

<u>Sanitary</u> <u>Sewer</u> <u>Overflow</u> <u>Response Plan</u>

Chinle, Kayenta, and Tuba City Wastewater Treatment Plants

Navajo Tribal Utility Authority

SANITARY SEWER OVERLOW RESPONSE PLAN

For the

NAVAJO TRIBAL UTILITY AUTHORITY

Chinle Wastewater Treatment Plant-NPDES Permit No. NN0020265

1.75 Miles North of the Chinle District Office

Chinle, Arizona 86503

Kayenta Wastewater Treatment Plant-NPDES Permit No. NN0020281

3.0 Miles Northeast of Junction US 160 & US 163

Kayenta, Arizona 86033

Tuba City Wastewater Treatment Plant-NPDES Permit No. NN0020290

5 miles Southwest of SR 264 and US 160

Tuba City, Arizona 86045

Date: August 29, 2024

	Date Revised/Reviewed	Reviser/Reviewer Signature and Title	Responsible Official Signature and Title
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Administrative Procedures

The Sanitary Sewer Overflow Response Plan (SSORP) shall be kept at Chinle, Kayenta, and Tuba City Wastewater Treatment Plants. Training for any personnel required to implement the SSORP shall be provided by NTUA Water/Wastewater Department annually. Should significant revisions be made to the SSORP, training regarding the revisions shall be conducted as soon as possible and then annually. All training dates and locations shall be recorded below.

Training Date	Training Location	Description
Annually	HQ- Corporate Building	SSORP Overview.

Introduction

NTUA manages its collection system through its District offices located throughout the Navajo Nation. This Sanitary Sewer Overflow Response Plan (SSORP) pertains to the collection systems in Chinle, Kayenta and Tuba City. Our collection systems take sanitary wastes from residences, commercial establishments, and industry to the local Wastewater Treatment Plants. If the capacity of the collection system is exceeded, or if blockages occur, overflows may result. Untreated wastewater overflows that occur upstream of the treatment plant are called Sanitary Sewer Overflows (SSOs). SSOs are a threat to public health and the environment because the SSO may discharge pollutants such as pathogens, floatable materials, toxics, and other pollutants, all of which may impact public health, drinking water supplies, water quality and/or aquatic ecosystems.

The goal of this SSORP is to document NTUA's plans for mitigating or preventing potential emergency overflows whenever possible, to prepare NTUA's District personnel and responding departments to deal efficiently with the effects of such events, and to protect health, environment, and property.

Quick response to an SSO will minimize the overflow impacts on public health, water quality, the environment, and customer service. This SSORP is designed to ensure that appropriate crews are immediately dispatched to all reported SSOs to stop the overflow as quickly as possible; to minimize the effects of the overflow on public health and the environment; to minimize the impact of the overflow on collection system operations; and to report the overflow to the appropriate regulatory agencies and to the public when warranted. The objectives of this plan include controlling waste discharge and providing procedures for managing sanitary sewer overflows, preventing harm to public health and the environment, and satisfying regulatory and reporting requirements.

Additional objectives of the SSORP are to: provide appropriate customer service, protect collection system personnel, protect all parts of the collection system and wastewater treatment plants, and protect private and public property beyond the collection and treatment facilities.

This plan will be evaluated annually and updated to reflect any changes in staffing or notification requirements, including contact numbers. It should and must be revised as insight and experience dictate.

Responsibility Information

NTUA Contact List

Title	Name	Primary Phone	Email	
Primary SSO Resource and Reporting Coordinator		(928) 729- 4719		
Secondary SSO Resource and Reporting Coordinator		(928) 729- 5721		
Primary SSO Field Coordinators		See below		
Secondary SSO Field Coordinators		See below		
Primary SSO Support		(928) 729- 6268		
Secondary SSO Support		(928) 729- 6342		
NTUA Utility Operations Center (UOC)		1(800) 528- 5011	www.ntua.com/contact- us.html	
Primary Lab Support		(928) 729-6239		
Alternate Lab Support		(928) 729-6242		
	District Contact	ts - Chinle		
Primary SSO Field Coordinator, Superintendent		(928) 729- 4733		
Secondary SSO Field Coordinator, District Manager		(928) 729- 4781		
	District Contacts	s - Kayenta		
Primary SSO Field Coordinator, Superintendent		(928) 729- 4770		
Secondary SSO Field Coordinator, District Manager		(928) 729- 4763		
District Contacts – Tuba City				
Primary SSO Field Coordinator, Superintendent		(928) 729- 4409		
Secondary SSO Field Coordinator, District Manager		(928) 729- 6104		

Responsibility Descriptions

Primary SSO Resource and Reporting Coordinator and Alternate NPDES Contact Person

Responsible for providing notifications to NTUA management, USEPA and NNEPA, the local health department, the public, and other affected entities such as operators of public water systems depending on the severity of an SSO event. Responsible for reporting of SSO to USEPA and NNEPA as required by the NPDES permits. Responsible for coordinating with NTUA Public Relations to provide notifications to the public and to address public inquiries, as needed.

Secondary SSO Resource and Reporting Coordinator

In the absence of the Primary SSO Resource and Reporting Coordinator, the Secondary SSO Resource and Reporting Coordinator is responsible for the Primary SSO Resources and Reporting Coordinator's duties.

District Superintendents, Primary SSO Field Coordinator

Responsible for ensuring immediate local actions are undertaken and completed for assessing the SSO and initiating a series of response actions based on recommendations provided by the SSO Responder. Responsible for coordinating materials and manpower based on the severity of the SSO. Keeps the Primary SSO Resource and Reporting Coordinator updated through completion of response actions. Ensures the completion and submission of all SSO event reports. Responsible for relaying public inquiries to the Primary SSO Resource and Reporting Coordinator.

District Managers, Secondary SSO Field Coordinator

In the absence of the Primary SSO Field Coordinator, the Secondary SSO Field Coordinator is responsible for the Primary SSO Field Coordinator's duties.

Primary SSO Support

Responsible for providing technical assistance such as historic occurrences, mapping, material types and data verification to the Primary SSO Resource and Reporting Coordinator. Responsible for the Annual SSORP training. Ensures that SSO responses are undertaken and completed in accordance with NTUA SSORP through review of SSO event reports.

Secondary SSO Support

In the absence of the Primary SSO Support, the Secondary SSO Support is responsible for the Primary SSO Support's duties.

