*Nevada Co. Environmental Health - Nevada City 265-1222			
*Placer County Environmental Health - Tahoe 581-6240			
*Truckee Meadows Water Authority (775) 834-8080			
*Truckee Sanitary District 587-3804			
*Tahoe City Public Utility District 583-3796			
*North Tahoe Public Utility District 546-4212			
*Alpine Springs County Water District 583-2342			
*Olympic Valley Public Service District 583-4692			

*This indicates that notification may not be necessary due to the nature of the spill.

Element 3: Legal Authority

This section of the SSMP describes T-TSA's legal authority to operate and maintain its sewer system.

3.1 Discussion of Legal Authority

T-TSA was founded in 1972 in response to the Porter Cologne Water Quality Control Act, promulgated to protect Lake Tahoe and Truckee River water quality. The Tahoe-Truckee Sanitation Agency Act provides the legal authority for the formation of T-TSA, which is codified in Chapter 114 of the Appendix to the California Water Code.

The legal authority that addresses the SWRCB required items are contained in Lahontan Regional Water Quality Control Board Order No. R6T-2002-0030, WDID No. 6A290011000 (WDRs); T-TSA Ordinance 1-2015 – An Ordinance of the Board of Directors of Tahoe-Truckee Sanitation Agency Adopting Pretreatment Requirements; and T-TSA Ordinance 2-2015 – An Ordinance of the Board of Directors of Tahoe-Truckee Sanitation Agency Setting Forth the Rules and Regulations Governing the Agency's Regional Sewerage System. The WDRs designate T-TSA as the regional authority to transport, treat, and dispose of wastewater. The WDRs also provide T-TSA authority to (1) take corrective action and use Best Management Practices during an emergency where public health or welfare is threatened; and (2) develop a local pretreatment program for industrial wastewaters. T-TSA Ordinance 2-2015 sets forth the rules and regulations which pertain to the use of T-TSA's system. T-TSA Ordinance 1-2015 has the objectives of preventing pollutants from entering the sewer system which would potentially interfere or pass through the treatment works, ensuring the wastewater treatment plant sludge is maintained at a level of quality that allows its use and disposal in compliance with applicable statutes and regulations, improving the opportunity to recycle and reclaim wastewaters and sludges, protecting Agency personnel who may be affected by wastewater and sludge in the course of their employment, and complying with the Agency's Local Limits. Copies of T-TSA's WDRs and T-TSA Ordinances 1-2015 and 2-2015 are provided in the Appendix attached to this section of the SSMP.

The discussion that follows provides more detail in addressing the SWRCB requirements for this element.

Section 5 of T-TSA Ordinance 2-2015, entitled "Restrictions as to Use of Sanitary Sewer System and Sewage Works," T-TSA Ordinance 1-2015, and the WDRs describe numerous restrictions and prohibitions, both direct and indirect, with respect to discharges to the sewer system, including prohibitions relating to stormwater connections to the sewer. Reductions in I/I to the sewer system is an on-going goal for T-TSA. T-TSA has conducted I/I studies that focus on both overall system-wide estimates of I/I and estimates of I/I contributions from specific areas within the service area. It is in T-TSA's best interest to reduce I/I and, thus, maximize the capacity in T-TSA's treatment facility and conveyance interceptor pipeline.

Limits to the discharge of FOG and other debris that may cause blockages are addressed in Section 5 of T-TSA Ordinance 2-2015, entitled "Restrictions as to Use of Sanitary Sewer

System and Sewage Works" and T-TSA Ordinance 1-2015. Member collection districts enforce their own FOG requirements within their specific district boundaries. For example, the member districts perform periodic site inspections of restaurants to ensure proper use and maintenance of grease traps and grease interceptors. T-TSA assists member districts as necessary in enforcing FOG regulations and reserves the right to independently administer, inspect sites, and enforce its own rules, regulations, ordinances, and resolutions with respect to agreements and requirements. TTSA will collaborate with member districts in responding to emergency spills and stormwater issues as needed.

T-TSA requires its member districts to properly design and construct sewers and connections to the TRI. For construction on the TRI, the following activities are performed to ensure that improvements are properly designed and installed:

- Planning and environmental documents are prepared for the proposed improvements.
- Preliminary design activities are performed including preparing geotechnical studies, hydraulic analyses, refinements of pipeline alignment, pipeline material selections, bypass pumping arrangements, and cost estimates.
- At the various stages of design development, pertinent documents are submitted to various authorities having jurisdiction for approval.
- Detailed calculations are performed, and documents are prepared that require conformance with all local, state, and federal requirements. The documents include the following: general and special provisions; technical specifications; construction drawings including pipeline plan and profile sheets; details for the pipeline and pipeline appurtenances; details for re-vegetation activities; and other contract documents.
- The pipeline installation is inspected to ensure that all requirements have been met.

T-TSA Ordinance 2-2015 provides a means of enforcement of the terms and conditions of the rules and regulations. Also described are the Agency's rights to receive compensation for impacts associated with violations and the procedures for imposing penalties in connection with violations.

The right to access publicly owned portions of the TRI are addressed in the sewer and right-of-way easement documents. The easement documents provide a perpetual right of ingress to and egress from properties to access the TRI. In addition, they allow T-TSA to dig, construct, reconstruct, repair, and maintain the TRI.

As for infrastructure that is owned by individual property owners in T-TSA's service area, the property owner is responsible for the operation and maintenance of the upper sewer lateral from the building plumbing to the lateral that is owned and maintained by T-TSA's member districts. The lower lateral, backflow prevention device installation requirements, and connections to the TRI are owned, managed, and maintained by T-TSA's member districts.

Element 4: Operation and Maintenance Program

This section of the SSMP describes T-TSA's Operation and Maintenance Program for the TRI.

Regulatory Requirements for the Operation and Maintenance Program Element

The SSMP includes the elements listed below that are appropriate and applicable to the Operation and Maintenance Program:

1. Maintain an up-to-date map of the sanitary sewer system, showing all gravity line segments and manholes, pumping facilities, pressure pipes and valves, and applicable stormwater conveyance facilities.
2. Describe routine preventive operation and maintenance activities by staff and contractors, including a system for scheduling regular maintenance and cleaning of the sanitary sewer system with more frequent cleaning and maintenance targeted at known problem areas. The Preventive Maintenance (PM) program should have a system to document scheduled and conducted activities, such as work orders.
3. Develop a rehabilitation and replacement plan to identify and prioritize system deficiencies and implement short-term and long-term rehabilitation actions to address each deficiency. The program should include regular visual and television inspections of manholes and sewer pipes and scheduling rehabilitation. Rehabilitation and replacement should focus on sewer pipes that are at risk of collapse or prone to more frequent blockages due to pipe defects. Finally, the rehabilitation and replacement plan should include a capital improvement plan (CIP) that addresses proper management and protection of the infrastructure assets. The plan shall include a time schedule for implementing the short- and long-term plans plus a schedule for developing the funds needed for the CIP.
4. Provide training on a regular basis for staff in sanitary sewer system operations / maintenance and require contractors to be appropriately trained.
5. Provide equipment and replacement part inventories, including identification of critical replacement parts.

4.1 TRI Maps, Drawings, and GIS System

Record drawings of the TRI are maintained in the maintenance office of T-TSA, on T-TSA's computer server, and on its GIS system, AIMS. The drawing sets include the following:

- Figures 1 through 9 which show the entire length of the TRI on aerial photographs;
- Schedules I, II, III, IV, V, and VI for the TRI;
- Sample construction details.

Manhole details and numbers are shown on the drawings and manhole numbers are referenced on the figures. Additional information is available electronically on T-TSA's internal network and on AIMS. Specifically, the following information is available to quickly locate manholes, reference technical data, and find current information obtained

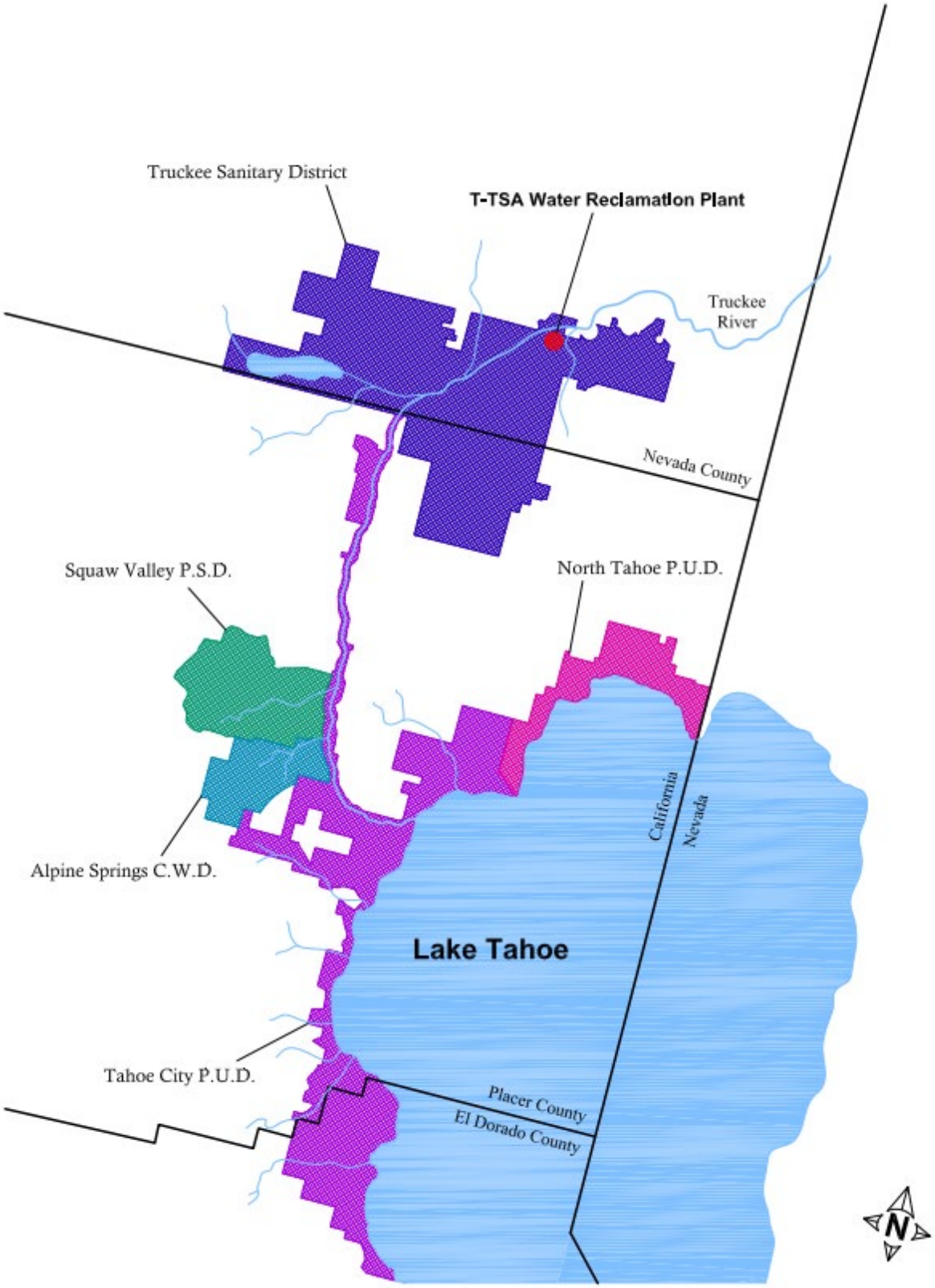
from site and closed-circuit television (CCTV) or digital scanning inspections:

- Information about each TRI manhole (referenced by number) including invert elevation, manhole rim elevation, average slope, coordinates, access information, reference to the pertinent drawing set and reach schedule, and comments from site and CCTV or digital scanning inspections.
- Photos of TRI manhole sites.
- Manhole dip sheets.
- Aerial photography and aerial strip photography.
- Distances from Truckee (from intersection of West River Street and Highway 89) and Tahoe City (from intersection of Highways 28 and 89) to bridges across the Truckee River along the Truckee River corridor.
- Maps showing manhole locations and manhole numbers.

Applicable stormwater facilities and features are included in addition to details associated with the TRI itself. These facilities and features include storm drain culverts, spillways, gutters, drainage ditches and channels, and other natural drainage features.

Digital scanning inspections of the TRI are performed on a routine basis. Information obtained from the inspections is used to monitor the condition of the TRI.

Sanitary Sewer System Service Area Map



4.2 Preventive Operations and Maintenance

Preventive maintenance activities depend on the findings from CCTV or digital scanning inspection work, and two annual inspections of the manhole sites. If preventive maintenance activities are required because of the inspections, they are performed or administered by T-TSA.

CCTV or digital scanning inspection work is performed on each reach of the TRI at a frequency of at least every four years. Findings from CCTV or digital scanning inspection work may indicate that root intrusion, sediment accumulation, corrosion, or other defects have occurred on a particular reach. If these problems are discovered and the work is beyond T-TSA's in-house capabilities, service or construction contract documents are prepared and administered to correct the deficiencies. In some years, no additional projects are required because either no problems are observed, or the problems are small and do not require immediate action.

Annual field inspections at manhole sites occur in the spring and fall of each year. For the spring inspections, the goal is to determine whether the sites are accessible and whether erosion or landslides are potentially affecting the integrity of the pipeline. If problems are observed in the spring, the required improvements are normally made by T-TSA maintenance crews. If significant problems occur that could affect the integrity of the TRI, such as a landslide, construction contract documents are prepared and administered to correct the deficiencies. During fall, the main goal is to replace staking, as needed. A record is also made during these inspections of any changes to stormwater facilities and features. This work is performed by T-TSA staff.

Preventive maintenance activities for the TRI are included in T-TSA's CMMS database, Lucity. The specific items that are tracked on this program include CCTV or digital scanning inspection activities, spring inspection, and fall inspection activities.

4.3 Rehabilitation and Replacement Plan

In general, the TRI is in relatively good condition based on findings from inspections, various construction projects, and its age. CCTV, construction projects, and digital scanning inspection activities performed to date have revealed that, overall, the system has had relatively few problems.
However, some areas of corrosion have been identified that require rehabilitation work. The section of the TRI with the highest observed corrosion was in the vicinity of Alpine Meadows Road between Manholes 23 and 30. This section of the TRI was rehabilitated using cured-in- place pipe (CIPP) in the fall of 2014. Projects are anticipated in the future to rehabilitate sections of the TRI that show some corrosion and/or to address hydraulic deficiencies, but to a lesser degree than the Alpine Meadows area. These projects are generally described in T-TSA's 25 – Year Master Sewer Plan and have been included in rate studies and funding analyses for both short and long-term CIP schedules and plans.