Primary Lab Support

Responsible for sample analysis as called upon by the Primary SSO Resource and Reporting Coordinator. Responsible for recordkeeping of all sample data results.

Alternate Lab Support

In the absence of the Primary Lab Support, the Alternate Lab Support is responsible for the Primary Lab Support's duties.

Rotating Personnel, SSO Responder

A certified wastewater collection operator. Responsible for responding to reports of a possible SSO during normal business hours. First to arrive at the site to confirm if the report is an SSO event. Assesses the situation and reports back to the Primary Field Coordinator. Responsible for assessing the SSO and initiating a series of response actions based on the type, severity, and expected destination of the SSO. Serves as part of the organized crew to address the SSO event as described in SSO Response Procedures and completes required documentation. Responsible for taking water quality samples as directed by the Primary Lab Support.

Rotating Personnel, Standby SSO Responder

Outside of normal business hours, performs the work of the SSO Responder. Refer to NTUA Personnel Policies Manual for standby rules and requirements.

Navajo Engineering and Construction Enterprise (NECA)

NECA may be called to assist when the scope of work exceeds NTUA's maintenance capabilities and timeframes.

Interagency Contact List

Agency	Name	Primary Phone	Email		
Navajo Tribal Utility Authority	Report an Outage	(800) 528-5011	www.ntua.com/cont act-us.html		
NTUA HQ	Water Department	(928) 729-4719	www.ntua.com/cont act-us.html		
NNEPA	Water Quality/NPDES Program	(928) 871-7185	patrickantonio@nav ajo-nsn.gov		
USEPA	Region 9 Contact	415-947-4222	N9NPDES@epa.gov		
NECA	Estimator/Project Coordinator	(505) 210-7022			
	Chinle	9			
Medical Facility	Medical Facility Chinle IHS				
Fire Department	Fire Department Chinle Fire Department				
Police Department	Chinle Police Department	(928) 674-2111			
	Kayent	ta			
Fire Department	Kayenta Fire Department	(928) 697-3350			
Police Department	Navajo Nation Police Department	(928) 697-5600			
Medical Facility Kayenta Health Center		(928) 697-4000			
Tuba City					
Fire Lieutenant Tuba City Fire Department		(928) 283-3007			
Police Lieutenant	Tuba City Police Lieutenant	(928) 283-3111			
Medical Facility Corporation		(866) 976-5941			

Response to Notification of SSOs

NTUA has implemented the SSORP requiring immediate response to minimize or eliminate an overflow.

When a notification of an SSO is received, the following should be communicated to the caller: who within NTUA will respond, the estimated time of arrival, and what areas will need to be accessed. The information provided by the caller should be investigated by the SSO Responder (during business hours) or the Standby SSO Responder (after business hours) to confirm if the report is a confirmed SSO event before any repairs and cleanup.

Public Observation of an SSO

Public observation is typically the most common way NTUA is notified of sewer blockages and spills. The public can report by telephone or web. Contact information for reporting sewer spills and backups is as follows:

> Website: <u>https://www.ntua.com/contact-us.html</u> Telephone (NTUA Contact Center): 1-800-528-5011 alt: 928-729-5721

Caller Report Handling

Website Report – Customers have an option to report an SSO using NTUA's online reporting portal. When a report of an SSO is received from the portal an email notification is automatically generated and sent to the Utility Operations Center (UOC). The UOC is NTUA's central point of contact for utility problems (i.e., power outage, water breaks, spills, etc.).

Primary Telephonic Report – Customers have an option to report a SSO using a telephonic report which will be taken from the NTUA Contact Center (during normal business hours) or the UOC (Outside Normal Business Hours). During normal business hours, the NTUA Contact Center will notify UOC via email.

In-Person Report – If a report of an SSO comes in person to an NTUA employee, the NTUA employe will contact the UOC.

In all cases, the UOC notifies the responsible District Primary and Secondary SSO Field Coordinators by telephone. An email is also sent to the Primary and Secondary SSO Resource and Reporting Coordinators, the Primary and the Secondary SSO Supports, and NTUA Management.

Information Required from the Public

At a minimum, the date and time of observation and location of the SSO should be obtained from the public, along with their contact information, if possible. The Contact Center or UOC will document the call by completing the Telephonic Report of a Sanitary Sewer Overflow form (see Appendix H). The form will be routed to the Primary SSO Field Coordinator and the Primary SSO Response and Reporting Coordinator.

Normal Working Hours

The regular working hours for NTUA employees are Monday through Friday from 8:00 a.m. to 5:00 p.m., except holidays. When a report of a sewer spill and/or backup is reported, the responsible District Primary SSO Field Coordinator is notified by the UOC, and the District Primary SSO Field Coordinator will dispatch the District SSO Responder to the site to assess and confirm whether there is an SSO event. When a sewer spill or backup report is confirmed by the SSO Responder, the Primary SSO Field Coordinator notifies the Primary SSO Resource and Reporting Coordinator of the SSO Responder's assessment, required response actions, and additional resources needed. The SSO Responder then supervises and assists with the response actions. The Primary SSO Field Coordinator ensures the SSO Responder has the resources and manpower to successfully execute the response actions. The SSO Responder will complete and submit all required documentation to the Primary SSO Resource and Reporting Coordinator.

Outside Normal Working Hours

Outside normal working hours, calls are automatically routed to the UOC via the Contact Center. When a report of a sewer spill and backup is reported, the responsible Standby SSO Responder is notified by the UOC. The SSO Responder responds to assess and confirm whether there is an SSO event. When a sewer spill or backup report is confirmed by the SSO Responder, the Primary SSO Field Coordinator notifies the Primary SSO Resource and Reporting Coordinator of the SSO Responder's assessment, required response actions, and additional resources needed. The SSO Responder then supervises and assists with the response actions. The Primary SSO Field Coordinator ensures the SSO Responder has the resources and manpower to successfully execute the response actions. The SSO Responder will complete and submit all required documentation to the Primary SSO Resource and Reporting Coordinator.

SCADA Alarms

There are currently no SCADA systems at the Chinle, Kayenta and Tuba City WWTF's.