Determining deficiencies based on actual SSO discharges is not applicable to T-TSA, as no SSO discharges have occurred to date. Instead, T-TSA utilizes modeling to identify areas of

present hydraulic deficiencies as well as future hydraulic deficiencies resulting from planned development projects and operational changes in collection systems. T-TSA updated its hydraulic model based on new surveying work and revised datums. The primary hydraulic deficiency identified in the most recent modeling work was between Manholes 81 and 83. Improvements for Manhole 81 to 83 were completed in 2018. The improvements will reduce the likelihood of accidental releases of raw sewage into the Truckee River during extreme flow events, floods, environmental catastrophes, and other types of emergencies.

4.4 Training

T-TSA staff and management are trained on a regular basis in the safety aspects and in the use of equipment necessary for performing work on the TRI. For example, T-TSA is trained in confined-space entry, personal protective equipment, emergency response, traffic control, trench safety, hydration, as well as in the use of heavy equipment in connection with repair work on the TRI.

Contractors are required to have valid and appropriate licenses to perform work and are also required to have safety programs in place before commencing with their activities. The Contractors' safety programs must meet all local, state, and federal requirements as well as any additional requirements imposed by T-TSA. T-TSA provides full-time inspection when excavation or backfill activities are occurring in the vicinity of the TRI.

Training is provided on a regular basis for sanitary sewer system operations and maintenance staff and contractors. The training covers:

- The WQ 2022-0103-DWQ requirements;
- The Enrollee's Spill Emergency Response Plan procedures and practice drills;
- Skilled estimation of spill volume for field operators; and
- Electronic CIWQS reporting procedures for staff submitting data.

4.5 Equipment Inventory

T-TSA maintains inventories of replacement manhole frames, covers, and riser rings. T-TSA also has the equipment necessary to install these critical replacement parts. Emergency response equipment is summarized in Section 6, "Spill Emergency Response Plan." T-TSA's maintenance equipment includes the following:

- TRI Truck: Includes a boom with hoist powered by a generator; propane-powered torch for setting and removing ramneck; and other hand tools.
- Backhoe, loader, skid steer, dump truck, and GapVax truck for excavation work.

T-TSA is currently using a real-time remote level sensing manhole cover to alarm when rising water levels are detected in certain manholes. These sensors and transmitters are incorporated into an existing manhole cover and are used to detect rising water levels and transmit manhole water level data back to T-TSA's WRP. Once rising water levels are detected in the manhole, T- TSA staff can be alerted and take appropriate actions to stop a spill before it occurs. Hydraulic modeling can be used to identify manholes that are at the greatest risk of an SSO

and identify areas where this technology may be tested and/or employed.

T-TSA owns portable bypass pumps with enhanced bypass abilities which allow T-TSA to greatly reduce the volume of spills if they occur.

Element 5: Design and Performance Provisions

This section of the SSMP describes T-TSA's design and performance provisions.

5.1 Design and Construction Standards

The typical need for design and construction standards relating to new construction of sewer systems is in connection with interface activities with developers, owners, and contractors of new homes and facilities. T-TSA does not allow direct sewer connections to the TRI, and, therefore, the construction interface that sewerage agencies typically engage in do not apply to T-TSA. All sewer connections to the TRI consist of either, connections from member districts' main sewer trunk lines, or as is the case along the Truckee River corridor, connections from adjacent TCPUD sewer collection manholes. The sewer connections and provisions for future connections to the TRI to accommodate these scenarios were generally all completed as part of the original TRI construction.

The need for TRI design details related to new construction only arises when new work is required on the TRI itself. Since the time the TRI was originally constructed, new construction has seldom occurred. The most significant project after the initial construction activities was the installation of a parallel TRI pipeline from the emergency storage ponds to the treatment facility. Other work related to additional sewer main connections from TSD, including a sewage pipeline from the Glenshire development.

The typical need for design and construction standards for rehabilitation work in sewerage systems relate to replacement or rehabilitation of older sewer pipes and/or sewer pipes with inadequate capacity. Compared to many other sewerage systems throughout the country, the TRI is considered relatively young, with the bulk of the piping installed in the late 1970s.

When capacity deficiencies or rehabilitation work needs are identified, unique design details and documents are prepared to meet the specific needs of individual projects. In the fall of 2014, the TRI in the vicinity of Alpine Meadows Road was rehabilitated using cured-in-place pipe (CIPP) as a result of observed corrosion. Most other rehabilitation work to date has involved installing erosion control features and improving slope stability. Typically, this work has been performed after significant flood events and the construction details were developed based on geotechnical evaluations, depth of cover over the pipeline, and constructability considerations. The primary hydraulic deficiency identified in the most recent hydraulic modeling work was between Manholes 81 and 83. This project which was completed in 2018, included its own set of unique design details and documents.

To ensure that improvements on the TRI are designed and installed properly, the following activities are performed when new or rehabilitation work is required:

- Planning and environmental documents are prepared for the proposed improvements.
- Preliminary design activities are performed including preparing geotechnical studies, hydraulic analyses, refinements of pipeline alignment, pipeline material selections, bypass pumping arrangements, and cost estimates.
- At the various stages of design development, pertinent documents are submitted to various authorities having jurisdiction for approval.
- Detailed calculations are performed, and documents are prepared that require conformance with all local, state, and federal requirements. The documents include the following: general and special provisions; technical specifications; construction drawings including pipeline plan and profile sheets; details for the pipeline and pipeline appurtenances; details for re-vegetation activities; and other contract documents.
- The pipeline installation is inspected to ensure that all requirements have been met.

Some sample construction details that could be used to perform rehabilitation work or improvements to the TRI are included in the SSMP drawing set kept and maintained in the maintenance office of T-TSA. These details include requirements for a typical trench, surface restoration, manhole base sections for different sized pipes, cast-in-place manhole base, eccentric manhole top section, manhole frame and cover, multiple pipe trench, and trench surface finish.
These are typical pipeline construction details and may require modifications depending on the requirements and constraints of individual projects.

5.2 Inspection and Testing

All projects are thoroughly inspected to ensure that the products are supplied, and the work is installed in full conformance with the requirements of the drawings and specifications and all applicable codes and standards. Specifically, the following requirements and/or activities ensure high quality work:

- Approval of Shop Drawings: Contractors are required to submit complete shop drawings for items such as construction materials, equipment, factory test reports, certifications, and installation details. The shop drawings must be approved by T-TSA or T-TSA's representative prior to fabrication.
- Quality of Products: All products must be new, free of defects, and suitable for the intended use.
- Quality of Installation: All work must be plumb, level, square and true, and aligned properly.
- Protection of Completed Work: All measures must be taken by the contractor to preserve completed work so that it is free from damage and deterioration.
- Compliance with Standards, Codes, and Manufacturer's Instructions and Recommendations: These requirements need to be met or exceeded in preparation, fabrication, erection, installation, application, connection, and finishing activities for the work.
- Independent Materials Testing: In addition to the materials testing that the contractor is required to complete, T-TSA may hire independent testing companies to verify

compliance with the drawings and specifications.

- Observations by T-TSA's Consultants: Periodic observations of work progress are made by T-TSA or T-TSA's consultants to ensure conformance with the design intent.
- T-TSA's Acceptance and Rejection of Work: T-TSA reserves the right to reject all work that is not in compliance with the requirements of the drawings and specifications. The contractor must repair or remove and reinstall defective work at no additional cost to T-TSA.

Element 6: Spill Emergency Response Plan

This section of the SSMP describes T-TSA's Spill Emergency Response Plan.