Staff Observation of an SSO

Field crews and contractors perform periodic work on sewer system facilities. Any SSOs noted within or coming from NTUA sewer system facilities must be reported immediately to the District Primary SSO Field Coordinator, who will notify the Primary SSO Resource and Reporting Coordinator. The Primary SSO Field Coordinator will ensure response actions are immediately undertaken upon the SSO Responder's assessment, recommendations, and supervision. The SSO Responder will complete and submit all required documentation to the Primary SSO Resource and Reporting Coordinator.

Notification and Response

SSORP Notification & Response Flow Chart



SSORP Workflow Chart



SSO Response Procedures

Customer Relations

As a representative of NTUA, you will occasionally have to deal with an agitated homeowner. A sewer backup can be a stressful event, and even a reasonable homeowner can become upset if it is perceived that NTUA staff members are indifferent, uncaring, unresponsive, and/or incompetent.

Although sometimes difficult, effective management of a sewage backup situation is critical. If it is not managed well, the problem can end up in a costly, prolonged process with the homeowner. The homeowner should feel assured that NTUA is responsive, and the homeowner's best interest is a top priority.

Employees need to communicate effectively with customers, especially in sewage backup situations. How we communicate is how NTUA is perceived. Good communication with the homeowner results in greater confidence in our ability as a company to address issues satisfactorily.

Here are a few communication tips:

- Give the homeowner ample time to explain the situation or express his/her frustration. Show interest in what the homeowner says, no matter how often you have heard it or how well you understand the problem.
- As soon as possible, let the customer know that you will determine the source of the issue and correct it as quickly as possible.
- Acknowledge the homeowner's concerns. For example, if the homeowner seems angry or worried about property damage, say, "I understand that you're concerned, but I can call my supervisor who will be able to answer your questions and note your concerns."
- Express understanding and empathy for any inconveniences caused by the incident, but do not admit fault.
- As much as possible, keep the homeowner informed on what is being done and what will be done to correct the problem.
- Keep focused on getting the job done in a very professional manner. Don't wander from the problem with too much unnecessary small talk with the homeowner.
- Don't find fault or lay blame on anyone.

Responder Priorities

The SSO Responder's priorities are:

- To follow safe work practices.
- To respond promptly with the appropriate equipment.
- To evaluate the cause(s) of the spill and determine responsibility.
- To restore the flow as soon as possible.
- To contain the spill whenever feasible.
- To minimize public access to and/or contact with the spilled sewage.
- To update the Primary SSO Resource and Reporting Coordinator.
 - If the Primary SSO Resource and Reporting Coordinator cannot be reached, contact the Secondary SSO Resource and Reporting Coordinator.
- To return the spilled sewage to the sewer system, removed debris should be disposed of properly.
- To restore the area to its original condition (or as close as possible) and properly disinfect the area, if possible.

Responder Responsibilities

The SSO Responder's responsibilities for an SSO at or from NTUA-owned facilities:

- #1 Contain spilling sewage.
 - Capture the sewage where it can be recovered and returned to the sewer system.
 - Contain sewage in protective locations (i.e. flood control facilities, construction excavations, vacant lots, etc.)
 - Deploy containment materials such as sand, sandbags, poly sheeting, socks, etc.

#2 Control the spill overflow and bypass area of failure.

- If the obstruction is not structural failure, clear the blockage to restore flow.
- Bypass the obstructed line by pumping the spillage into another non-restricted line or vacuum with equipment.
- Set up barricades to prevent public contact with spill

#3 Clean up the affected areas to ensure public health and safety.

- Remove all visible debris.
- Wash down and contain run-off being careful not to wash sewage into storm drain system if applicable.
- Determine whether to disinfect or not to disinfect.
 - Consider requirements of other agencies
 - \circ Consider the impacts to receiving waters.
 - Consider the uses and ownership of affected properties.
- Clean all hard/soft surfaces.

Safety

The SSO Responder is responsible for following safety procedures at all times. Special safety precautions must be taken when performing sewer work. The SSO Responder must use the appropriate PPE (i.e. hard had, safety vests, rubber gloves and boots, Tyvek suit, safety glasses, face shield, ear protection, hand sanitizer, disinfectant supplies), equipment, and tools (i.e. safety cones, manhole hooks, hand tools). Special consideration must be given to following all local traffic, confined spaces, and safety procedures as recommended in the NTUA Safety Manual.

The following items are also available to response crews. Each SSO Responder is responsible for ensuring supplies are appropriate and in working order. All supplies/materials are available at the local District offices and replenished as needed.

Job Site Safety Equipment (All available at the District yard):

Traffic control devices such as flags and cones, flashing barricades, caution tape, safety harness and lifeline, tripod, safety rope, gas detector, silt fencing, flag stands, barricades, and detour arrow board.

Construction Materials (All items available on SSO Responders Unit):

Clean rags, tape, assorted hand tools (e.g., screwdrivers, wrenches, hammers, brooms, j-hooks, sledgehammers, pry bars), bucket with rope, assorted ropes, picks and shovels.

Personal Safety Equipment (All items available on SSO Responders Unit):

Hard hat, safety glasses, safety vests, gloves, rain suit, steel toed work and/or safety toed rubber boots, isopropyl alcohol, and ear protection, First Aid Kit, flashlight, waterless soap, and hand towels.

Other (All available at the District yard):

Sandbags, sand trap, log forms, tablet with camera and video capabilities, portable blower and sufficient hose, assorted mirrors, and high intensity flashlight.

Initial Response

All calls regarding an SSO require a response to the reported location of the SSO event to minimize or eliminate an overflow. The SSO Responder must respond immediately after the initial notification. NTUA target time for SSO response is within 2 hours for any single event, however, no single response shall exceed 8 hours and on average response time must be less than 4 hours.

The SSO Responder should determine appropriate response measures based on the immediate assessment of the site. The SSO Responder shall abide by all safety requirements including appropriate PPE as specified in the Safety section above. SSO Responders are also equipped with traffic control devices, assorted hand tools and mobile tablets to assess the situation, take photographs, and expedite online form submittals. If machinery of any kind is used (i.e. jet rodder, vac truck, bypass-pump), a minimum of two SSO Responders will need to be on-site for the duration of the work. The second SSO

Responder can be certified at one-level below that of the SSO Responder, In certain circumstances, the second person can be a trainee working under the supervision of the SSO Responder. If additional resources are needed, the SSO Responder will contact the Primary SSO Field Coordinator who will provide additional employees, contractors, and/or equipment suppliers in consultation with the Primary SSO Resource and Reporting Coordinator.

Upon arrival at the site, the SSO Responder should:

- Note the arrival time at the spill site.
- Verify the existence of the sewer system spill or backup.
- Verify the location with GPS coordinates and ensure that the affected facilities are part of the NTUA's sanitary sewer overflow reporting form.
- Identify and assess the affected area and the extent of the spill.
- Comply with all safety precautions (traffic, confined space, etc.) as specified in the NTUA Safety Manual.
- Contact the caller for more information if needed and if time permits.
- Notify the Primary SSO Field Coordinator if:
 - The spill appears to be significant, in a sensitive area, or there is doubt regarding the extent, impact, or how to proceed, or
 - Additional personnel, material, supplies, and equipment is needed for line cleaning or repair, containment, recovery, sampling, and/or site cleanup.
- If the Primary SSO Field Coordinator cannot be reached, contact the Primary SSO Resource and Reporting Coordinator.
- It is recommended to document conditions upon arrival with photographs (given that the activity does not interfere with SSO recovery and cleanup). Assigned tablets should be used to take photographs.

In all cases, the SSO Responder reports findings, including possible damage to private and public property, to the District SSO Field Coordinator immediately upon making an investigation. If the District SSO Field Coordinator has not received findings from the SSO Responder or field crew within one (1) hour, the District SSO Field Coordinator must contact the SSO Responder to determine the status of the investigation.

Restore Flow

Upon arrival at the location of a spill, the SSO Responder should evaluate and determine if the spill was caused by a blockage in the customer's service line or the NTUA-owned sewer main, caused either by a backup in the sewer main line or nearby operation and maintenance (O&M) or construction activities.

• Determine cause of the SSO event by checking upstream and downstream manholes. If upstream is surcharging/backing up and/or if downstream is not showing much flow, the cause is likely to be blockage in main. If both manholes are flowing freely, then the cause is likely in

the service line. During daylight hours, the crew may also check with neighboring properties to see if they are experiencing any backup issues.

- Suppose a blockage is found on a customer's service line that the NTUA-owned sewer main did not cause. In that case, it should be communicated that it is not NTUA's responsibility to work on a private service line. Recommend that the customer contact a qualified plumbing contractor to remove the blockage. Inform the customer that NTUA does not recommend a particular contractor but a list of contractors can be found on NTUA's website at https://www.ntua.com/assets/contractor-list--23dec27.pdf.
- If a blockage is found in a customer's service line that was caused by the NTUA-owned sewer main, remove the blockage caused by the NTUA-owned sewer main and restore flow or take action based on the existing service agreement, if one exists.
- If a backup in the main line is found to have caused the SSO in a house or building, clear the blockage in the main line.

The SSO Responder should attempt to clear the blockage from the NTUA-owned sewer main and restore flow to the area. Using the appropriate cleaning tools, the field crew should set up downstream of the blockage and hydro-clean upstream from a clear maintenance hole. The flows should be observed to ensure the blockage does not reoccur downstream. The crew shall capture any debris causing the blockage in a basket that is located with the jet rodder machine. Debris shall be disinfected and disposed of properly.

If the blockage cannot be cleared within a reasonable time, or the sewer requires construction repairs to restore flow, initiate containment and/or bypass pumping. Contact the Primary SSO Field Coordinator who may bring in other employees, contractors, and equipment suppliers in consultation with the Primary SSO Resource and Reporting Coordinator.

The District SSO Field Coordinator will visit the site of the overflow, if possible, to ensure that provisions of the overflow response plan are met.

Lift Station or Force Main Facilities

The SSO Responder to a potential lift station or force main failure should:

- Determine whether the flow can be restored within a reasonable time.
- If it appears that flow cannot be restored within a reasonable time or if the conveyance system facility requires construction and/or repairs, then employ emergency efforts i.e., bypass pumping, portable electric generators, contractual assistance, etc.

If assistance is required, immediately contact the Primary SSO Field Coordinator who may bring in other employees, contractors, and equipment suppliers as required.

Contain the Spill

The SSO Responder should attempt to contain as much of the spilled sewage as possible using the following steps:

- Determine the immediate destination of the overflowing sewage.
- Contain/direct the spilled sewage using a dike/dam, sandbags, or other containment materials on hand.
- Pump around the blockage/pipe failure/lift station or vacuum flow from upstream of the blockage and dispose of downstream of the blockage to prevent further overflow. Pumps are available at the District and additional pumps are located at Headquarters (Fort Defiance, AZ).
- When an SSO occurs inside of a house or building, the property owner should be instructed to follow these guidelines and provide the information in Appendix I:
 - Keep people and pets away from the affected area.
 - \circ $\;$ Place towels, rags, blankets, etc., between areas that have been affected and areas that have

not been affected.

- Do not remove any contaminated items.
- Turn off the HVAC system.
- \circ Move any uncontaminated property away from the overflow area.
- NOTE: See the Water Quality Sampling requirements if an SSO reaches a water body.

SSO Public Notification and Restricted Public Access

Barriers shall be installed to prevent the public from having contact with the sewage if possible. Signage should be posted at the spill to keep vehicles and pedestrians away from contact with spilled sewage. Upon completion of cleanup, the SSO Responder will determine when the threat of human contact has ceased and recommend to the Primary SSO Field Coordinator that signage can be removed. Depending on the SSO event's severity, NTUA may consult with the NNEPA and the Navajo Nation Department of Health about the signage's removal. Do not remove the signs until directed by the Primary SSO Field Coordinator. A sample warning sign is included in Appendix A.

Recovery and Cleanup

The Recovery and Cleanup begins when the flow has been restored and the spilled sewage has been contained to the extent possible. Make an initial assessment with the following definitions so Recovery and Cleanup proceeds without delay. Please contact the Primary SSO Resource and Reporting Coordinator for guidance.

Spill Definitions

A minor *outside* spill is one that:

- 1. Is less than 50 gallons; or
- 2. Is between 50 and 1,000 gallons <u>and</u> does not occur within 50 feet of human habitation, does not reach public waters, or does not pose a threat to public health and/or the environment.

A major *outside* spill is one that:

- 1. Is greater than 1,000 gallons; or
- 2. Is more than 50 gallons <u>and</u> occurs within 50 feet of human habitation, or reaches public waters, or poses a threat to public health and/or the environment.

See the SSORP Workflow Chart to assist with response actions.