6.1 Internal Notification Procedures and Emergency Contacts

In the event the plant is notified that a spill has occurred, it is the responsibility of the shift supervisor in charge to obtain the following information from the caller:

- Approximate location of the spill (nearby landmark, road, etc.)
- Where the spill is coming from (manhole lid, embankment, exposed line, etc.)
- When the spill was first noticed.
- Severity of the spill.

The shift supervisor or acting shift supervisor will have authority over the response operations until more senior officials are available, and the On-Site Incident Command System (ICS) can be established.

The nature and extent of the release will determine if external resources will be needed to aid in the mitigation of any damage that may result from the release. A list of emergency telephone numbers is provided in Element 2 of the Plan.

At a minimum, the following personnel (management team) will be notified internally:

Internal Notifications Table

1.	On duty shift supervisor
2.	General Manager
3.	Engineering Manager
4.	Safety Officer
5.	Maintenance Manager
6.	Operations Manager
7.	Chief Plant Operator

6.2 Spill Response

The management personnel listed above would assess the situation, determine personnel and equipment needs, and notify outside agencies. Specifically, personnel needs and

assignments, equipment needs, and communication priorities would be determined by the highest-ranking manager/supervisor contacted. The personnel called in would report to the plant and begin assembling equipment for repairs. The command center would be set up at the plant to coordinate plant operations, storage pond diversions, interceptor bypass operations and repairs, and communications.

The priorities of the T-TSA personnel who first arrive at the site of the spill are to protect the health and safety of the public by mitigating the impact of the spill to the extent possible. Specifically, their priorities are to determine the cause, stop (if possible), and contain the spill. The spill cannot be mitigated completely until the cause of the problem is determined. For the TRI, the spill could be caused by a blockage, although the blockage would need to be substantial given the TRI's large diameter. A spill could also be caused by a TRI pipe or manhole failure.

The following steps should be taken to contain the spill and minimize the impact to public health and the environment:

- Determine the immediate destination of the spill, e.g., drainage channel, storm drain, or Truckee River.
- Identify and obtain the necessary equipment and materials to contain the spill.
- Take immediate steps to contain the spill by blocking storm drains/drainage channels with sandbags, creating berms with heavy equipment, and recovering spilled sewage with vactor trucks or pumps and discharging to downstream manholes.

In the event of a sewer pipe break or collapse, a determination should be made as to how to set up a portable bypass pumping operation. The following considerations are important when a bypass operation and pipe repair is required:

- The proper size and number of pumps required to effectively handle the sewage flow.
- The size, number, and type of suction hose, suction piping, pump discharge piping, discharge hose, and manhole discharge piping.
- The proper sewer pipe plugs and plug restraint.
- Personnel necessary to set up and continuously monitor the bypass pumping operation.
- Determination and completion of required regulatory notifications and permits needed.

Tables 6-1 and 6-2 provide a list of spill response equipment and an inventory of piping and fittings, respectively.

Recommendations for scenarios related to specific TRI locations are detailed on "War Sheets" which are TRI emergency bypass pumping scenarios. These are located on T-TSA's server for ready access by emergency response planners. General response procedures for two potential spill scenarios are summarized below.

Damage from Bank Erosion or Side Stream Undercutting

Bank erosion could cause undermining of the pipe bedding or pipe embankment allowing the

pipe to sag, with subsequent joint dislocation. Spillage from this type of break would be stopped by pumping around the damaged section. Portable pumps would be moved to the upstream manhole, an inflatable plug would be installed at the upstream manhole, sandbags would be installed in the downstream manhole, suction and discharge pipes/hoses would be placed, and bypass pumping would be started. Access to the site of the broken line may be limited by snow depth and/or other factors. If this occurs, T-TSA's front-end loader (Caterpillar 950e Loader) may be used to remove snow or to create other improvements for access. When the broken section of pipeline is isolated, other heavy equipment could be mobilized for pipe repairs.

River Crossing Damage

River crossing damage may be difficult to repair under storm or high-water conditions. If the pipe is ruptured, more river water may enter the broken pipe than sewage would spill from the pipe. Portable pumps would be moved to the upstream manhole, an inflatable plug would be installed at the upstream manhole, a plug or sandbags would be installed in the downstream manhole, suction and discharge pipes/hoses would be placed, and bypass pumping would be started. Existing bridges may be utilized to bypass the damaged section of piping. Break repair may require waiting for low water conditions, diking, digging out old pipe, retrenching, and replacing pipe.

Example Repairs

Example repairs that were made for flood damage from the 1997 flood are shown in Table 6-3.

6.3 External Reporting and Notification Requirements

Notification and reporting requirements in the event of a spill are dictated by the SWRCB spill emergency response plan requirements contained in Order No. WQ 2022-0103-DWQ (General Order). Notification and reporting requirements are dependent on the type and category of the spill.

All reporting required in the General Order must be submitted to the online CIWQS Sanitary Sewer System Database (https://ciwqs.waterboards.ca.gov), unless otherwise specified in the General Order. Electronic reporting may solely be conducted by a Legally Responsible Official or Data Submitter(s) previously designated by the Legally Responsible Official, as required in section 5.8 (Designation of Data Submitters) of the General Order.

Spill categories include the following:

Spill Category 1: Spills to Surface Waters

Spill Requirement	Due	Method
Notification	**Within two (2) hours** of the District's knowledge of a Category 1 spill of 1,000 gallons or greater, discharging or threatening to discharge to surface waters notify the California Office of Emergency Services and obtain a notification control number.	California Office of Emergency Services at: (800) 852-7550 (Section 1 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Monitoring	• Conduct spill-specific monitoring; • Conduct water quality sampling of the receiving water within **18 hours** of initial knowledge of spill of 50,000 gallons or greater to surface waters.	(Section 2 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Reporting	• Submit Draft Spill Report **within three (3) business days** of the District's knowledge of the spill; • Submit Certified Spill Report **within 15 calendar days** of the spill end date; • Submit Technical Report **within 45 calendar days** after the spill end date for a Category 1 spill in which **50,000 gallons or greater** discharged to surface waters; and • Submit Amended Spill Report **within 90 calendar days** after the spill end date.	(Section 3.1 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))

Spill Category 2: Spills of 1,000 gallons or greater that do not discharge to surface waters

Spill Requirements	Due	Method
Notification	**Within two (2) hours** of the District's knowledge of a Category 2 spill of 1,000 gallons or greater threatening to discharge to waters of the State: Notify California Office of Emergency Services and obtain a notification control number.	California Office of Emergency Services at: (800) 852-7550 (Section 1 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Reporting	• Submit Draft Spill Report **within three (3) business days** of the District's knowledge of the spill; • Submit Certified Spill Report **within 15 calendar days** of the spill end date; and • Submit Amended Spill Report **within 90 calendar days** after the spill end date.	(Section 3.2 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))

Spill Category 3: Spills of equal or greater than 50 gallons and less than 1,000 gallons that does not discharge to surface waters

Spill Requirements	Due	Method
Notification	Not Applicable	Not Applicable
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1 of State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Reporting	• Submit monthly Certified Spill Report to the online CIWQS Sanitary Sewer System Database within **30 calendars days** after the end of the month in which the spills occur; and • Submit Amended Spill Reports **within 90 calendar days** after the Certified Spill Report due date.	(Section 3.3 and 3.5 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))

Spill Category 4: Spills less than 50 gallons that do not discharge to surface waters