Spills inside of a house or building are less common. Make an initial assessment and inform the Primary SSO Resource and Reporting Coordinator of your observations. Before any clean up begins on customer's property, the approval of the Primary SSO Response and Reporting Coordinator is required.

A minor *inside* spill is one that:

- 1. Is confined to the affected drain area and does not enter other rooms.
- 2. Does not contaminate carpet, furniture or other customer's belongings that require specialized cleaning and disinfecting.
- 3. Does not pose a threat to public health.

A major *inside* spill is one that:

- 1. Spreads beyond the immediate drain area and into other occupied areas.
- 2. Contaminates wall-to-wall carpets, furniture or other customer's belongings that require specialized cleaning or disinfection.
- 3. Poses a threat to public health.

Spill Procedures

NTUA response is determined by the location (Public/Private) and size (Minor/Major) of spill. NTUA is responsible for cleanup on all qualified SSO events determined to be caused by NTUA's mainline, regardless of location. Customers are generally responsible for cleanup on Private Property for SSO events caused by blockages on customer service line laterals, unless the spill is considered a Major Spill or determined to be caused by NTUA's mainline. Please contact the Primary SSO Resource and Reporting Coordinator for guidance.

Major Spill – Public/NTUA Right-of-way (i.e., NTUA main lines)

- 1. Call SSO Field Coordinator.
- 2. Assess spill location and prioritize and implement containment strategy.
- 3. Contain spill with earth berms, plugs for downstream storm drainpipe, and plastic sheets for drop inlets.
- 4. Clear stoppage & restore flow.
- 5. Prevent contact between public and spill utilizing barricades, cones, and traffic control (Call necessary entities for assistance if needed i.e. NDOT, ADOT and NMDOT).
- 6. Investigate overflow inside structures and take photographs before and after cleanup for records.
- 7. Return spill to collection system with appropriate pumping equipment.
- 8. Remove all signs of gross pollution.
- 9. Flush with water and disinfect the area if needed.
- 10. Notify NTUA wastewater personnel to complete follow-up procedures.

Minor Spill – Public/NTUA Right-of-way (i.e., NTUA main lines)

- 1. Assess spill location and prioritize and implement containment strategy.
- 2. Contain spill and return to system.
- 3. Clear stoppage & restore flow.
- 4. Prevent contact between public and spill.
- 5. Investigate overflow inside structures and take photographs before and after cleanup for records.
- 6. Remove all signs of gross pollution.
- 7. Flush with water and disinfect the area if needed.
- 8. Notify NTUA wastewater personnel to complete follow-up procedures.

Major Spill - Private Property (i.e., customer service lines)

- 1. Request Assistance
- 2. Call SSO Field Coordinator.
- 3. Clear blockage and clean up spill outside building.
- 4. Flush with water and disinfect the area if needed.
- 5. Take photographs or video of the affected area, before and after cleanup, for records.
- 6. Fill out report for billing the customer.
- 7. Provide the customer with cleanup information (Appendix I) for any spills inside building.
- 8. Only if the blockage is caused by NTUA main, contact the Primary SSO Resource and Reporting Coordinator for arrangement of cleanup inside building.

Minor Spill – Private Property (i.e., customer service lines)

- 1. Notify the customer of responsibility to clear blockage and clean up.
- 2. Provide the customer with a list of contractors to clear blockage in customer's lateral.
- 3. Provide the customer with clean up information (Appendix I) for any spills inside building as stated in Customers' Private Properties.
- 4. Verify that customer takes care of blockage and cleanup.
- 5. Check back at location during working hours to verify spill has stopped.
- 6. Only if the blockage is caused by NTUA main, contact the Primary SSO Resources and Reporting Coordinator for arrangement of cleanup inside building.

Follow-up Procedures

- 1. Investigate cause of spill.
- 2. Schedule CCTV Inspection for multiple occurrences.
- 3. Add to Cleaning Schedule (if needed).
- 4. Repair or replace any damaged piping, couplings, etc.
- 5. Spill documentation review and mapping by Primary or Secondary SSO Support.

Recovery of Spilled Sewage

Vacuum up or pump the spilled sewage and discharge it back into the sanitary sewer system. If significant loose material has been picked up, consider dumping directly into the WWTP or lagoon to prevent further obstructions downstream.

Cleanup and Disinfection

Cleanup and disinfection procedures should be implemented to reduce potential human health issues and adverse environmental impacts associated with an SSO event. The procedures described are for dry weather conditions and should be modified as required for wet weather conditions. If wet weather conditions are present containment should be prioritized over disinfection to prevent damaging any waterways. Once conditions allow cleanup and disinfection can take place.

Where cleanup is required inside a customer's property (e.g., backup into the house), as result of a backup caused by NTUA, the Primary SSO Resource and Reporting Coordinator will be contacted to arrange for a professional cleanup.

Customers' Private Properties

Generally, spills inside houses or buildings should be cleaned up by a professional cleaning company at the owner's expense. NTUA is not responsible for spills caused by wastewater service lines located on customer's property, however NTUA will clear the blockage on the customers service line and will bill the customer for services. Unless the backup was caused by NTUA's main wastewater lines, NTUA is not responsible for any repairing, replacing, cleaning, maintaining, or servicing customer's wastewater service line that is connected to NTUA wastewater collection system.

Upon request, NTUA can provide the customer with a list of contractors who may assist if the source of sewer backup is on the customer's private line. The contractor list can also be found on NTUA's website at https://www.ntua.com/assets/contractor-list--23dec27.pdf. Please note that NTUA is merely providing this list of contractors and does not assume responsibility for work performed by said contractors, nor does it recommend any particular contractor. Additionally, NTUA will provide helpful cleanup tips, see Appendix I.

Where cleanup is required inside a customer's house or building as result of a backup caused by NTUA, the Primary SSO Resource and Reporting Coordinator will be contacted by the SSO Responder to arrange for a professional cleanup.

Hard Surface Areas

Collect all signs of sewage solids and sewage-related material using rakes and brooms.

- Take reasonable steps to contain and vacuum up the wastewater.
- Disinfect all areas that were contaminated from the overflow using the disinfectant solution of household bleach diluted 10:1 with water. Apply minimal amounts of the disinfectant solution using a hand sprayer. Disinfectant should be applied in such a manner as to prevent runoff. Document the volume and application method of disinfectant that was employed.
- Allow area to dry. Repeat the process if additional cleaning is required.

Landscaped and Unimproved Natural Vegetation

- Collect all signs of sewage solids and sewage-related material either by hand or with the use of rakes and brooms.
- Allow the area to dry. Repeat the process if additional cleaning is required.
- Use of potable water for cleanup of unpaved surfaces should be carried out to limit runoff to storm drains or water bodies.

Natural Waterways

Cleanup should proceed quickly in order to minimize SSO impacts to any creeks, gullies, or natural waterways. Any water used in the cleanup process should be potable.

Wet Weather Modifications (where applicable)

Do not perform water quality sampling during heavy storm events with heavy runoff where water quality sampling would not provide meaningful results.

Water Quality Sampling Procedures

If NTUA determines the SSO has potential to contaminate the drinking water system or body of water such as reservoir or stream, the Primary SSO Resource and Reporting Coordinator will contact NTUA's

Environmental & Compliance Laboratory to direct the collection of samples for analysis. The Certified SSO Responder will conduct the collection of samples in the appropriate containers and package for transport to the NTUA Lab for analysis. NTUA's Environmental & Compliance Laboratory will consult with the Navajo Nation EPA regarding sampling parameters and locations.

NTUA Environmental Compliance & Laboratory Contact Information

Job Title	Primary Lab Contact	Primary Phone	Email
EC&L Supervisor		(928) 729-6239	
Laboratory Supervisor		(928) 729-6242	

Estimate the Volume of Spilled Sewage

Use the methods outlined in Appendix C to estimate the volume of the spilled sewage. Wherever possible, the SSO Responder will document the estimated volume using photos of the SSO site before and during the recovery operation with the use of assigned mobile tablets.

Follow Up Activities

If sewage has reached the storm drain system, containment should be prioritized. The downstream manholes and discharge outlets shall be identified and blocked, if possible, to contain the sewage. The combination sewer jet vacuum cleaning truck should vacuum/pump out the catch basin and any other portion of the storm drain that may contain sewage. Storm drains are present in Tuba City only at the school or hospital locations.

In the event that an overflow occurs at night, the location should be re-inspected first thing the following day. The operator should look for any signs of sewage solids and sewage-related material that may warrant additional cleanup activities.

SSO Event Debriefings

These SSO events provide opportunities to evaluate response and reporting procedures. After each SSO event, all participants, from the person who received the call to the last person to leave the site, shall meet to review the procedures used and discuss what worked and where improvements could be made in responding to and mitigating future SSO events. The results of the SSO event debriefings must be documented in the NTUA Job Briefing Report, as shown in Appendix F, and tracked to ensure the action items are completed.

Claims for Backups into a Building

Backup into any customer's home/building will be reported to the Primary SSO Resource and Reporting Coordinator. If any claims are received the Primary SSO Resource and Reporting Coordinator must report such claim to the NTUA Legal Department for coordination with the Navajo Nation Risk Management Office.

Regulatory Notification

United States EPA and Navajo Nation EPA Notification Requirements

The Primary SSO Resource and Reporting Coordinator shall contact regulatory agencies within 24 hours of becoming aware of the confirmed SSO event by telephone call to:

United States Environmental Protection Agency Region 9:

• USEPA Telephone Number: (415) 947-4222

Navajo Nation Environmental Protection Agency

• NNEPA: (928) 871-7185

For more information, see External SSO Documentation section below.

Public Notification Requirements

Feasible methods of public notification are available depending on the severity of the SSO. The timing of the public notification will be determined by the Primary SSO Resource and Reporting Coordinator with the consultation of NNEPA and local authorities.

- Website and/or social media
 - The reported SSO will be placed on NTUA's website and Facebook page.
- Local print or radio and broadcast media
 - If the SSO is severe enough to do public harm, it will be announced on KTNN radio (928)
 871-3553 or with door-to-door knocks or placement of door hangers.
- Preprinted Methods of Public Notification
 - Printed flyers as shown in Appendix D
 - Warning Signs
 - Door Hangers

Required Information to Include in Public Notifications

Minimum information to be included in public notifications by web, social media, or broadcast (if applicable) include: information that an SSO has occurred, date, duration if known, estimated volume if known, location of the SSO by street address or other appropriate method, and anticipated direction of the SSO, cause(s), the potential for harm to public health or the environment, and steps NTUA is taking to mitigate harm.

Procedures for Determining the Appropriate Method(s) of Public Notification

Procedures for determining the appropriate public notification method(s) will be based on the potential for public exposure to health risks associated with the SSO. A low public health risk will prompt notification around the SSO event itself (i.e., deploy signage, traffic control, etc.). A high public health risk will prompt more interactive methods, like door-to-door notification and distribution of door hangers. Examples include:

Scenario 1: A spill occurs at a remote lift station. The spill is bad enough that waste escapes the enclosed area but does not reach surface water.

Public Health Risk: Low

Public Notification Method(s):

• Immediately deploy signage around the spill.

Scenario 2: A major spill occurs during dry weather near a local water body that has the potential to be encountered and consumed by local livestock.

Public Health Risk: Very High

Public Notification Method(s):

- Immediately deploy safety barriers around the spill at locations where contact with public and livestock may occur.
- Immediately notify residents in the area with door-to-door knocks and distribution of door hangers.

As soon as possible or within the 4 hours of response:

- Contact local authorities and Navajo Nation health department to discuss closure or barricading the area.
- Contact surrounding public water system officials about the spill if public water system downstream of spill.
- Provide press release to local radio KTNN.
- Publish press release to website.

An example warning sign is included in Appendix A of this plan.

Point of Contact

The NTUA Public Affairs Department in coordination with the Primary SSO Resource and Reporting Coordinator shall be responsible for public notification via the media. The Primary SSO Resource and Reporting Coordinator shall be responsible for notification of other affected entities (such as local authorities and public water systems).

SSO Documentation and Reporting

All SSOs should be thoroughly investigated and documented to manage the sewer system and meet established reporting requirements.