Spill Requirements	Due	Method
Notification	Not Applicable	Not Applicable
Monitoring	Conduct spill-specific monitoring.	(Section 2 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))
Reporting	• If, during any calendar month, Category 4 spills occur, certify monthly, the estimated total spill volume exiting the sanitary sewer system, and the total number of all Category 4 spills into the online CIWQS Sanitary Sewer System Database, within 30 days after the end of the calendar month in which the spills occurred. • Upload and certify a report, in an acceptable digital format, of all Category 4 spills to the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occur.	(Section 3.4, 3.6, 3.7 and 4.4 of Attachment E1 of the State Water Board Order No. WQ 2022-0103-DWQ (SSSWDR))

Private Lateral Sewage Discharges – Does not apply to T-TSA

6.4 Water Quality Monitoring Requirements

T-TSA's Water Quality Monitoring Program will include the following:

- Water quality analyses for ammonia and fecal coliform in the Truckee River at various sampling locations on the Truckee River. Provided it is safe to do so, sampling will be initiated as per the requirements listed above. Analyses will be performed in T-TSA's laboratory on properly maintained and calibrated instruments. The frequency of sampling

will depend on the magnitude and duration of the spill and the estimated flow velocity of the Truckee River, but sampling will continue until the Truckee River returns to normal background levels.
- Selection of sampling locations to help ascertain the impact of the spill. While the exact locations of water quality sampling will depend on the type and location of the spill, sampling will likely take place directly upstream and downstream of the spill in addition to the standard Truckee River sampling locations directly upstream and downstream of T-TSA's Water Reclamation Plant (sampling sites T1 and T2).
- Additional water quality monitoring if required by the SWRCB and Lahontan Regional Water Quality Control Board.

6.5 Training

Periodic training drills / field exercises will be held to ensure that employees are knowledgeable of the procedures and equipment. The results of the observations made during the drills will be documented and action items will follow. Training records will be retained for 5 years.

6.6 Traffic and Crowd Control

Portions of the TRI easement experience heavy traffic and/or crowds. It is critical that T-TSA staff and contractors be aware of vehicular traffic, pedestrian traffic, cyclists, skaters, recreational trail users, and all other traffic and crowds that may be encountered. Safety equipment such as flashing lights, beacons, cones, signs, barricades, safety vests, caution tape, and other means must be used at the work area to clearly identify the presence of T-TSA staff and contractors.

When a project requires vehicular traffic control, T-TSA or its contractors must have a traffic control plan in place that meets all the requirements of the Federal Highway Administration's Manual on Uniform Traffic Control Devices for Streets and Highways. Where applicable, the plan must also adhere to all the requirements of the California Department of Transportation (CalTrans), including both general provisions and all requirements of the CalTrans Encroachment Permit obtained by T-TSA. When a traffic control plan is required, a contractor must submit its plan to T-TSA for approval prior to beginning work activities.

6.7 Post-spill Assessment

Following a spill, all staff involved in the response will review the procedures used and discuss what worked and where improvements could be made in response and mitigation involved for future spill events. The debriefing results will be documented and tracked to ensure the identified areas of improvement are addressed.

All spill events will be reported as required. The Spill Emergency Response Plan will be reviewed and assessed for effectiveness annually and updated as needed.

6.8 Other Response Activities

Other emergency response activities may include the following, depending on the severity of the spill:

- Notification of other member districts to receive mutual aid.
- Notification of Truckee Meadows Water Authority (775-834-8080).
- Notification of affected residents (such as along portions of the Truckee River corridor) with front door hangers.
- Notification of the local media by the designated T-TSA representative, to issue a public service announcement.
- Additional water quality testing in the Truckee River.
- Initiation of the Standardized Emergency Management System (SEMS).

Table 6-1
TAHOE-TRUCKEE SANITATION AGENCY
TRI RESPONSE EQUIPMENT

Quantity	Description
1	Lay flat hose reel system/trailer (Hydro Engineering, Inc., Model HRA4x10). The hose reel system includes 1,980 feet of 10-inch hose (in three 660-foot sections) and 400 feet of 8- inch hose (one 250-foot section and one 150-foot section).
1	Flatbed trailer with the following: Two 20 ft 10" flexible "suction" hoses with victaulic fitting connections, two 25 ft 10" flexible "discharge" hoses each with victaulic fitting connection x modified 90 degree end fitting, four 8 ft sections and two 4 ft sections of 10" flexible hoses with victaulic fitting connections, discharge pipe fittings for trailer-mounted pumps, manhole discharge pipe fittings, two 12" female irrigation x 10" victaulic adaptor fittings, two 12" male irrigation x 10" victaulic adaptor fittings, two Cherne I-Series plugs, and additional items associated with plug restraint and plug appurtenances (four rope sheaves, 75-ft long 1/2" dyneema winch line, 4-ft long and 2-ft long bridle slings, electric air compressor, 2,400 ft- long Dyneema double-braided "retrieval" rope, pressure regulator, and single snatch block)
2	Trailer-mounted, engine-driven, 6" Godwin Self Priming Pumps
1	Trailer-mounted, engine-driven, 8" Pioneer Prime Centrifugal Pump
1	Caterpillar 950e loader
1	Caterpillar 416c backhoe
1	10-yard Mack dump truck
1	Bobcat Model 843
1	GapVax Industrial Vacuum Truck
2	Pallets of burlap bags
7	Inflatable plugs for TRI
(Varies)	Manhole risers, grade rings and lids
(Varies)	Miscellaneous tools for diking
(Varies)	Miscellaneous safety equipment

Table 6-2
TAHOE-TRUCKEE SANITATION AGENCY
EMERGENCY PIPE & FITTING

Quantity	Length (ft)	Description	Fittings	Location
12" Diameter				
2	1@50, 1@75	Collapsible Discharge Hoses	None	Vehicle Warehouse
1		Flange w/Hose Adapter for Discharge Hoses		Vehicle Warehouse
10" Diameter				
2	20 (each)	"Newer" Flexible Suction Hose	Victaulic x Victaulic	Trailer, Fac. 69
2	25 (each)	"Newer" Flexible Suction Hose	Victaulic x Special	Trailer, Fac. 69
6	40 (total)	"Newer" Flexible Suction Hose	Victaulic x Victaulic	Trailer, Fac. 69
1	16 (each)	"Older" Flexible Suction Hose	Flange x Victaulic	Behind AWT
1	1	Flange w/12" Irrigation Fitting	M/Irrigation/Camloc	Behind AWT
3	1,980 (total)	Lay-Flat Discharge Hose	Victaulic	Hose Reel, Fac. 70
9	Varies	S.S. Pump Discharge Piping	Victaulic	Trailer, Fac. 69
6	Varies	S.S. Manhole Discharge Piping	Victaulic	Trailer, Fac. 69
8" Diameter				
1	10 (each)	Flexible Suction Hose	Victaulic	Behind AWT
1	12 (each)	Flexible Suction Hose	Victaulic	Behind AWT
1	15 (each)	Flexible Suction Hose	Victaulic	Behind AWT
3	1@30, 2@50	Collapsible Discharge Hoses	Camloc	AWT Storage Container
2	1@250, 1@150	Lay Flat Discharge Hose	Victaulic	Hose Reel, Fac. 70
Pipe Plugs				
1	Cherne I-Series Plug #310408 for 20" to 36" pipe size range			Trailer, Fac. 69
1	Cherne I-Series Plug #310488 for 24" to 42" pipe size range			Trailer, Fac. 69
1	Cherne Plug #265152 for 24" to 36" pipe size range			Warehouse, Fac. 61
1	Cherne Plug #272310 for 24" to 42" pipe size range			Warehouse, Fac. 61
2	Cherne Plug #262242 for 24" pipe			Warehouse, Fac. 61
1	Cherne Plug #266027 (pillow plug) for 30" pipe			Warehouse, Fac. 61