Internal SSO Documentation

The Primary SSO Resource and Reporting Coordinator will ensure documentation for each qualified SSO. The record will include information collected by the SSO Responder and notifications to regulatory agencies. The record should include the following information at a minimum:

- Initial service call information
- Checklist for Sanitary Sewer Overflow/By-pass Form (Appendix B)
- Volume estimation, including methods for estimating spill volumes and calculations.
- Photographs
- Water quality sampling and test results, if applicable
- NTUA Job Briefing Form

External SSO Documentation

The Primary SSO Resource and Reporting Coordinator shall call or submit an email notification to the U.S Environment Protection Agency and the Navajo Nation Environmental Protection Agency (NNEPA) within 24 hours of NTUA personnel becoming aware of the SSO, as required by the NPDES permit. The Primary SSO Resource and Reporting Coordinator shall notify USEPA at 415-947-4222 and NNEPA, Patrick Antonio, at 928-871-7125. If the Primary SSO Resource and Reporting Coordinator is unable to reach USEPA or NNEPA by telephone, an email notification shall be submitted to <u>R9NPDES@epa.gov</u> and <u>patrickantonio@navajo-nsn.gov</u>.

The Primary SSO Resource and Reporting Coordinator shall submit a follow-up report within 5 days of NTUA personnel becoming aware of the SSO via NeT-Sewer Overflow. The report must include:

- the location of the SSO, including GPS coordinates.
- a description of the SSO, including estimated volume.
- the duration of the SSO, including dates and times.
- the cause of the SSO.
- if the SSO has not been abated, the date and/or time it is expected to be abated.
- steps taken and/or plans to reduce, eliminate, and prevent reoccurrence of the SSO; and
- steps taken and/or plans to mitigate any harm to public health or the environment from the SSO.

A "notifiable SSO" is an overflow, spill, release, or diversion of wastewater from a sanitary sewer collection system that occurs prior to a treatment plant. Sanitary sewer overflows include: a) overflows or releases of wastewater that reaches waters of the US or Navajo Nation, b) overflows or releases of wastewater that do not reach waters of the US or Navajo Nation, and c) wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. SSOs are generally caused by high volumes of infiltration and inflow (I/I), pipe blockages, pipe breaks, power failure, and insufficient system capacity. Immediate notification shall be provided within 24 hours of becoming aware of the event. This immediate notification must be made by oral report by directly speaking with USEPA and NNEPA staff person. If NTUA is unable to reach a staff person, NTUA shall provide email notification to <u>R9NPDES@epa.gov</u> and <u>patrickantonio@navajo-nsn.gov</u>. The follow-up written report shall be submitted within five days of becoming aware of the SSO event. The submission to USEPA will be through NeT-Sewer Overflow and to NNEPA at patrickantonio@navajo-nsn.gov.

For unanticipated notifiable SSOs caused by an extreme weather event (i.e. monsoon season) that could flood the entire sewer system and are too numerous to count, NTUA shall provide information that can be practicably captured. There is recognition that some information cannot be practically captured, like latitude/longitude, source/structure, duration of the SSO, the estimated discharge volume, the corrective actions taken, or the potential impacts.

Draft Sanitary Sewer Overflow Response Plan

Public Comments

NTUA posted the Draft SSORP on the website and received public comments on December 21, 2023. Those comments were used toward finalizing this SSORP. A copy of the comments is shown on Appendix E. All comments were addressed, and commenters were responded to at the email address provided.

Chinle General Utility Information

Approximate Population of Chinle: 3,771

Approximate Number of Customer Connections: 1,278

Estimated number of Linear Feet of Sanitary Sewer Pipe in System: 39,600

Number of Pump / Lift Stations in the System: <u>1-Lift Station w/ 2-pumps</u>

LS Name	LS ID	LS Address	Latitude	Longitude
Chinle Lift Station	Lift Station 1	Navajo Route 9	36.159506	-109.574309

Chinle General Collection System Area Map



Chinle Equipment Inventory

Equipment Description	Equipment Name	Equipment Status
2005 TRAVEL VAC TRASH PUMP W/TRAILER	3312	Ready for Deployment
2008 SECA SEWER CLEANER WITH TRAILER	3310	Ready for Deployment
2011 INTERNATIONAL DUMP TRUCK 4400 4X2	3314	Ready for Deployment
2011 CATERPILLAR BACKHOE LOADER 4X4	3340	Ready for Deployment
2015 TRAIL KING FLATBED TRAILER	3350	Ready for Deployment
2012 BIG TEX DUMP TRAILER 10'	3347	Ready for Deployment

Chinle Probable SSO Event Location Table

Of the amount of 345 manholes, below are known locations for SSO's from the previous 5 years.

Location ID / Name	Manhole ID	Latitude	Longitude	Approximate Number of Occurrence (Past 5 Years)
1	A-39	36.161081°	-109.601669°	1
2	B-75	36.163259°	-109.585679°	1
3	A-72	36.158468°	-109.584392°	6
4	D-04	36.156828°	-109.578278°	2
5	C-80	36.153273°	-109.558260°	3
6	C-82	36.151036°	-109.557571°	6
7	C-58	36.149192°	-109.559527°	2
8	C-63	36.146183°	-109.554812°	1
9	C-25	36.150750°	-109.554369°	1
10	C-08	36.149446°	-109.548147°	1

A map of the Probable SSO Events can be found in Appendix G.

Kayenta General Utility Information

Approximate Population of Kayenta: 5,634

Approximate Number of Customer Connections: 1,420

Estimated number of Linear Feet of Sanitary Sewer Pipe in System: 102,960

Number of Pump / Lift Stations in the System: 2-pumps/1-Lift Station

LS Name	LS ID	LS Address	Latitude	Longitude
Kayenta WWTP Lift Station	Lift Station 1	Kayenta WWTP	36.733703	-110.237694

Kayenta General Collection System Area Map



Kayenta Probable SSO Event Location Table

Of the amount of 400 manholes, below are known locations for SSO's from the previous 5 years.

Location ID / Name	Manhole ID	Latitude	Longitude	Approximate Number of Occurrence (Past 5 Years)
1	B-08	36.729513°	-110.264659°	2
2	B-81	36.725250°	-110.265767°	1
3	B-70	36.724414°	-110.262348°	1
4	B-55	36.730149°	-110.258351°	1
5	A-03	36.726746°	-110.258662°	6
6	A-11	36.731474°	-110.249469°	2
7	C-19	36.726626°	-110.249817°	2
8	C-37	36.724542°	-110.254158°	1
9	C-07	36.726336°	-110.239784°	1
10	C-29	36.720811°	-110.259241°	1
11	D-47	36.719119°	-110.252897°	1
12	D-53	36.718409°	-110.248918°	2
13	D-99	36.719053°	-110.246270°	2
14	E-67	36.714676°	-110.244207°	1
15	E-27	36.713770°	-110.246605°	2
16	E-58	36.707350°	-110.246495°	1

A map of the Probable SSO Events can be found in Appendix G.