Table 6-3
1997 FLOOD DAMAGES AND REPAIRS

SITE	FLOOD DAMAGES	REPAIRS AND IMPROVEMENTS
Site 3 - 1	The flood scoured cover over pipe over a length of 175 feet.	Placed new engineered fill.
Site 3 - 2a	The flood eroded the riverbed over the pipe river crossing and exposed portions of the pipe. Portions of the riverbanks also eroded.	Placed cobbles and boulders over the pipe at the river crossing. Placed boulders and revegetated the riverbanks.
Site 3 - 2b	The flood scoured the cover over the pipe, affecting a pipe length of approximately 300 feet.	Placed new engineered fill and gabion blankets.
Site 3 - 3	The flood scoured cover over approximately 50 feet of pipe.	Placed new engineered fill and gabion blankets.
Site 3 - 4	Embankment failures and mud slide on river side of pipe.	Placed boulders to stabilize the embankments and cobbles over pipe.
Sites 3 - 5 & 6	Erosion of embankments	Placed boulders and revegetated to stabilize.
Site 3 - 8	Scouring occurred over the pipe from drainage flow.	Replaced culverts and repaired drainage swales.

Element 7: Sewer Pipe Blockage Control Program

This section of the SSMP describes the requirements for a Fats, Oils and Grease (FOG) control program, as applicable to T-TSA. The SWRCB Order No. WQ 2022-0103-DWQ states that if an Enrollee determines that a FOG program is not needed, it must justify why. T-TSA is in the unique position that it owns and operates the TRI only and does not own and operate a sewer collection system, for which FOG control programs typically apply. The reasons that a FOG control program does not apply to T-TSA and the TRI are as follows:

- The TRI does not have direct connections to potential dischargers of FOG. The primary source of FOG is from restaurants or other kitchen facilities. If FOG is released from these types of facilities, it would first be discharged to the individual collection system and may cause a problem in the collection system piping. However, only a dilute concentration of FOG, and only the portion of FOG that does not accumulate in the collection system piping, would enter the TRI. The low concentration of potential FOG in the TRI results in practically no potential for FOG to cause or contribute to an SSO from the TRI.
- The TRI pipe size is relatively large, which also minimizes the potential that FOG would cause or contribute to an SSO discharge.
- T-TSA's member districts control the sources of FOG within their district boundaries and enforce their own FOG control programs because their collection systems are most directly affected by these FOG discharges.

For these reasons, T-TSA does not require its own FOG control program. It is important that each of the member districts have a FOG control program to help prevent SSO discharges from occurring within their district boundaries. T-TSA will assist its member districts as necessary in enforcing FOG regulations that, if not followed, could otherwise affect T-TSA's facilities. To assist its member districts, T-TSA may independently inspect sites, enforce its own rules, regulations, ordinances, and resolutions. T-TSA coordinates with member districts to ensure their FOG control programs are consistent with T-TSA Ordinances 1-2015 and 2-2015, in addition to meeting the requirements of SWRCB Order No. WQ 2022-0103-DWQ.

Element 8: System Evaluation, Capacity Assurance and Capital Improvements

8.1 Regulatory Requirements for the System Evaluation, Capacity Assurance, and Capital Improvements Plan Element

The requirements for the System Evaluation, Capacity Assurance and Capital Improvements Plan are to prepare and implement a CIP that addresses procedures and activities for routine evaluation and assessment of system conditions, capacity assessment and design criteria, and prioritization of corrective actions. The plan includes the following:

1. System Evaluation: Actions needed to evaluate those portions of the sanitary sewer system that may cause or contribute to a spill due to a hydraulic deficiency. The evaluation must provide estimates of peak flows associated with overflow events, estimates of the capacity of key system components, hydraulic deficiencies (including components of the system with limiting capacity) and the major sources that contribute to the peak flows associated with overflow events.
2. Design Criteria: Where design criteria do not exist or is deficient, undertake the evaluation identified (in the above task) to establish appropriate design criteria.
3. Capacity Assessment: The CIP addresses the identified hydraulic deficiencies, including prioritization, alternatives analysis, and schedules. The CIP may include increases in pipe size, I/I reduction programs, increases and redundancy in pumping capacity, and storage facilities. The CIP also addresses the implementation schedule and identifies sources of funding.
4. Corrective Action Schedule: Schedule of completion dates for corrective actions shall be developed for all deficiencies noted in the CIP. The schedule shall be reviewed and updated in accordance with the updating and re-certification requirements.

8.2 System Evaluation and Condition Assessment

The purpose of the sewer system evaluation as required by SWRCB Order No. WQ 2022-0103-DWQ is to identify hydraulic deficiencies that can cause or contribute to a spill. The intent is for deficiency findings from the evaluation to be used to determine capacity enhancement measures and then to implement the measures as part of a CIP.

T-TSA has had no spills on the TRI to date. For example, the flood event of January 1-3, 1997, the flood event between December 30, 2005, and January 1, 2006, and the flood events in January and February 2017 were extreme events and were compounded by the flooding events occurring over the New Year's Day holiday (one of the highest wastewater loading periods due to heavy visitation by tourists to the region). And the flood of January 1997 was the result of more than 180 percent of normal snowpack in December 1996 followed by an unseasonably warm and extremely heavy rain event that occurred from December 30, 1996, through January 3, 1997, which melted almost all the snowpack below 7,000 feet. The United States Geological Survey (USGS) estimated that the recurrence interval of the January 1997 Truckee River stream flow peaks at the Farad and Reno gaging stations was slightly less than 50 years. The flood event that occurred over the New Years' Day holiday of 2006 occurred as the result of an unseasonably warm and heavy rain event compounded with a low snowpack, which was incapable of absorbing the rainfall. The amount of precipitation received during the month of December (11 inches total) was about 250 percent of the amount received in a typical December. But the average snow depth on the ground of only 3 inches was 36 percent of the normal depth at that time of year. The 2016-2017 winter was a very wet season for the northern Sierra Nevada Mountains. There were many multi-day rain-snow "atmospheric river" events. The most extreme rain-snow events occurred in early January and early February, with the January event longer in duration but similar in scope to the 2005-2006 event. The winter of 2022-2023 broke many records for snowfall in the region without a spill event as well. All

these flood events resulted in large volumes of I&I entering the system, which added to the high baseline flows that were already occurring.

Because no spills have occurred on the TRI to date, determining deficiencies based on actual spills is not applicable to T-TSA at this time. Instead, T-TSA utilizes hydraulic modeling to identify areas of present hydraulic deficiencies as well as future hydraulic deficiencies resulting from planned development projects and operational changes in collection systems that are tributary to the TRI. T-TSA updated its hydraulic model for the TRI utilizing DHI's MIKEURBAN software. This model was developed based on new surveying work and revised datums. TRI capacity was evaluated under both maximum dry weather flow (DWF) and maximum wet weather flow (WWF) conditions. The basis for the WWF condition was the New Year's storm of 2005-2006. The TRI hydraulic model will be further updated based on future planned developments and on operational changes that are made within the collections systems that are tributary to the TRI. Subsequently, a secondary hydraulic model, InfoSWMM, was developed as part of T-TSA's Master Sewer Plan (2022), which confirmed the results of the prior model.

Much of the TRI follows the Truckee River, so it is of extreme importance that T-TSA prevents spills at all costs. The condition of the TRI is assessed by CCTV or digital scanning inspection work on an ongoing basis. The assessment of the entire TRI is typically completed within three to four years. T-TSA's preventative maintenance program monitors root intrusion, sediment accumulation, corrosion, and other defects to ensure the condition remains at acceptable levels.

As part of the Master Sewer Plan that was completed in 2022, a capacity evaluation and system analysis was performed on the TRI. It was determined through hydraulic modeling and analysis that the TRI has sufficient capacity to convey peak wet weather flows (PWWF's) without exceeding the established flow depth criterion.

A Visible Reinforcement Study will be conducted to evaluate the structural integrity of TRI segments with visible reinforcement defects. The TRI Asset Management Program will utilize information from ongoing digital scans as well as the Visible Reinforcement Study to plan accordingly for TRI Renewal Program scheduling.

Following the completion of the existing system analysis, improvement projects and alternatives were identified to mitigate existing system pipeline capacity deficiencies. The analysis of the future system was performed in a manner like the existing system analysis. The future system evaluation verifies that the existing system improvements were appropriately sized to convey future PWWF's and identifies the locations of existing sewers that are inadequately sized to convey future PWWF's. The existing system, along with future improvements, will be adequate to accommodate climate changes and seasonal weather variations.

By 2045, the PWWF is projected to increase to 30.0 mgpd. Similar to the existing system analysis, the TRI generally has sufficient capacity to convey future PWWF's without exceeding the established flow depth criterion, with a couple of exceptions. Two sections

of gravity main pipeline that were flagged as capacity limited (bottleneck) sewers will be replaced to with larger diameter piping to allow for higher peak flows to be carried to downstream sections of the TRI without surcharging.

8.3 Capacity Assessment and Design Criteria

The design criteria for the TRI are to avoid spills during extreme flow periods and to maintain a minimum flow velocity of 2 feet per second at minimum flow periods. The TRI hydraulic model, as described above, uses complex computational analyses to calculate the flow rate and flow depth over a simulation period. Inputs to the TRI hydraulic model include diurnal variations, peaking factors, and operational considerations such as collection system pump station controls. The basis for the hydraulic analyses is the Manning Formula, as follows:

$$Q = 1.49/n * A * R^{2/3} * S^{1/2}$$

Where:

Q	=	Flow - (cubic feet per second)
n	=	Friction loss coefficient with an assigned value of 0.013
A	=	Cross-sectional area of flow - (square feet)
R	=	Hydraulic radius (cross sectional area divided by wetted perimeter) - (feet)
S	=	Slope of the hydraulic gradient

Given the transient nature of the service area, DWFs are typically higher during holiday weekends. Historical flows for holiday weekends (i.e., high occupancy days) were analyzed to determine peak day flows in the TRI. The two holidays with the highest flows are either New Year's Eve or Independence Day. DWFs on these days are 1.72 to 2.83 times higher than the typical base water flow (BWF).

The primary hydraulic deficiency identified in the recent modeling work was between Manholes 81 and 83. Manhole 81 to 83 improvements were completed in the summer of 2018. This improvement will reduce the likelihood of accidental releases of raw sewage into the Truckee River, located directly adjacent to the TRI, during extreme flow events, floods, environmental catastrophes, and other types of emergencies. Other future projects to address Hydraulic bottlenecks will be scheduled as they are identified as flows increase over time due to growth in T-TSA's service area. T-TSA maintains adequate capital to fund the construction and implementation of these improvements.

Overall, the existing TRI has sufficient capacity to convey the existing and projected PWWF conditions. However, for future PWWF conditions, there are two stretches of the TRI that do not have sufficient capacity. Improvement projects and alternatives were identified in the Agency's Master Sewer Plan to mitigate these future pipeline capacity deficiencies.

8.4 Prioritization of Corrective Action

T-TSA manages data and tracks TRI degradation through the utilization of the TRI Asset Management Program. The program helps in the decision-making process as it relates to the TRI Renewal Program using a standardized method. The TRI Asset Management Program uses the AIMS program and integrates the CMMS software (Lucity) to prioritize and track preventative and corrective actions for the TRI.

8.5 Capital Improvements Plan

A CIP was completed for the TRI as part of the Master Sewer Plan in 2022. The capital costs and a basic assessment of the possible financial impacts were evaluated to assist in making financial decisions and prioritizing projects. Cost estimates presented in the study were developed from bid tabulations, cost curves, information obtained from previous studies, and consultant experience from other projects.

The implementation timeframe is based on the priority of each project to correct existing deficiencies or to address future capacity needs. Implementation timeframes are also based on feedback from T-TSA staff. See Table 8-1 25-Year TRI CIP.

Element 9: Monitoring, Measurement, and Program Modifications

This section of the SSMP describes T-TSA's procedures for monitoring, measurement, and program modifications.

9.1 Maintain Relevant Information

The intent of this requirement is to maintain a database or a graphic information system (GIS) to track the locations, severities, frequencies, and causes of spills. The spill information gathered would then be used, in conjunction with modeling and other analytical evaluation, as the basis for the system evaluation and capacity assurance plan and associated CIP, as well as the basis for SSMP performance evaluations. T-TSA has had no observed spills on its TRI to date. Therefore, the scope of this activity for T-TSA is slightly different. For T-TSA, this task consists of tracking root intrusion observations, sediment accumulations, corrosion, other defects, and other maintenance-related requirements observed as part of CCTV or digital scanning inspections. This information is maintained on T-TSA's servers, CMMS, and on its GIS system.

Table 8-1
25-Year TRI CIP

Project ID	Project Name	Type of Improvement	Proposed Quantity (LF)	Existing Size (inches)	Proposed Size (inches)	Direct Unit Cost ($/LF)	Total Project Cost	Phase 1					Phase 2 2027-31	Phase 3 2032-36	Phase 4 2037-41	Phase 5 2042-46
								2022	2023	2024	2025	2026				
Capacity Improvements																
C-1	Gravity Main between MH 57 and MH 62	Replace	4,290	24/27	30	$760	$7,180,000	$0	$0	$0	$0	$0	$0	$7,180,000	$0	$0
C-2	Gravity Main between MH 71 and MH 72	Replace	990	24	30	$760	$1,660,000	$0	$0	$0	$0	$0	$0	$0	$1,660,000	$0
Condition Assessment Improvements																
RR-1	River Crossing, Gravity Main between MH 33 and MH 35	Line	1,380	24	24	$830	$2,520,000	$252,000	$454,000	$1,814,000	$0	$0	$0	$0	$0	$0
RR-2	River Crossing, Gravity Main between MH 65 and MH 66	Line	220	30	30	$1,030	$500,000	$0	$0	$0	$50,000	$90,000	$360,000	$0	$0	$0
RR-3	River Crossing, Gravity Main between MH 88 and MH 89	Line	220	30	30	$1,030	$500,000	$0	$0	$0	$50,000	$90,000	$360,000	$0	$0	$0
RR-4	TRI Renewal Program	Line/Replace	Varies	Varies	Varies	Varies	$16,350,000	$0	$0	$0	$0	$0	$4,087,500	$4,087,500	$4,087,500	$4,087,500
Other Improvements																
O-1	Visible Reinforcement Study	--	--	--	--	--	$170,000	$105,000	$0	$0	$0	$0	$65,000	$0	$0	$0
Total CIP Cost						--	$28,875,000	$357,000	$454,000	$1,814,000	$100,000	$180,000	$4,872,500	$11,267,500	$5,747,500	$4,087,500
Estimated CIP Annual Cost						--	$1,155,000	$357,000	$454,000	$1,814,000	$100,000	$180,000	$974,500	$2,254,000	$1,150,000	$818,000

9.2 Monitor Implementation and Effectiveness of SSMP

The intent of this requirement is to monitor the effectiveness of the SSMP by tracking performance indicators primarily related to spills. Typically, for a sewer collection agency, the performance indicators would include items such as the following:

- Number of spills over the past 12 months attributable to dry weather conditions and wet weather conditions.
- Number of spills normalized per linear distance of sewer piping (e.g., number of spills per 100 miles of piping).
- Volume distribution of spills (e.g., <100 gallons, between 100 and 1,000 gallons, between 1,000 and 10,000 gallons, and >10,000 gallons).
- The volume of spills that were contained compared to the total volume of spills.
- Average time to respond to spills.
- Relationships between spills and storm events.

At this time, none of these typical performance indicators are applicable to T-TSA given that no spills have been observed along the TRI to date. For T-TSA, the frequency and severity of root intrusion, sediment accumulation, corrosion, and other defects will be noted and evaluated. Furthermore, if spills occur in the future, the implementation and effectiveness of the SSMP will be reassessed and the deficiencies will be addressed.

9.3 Assess Preventative Maintenance Program

As indicated in Element 4 of T-TSA's SSMP, T-TSA's preventative maintenance program consists of annual CCTV or digital scanning inspection work and physical inspections of the TRI alignment in the spring and fall. CCTV or digital scanning inspection work is performed on an ongoing basis, such that no section of the TRI goes more than four years without an inspection. The assessment of T-TSA's preventative maintenance program is based on whether the severity and frequency of root intrusion, sediment accumulation, corrosion, and other defects remain at acceptable levels.

9.4 Update Program Elements

The intent of this section is to update T-TSA's SSMP elements because of monitoring and performance requirements. To comply with this requirement, T-TSA will update the SSMP if the frequency and severity of root intrusion, sediment accumulation, corrosion, and other defects rises to unacceptable levels. T-TSA will also track sewer flows in the TRI to assess the impacts of population growth. Furthermore, if spills occur in the future, T-TSA will update the SSMP to correct any deficiencies.

In addition to updating SSMP elements based on monitoring and performance requirements, T-TSA will periodically update the SSMP to ensure the document remains current. This task may include updating the following:

- T-TSA's legal authority documents, as necessary.

- Storm drain facilities in the vicinity of the TRI, as observed during the spring and fall inspections.
- Equipment inventories.
- Staff personnel references.
- Project updates.
- Other sections as required.

9.5 Identify and Illustrate spill trends

If spills occur on the TRI in the future, T-TSA will identify and illustrate spill trends.

Element 10: Internal Audits

This section of the SSMP describes the requirements for and compliance with SSMP Program Audits.

10.1 Regulatory Requirements for the SSMP Program Audits Element

The SWRCB has the following requirements for SSMP Program Audits:

As part of the SSMP, the Enrollee (T-TSA) shall conduct periodic internal audits, appropriate to the size of the system and the number of SSOs. At a minimum, these audits must occur every three years and a report must be prepared and kept on file. The audit shall focus on evaluating the effectiveness of the SSMP and the Enrollee's compliance with the SSMP requirements identified in SWRCB Order No. WQ 2022-0103-DWQ, including identification of any deficiencies in the SSMP and steps to correct them.

10.2 Compliance with SSMP Program Audits

The SWRCB requirements state that the internal audits shall be appropriate to the size of the system. For T-TSA, the amount of sewer piping owned, operated, and maintained is very small compared to sewer collection agencies with similar cumulative sewer flows. In addition, no spills have been observed on T-TSA's TRI to date. If spills do not occur in the future, it will be assumed that the implementation of T-TSA's SSMP is effective. If a spill does occur in the future, steps will be taken to identify any deficiencies in the SSMP and the deficiencies will be corrected.

An audit of the SSMP will be conducted every three years unless deficiencies warrant more frequent audits. At a minimum, the SSMP will be reviewed to assess whether the following aspects of the SSMP are satisfactory:

- The SSMP goals are appropriate.
- The organization description is up to date and appropriate.
- T-TSA's legal authority documents are current and effective.
- The operations and maintenance program includes current maps and drawings including current storm drain and natural drainage features; an appropriate frequency

and scope for CCTV/Digital Scanning and T-TSA inspections; an appropriate and effective rehabilitation and replacement plan; an appropriate level of staff training; and a sufficient inventory of equipment and replacement parts.
- The design and performance provisions, including design and construction standards and inspection and testing procedures, are appropriate and effective.
- The spill emergency response plan is current, effective, and meets all regulatory requirements.
- The system evaluation and capacity assurance plan and associated CIP are up to date and effective and the schedule for TRI improvements is appropriate.
- The monitoring, measurement, and program modifications effort provides effective feedback on the SSMP program.
- Evaluate the implementation and effectiveness of the Sewer System Management Plan in preventing spills.
- Evaluate compliance with the General Order.
- Identify Sewer System Management Plan deficiencies in addressing ongoing spills and discharges to waters of the State.
- Identify necessary modifications to the Sewer System Management Plan to correct deficiencies.

T-TSA shall submit a complete audit report that includes:

- Audit findings and recommended corrective actions.
- A statement that sewer system operators' input on the audit findings has been considered.
- A proposed schedule for the Enrollee to address the identified deficiencies.

Element 11: Communication Program

11.1 Regulatory Requirements for the Communication Program Element

The SWRCB requirements for the communication program element are as follows:

The Enrollee (T-TSA) shall communicate on a regular basis with the public on the development, implementation, and performance of the SSMP. The communication system shall provide the public the opportunity to provide input to the Enrollee as the program is developed and implemented.

The Enrollee shall also create a plan of communication with systems that are tributary and/or satellite to the Enrollee's sanitary sewer system.

11.2 Communication Program

The SSMP is available for the public to read and review through a link on T-TSA's website. There are links to the Board Meeting agendas and meeting minutes on the website as well. All Board of Director meetings are open to the public and the public is invited to comment on any public agenda item, including the SSMP.

T-TSA's SSMP is available by copying and pasting the link below to your browser: (https://www.ttsa.ca.gov/sites/g/files/vyhlif7911/f/uploads/2020_ssmp.pdf)

The monthly Board of Directors meetings held at T-TSA can be utilized as a platform to communicate the information below with the public (if applicable):

- Spills and discharges resulting in closures of public areas, or that enter a source of drinking water.

- The development, implementation, and update of the SSMP, including opportunities for public input to the SSMP implementation and updates.

Any communication with member districts that connect into the TRI regarding system operation, maintenance, and capital improvement-related activities can be discussed at the Board of Director meetings as well.

Element 3 Appendix

Lahontan Regional Water Quality Control Board Order No. R6T-2002-0030 (WDID 6A290011000), T-TSA Ordinance 1-2015, and T-TSA Ordinance 2-2015

Lahontan Regional Water Quality Control Board Order No. R6T-2002-0030 (WDID 6A290011000)

T-TSA Ordinance 1-2015

Lahontan T-TSA Ordinance 2-2015

Element 6 Appendix

SWRCB Monitoring and Reporting Program No. WQ 2022-0103-DWQ

Sewer System Management Plan Revision Summary, Submission, and Audit Log		
Date	**Identify the Sections/Attachments Revised**	**Initial**
05/04/2023	Revised SSMP to conform to SWRCB Order WQ 2022-0103-DWQ	MS
07/27/2023	Performed internal audit of entire SSMP program	MS