Kayenta Equipment Inventory

Equipment Description	Equipment Name	Equipment Status
2011 CATERPILLAR BACKHOE LOADER 4X4	6335	Ready for Deployment
2010 SEWER CLEANER WITH TRAILER	6336	Ready for Deployment
2015 KENWORTH DUMP TRUCK 4X2	6341	Ready for Deployment
2015 TRAIL KING FLATBED TRAILER	6342	Ready for Deployment
2022 JDEERE COMPACT EXCAVATOR, RUB TRACK	6345	Ready for Deployment
2022 TOWMASTER UTILITY TRAILER	6346	Ready for Deployment
2022 SEWER CLEANER WITH TRAILER	6347	Ready for Deployment

Tuba City General Utility Information

Approximate Population of Tuba City: 10,000

Approximate Number of Customer Connections: 1,362

Estimated number of Linear Feet of Sanitary Sewer Pipe in System: 8,712

Number of Pump / Lift Stations in the System: N/A (Tuba City wastewater collection system is a gravity system.)

Tuba City General Collection System Area Map



Tuba City Probable SSO Event Location Table

Location ID / Name	Manhole ID	Latitude	Longitude	Approximate Number of Occurrence (Past 5 Years)	
1	A-96	36.143929°	-111.233715°	4	
2	F-26	36.128081°	-111.240585°	4	
3	C-69	36.127126°	-111.243898°	1	
4	C-83	36.126732°	-111.242278°	2	
5	C-64	36.124959°	-111.241672°	1	
6	C-76	36.124298°	-111.245069°	1	
7	C-74	36.123640°	-111.243314°	7	
8	C-92	36.122122°	-111.239477°	1	
9	G-53	36.120510°	-111.245537°	1	
10	G-31	36.117202°	-111.245479°	2	
11	C-21	36.120102°	-111.239590°	5	
12	G-40	36.116964°	-111.237777°	4	
13	C-25	36.120324°	-111.233419°	3	
14	C-30	36.119260°	-111.230751°	3	
15	B-71	36.127032°	-111.227189°	1	

Of the amount of 560 manholes, below are known locations for SSO's from the previous 5 years.

A map of the Probable SSO Events can be found in Appendix G.

Tuba City Equipment Inventory

	Equipment Description	Equipment Name	Equipment Status
Camel Jet		4342	Ready for Deployment
JD Backhoe		4336	Ready for Deployment
Dump Truck		4312	Ready for Deployment
Utility Trailer		4339	Ready for Deployment

Headquarters Information

Headquarters Assistance

In the event where the district needs additional equipment or manpower, NTUA Headquarters has equipment that is ready to deploy as necessary. If a piece of equipment is not available to borrow or is broken and/or undergoing maintenance, rental equipment shall be acquired by NTUA?

Equipment Description	Equipment Name	Equipment Status
Vactor Truck	11-3-128	Out of service (Replacement on order)
ECO Rental Vactor Truck	n/a	Ready for Deployment
Harben Jetter	11-3-109	Ready for Deployment
SEA Jetter	11-3-161	Ready for Deployment
CUES box camera	11-3-158	Ready for Deployment
Push camera in Trailer	11-3-001	Ready for Deployment
Push camera	n/a	Ready for Deployment
ARIES camera	n/a	Out for service
Pioneeer bypass pump (30 HP)	11-3-142	Ready for Deployment
Pioneeer bypass pump (30 HP)	11-3-143	Ready for Deployment
Pioneeer bypass pump (30 HP)	11-3-144	Ready for Deployment
Pioneeer bypass pump (30 HP)	11-3-145	Ready for Deployment
Bypass pump (30 HP)	11-3-130	Out for service
Bypass piping (flexible and aluminum)	n/a	2500 total feet

Headquarters Equipment Inventory

Appendix A Example Warning Signs



CONTAMINATED WATER

MAY CAUSE ILLNESS

FOR FURTHER INFORMATION CALL: 1-800 528 -5011

Appendix B

NTUA SSO/Bypass Form



NTUA-SANITARY SEWER OVERFLOW (SSO)/BYPASS FORM

TWENTY-FOUR-HOUR REPORTING OF NON-COMPLIANCE TO USEPA

District:					
1. Location of overflow/bypass (provide GPS coordinates):					
2. Who notified NTUA:					
3. Who was notified:					
4. Time and date of notification (provide notification/work order number):					
5. Crew/Equipment used:					
6. Was the upstream and downstream line cleaned after:					
Estimate total distance (feet):Size & Type of Pipe (inches):					
'. Date/Time overflow/bypass started: Date/Time overflow/bypass ended:					
8. Anticipated duration of the noncompliance if not immediately corrected:					
9. Cause of overflow/bypass (be descriptive e.g., grease, root, debris):					
10. Description of source (e.g., manhole cover, pump station, etc.):					
11. Estimated amount <i>(in gallons)</i> of overflow/bypass:					
12. Was overflow disinfected with chlorination?Time chlorination started: Amount of chlorine used:					
13. What actions are being taken to mitigate and/or prevent further occurrences?					

District Foreman

Appendix C Methods for Estimating Spill Volume

Various approaches exist for estimating the volume of a sanitary sewer spill. This appendix documents the three methods that are most often employed. The person preparing the estimate should use the method most appropriate to the sewer overflow in question and use the best information available. Photographs are critical in using any of the spill volume methods.

Method 1 Eyeball Estimate

The volume of small spills can be estimated using an "eyeball estimate". To use this method, imagine the amount of water that would spill from a bucket or a barrel. A bucket contains 5 gallons, and a barrel contains 50 gallons. If the spill is larger than 50 gallons, try to break the standing water into barrels and then multiply by 50 gallons. This method is useful for containing spills up to approximately 200 gallons.

Method 2 Area/Volume Calculations

The volume of most small spills that have been contained can be estimated using this method. The shape, dimensions, and depth of the contained wastewater are needed. The shape and dimensions are used to calculate the area of the spills, and the depth is used to calculate the volume.

- Step 1 Sketch the shape of the contained sewage (see Figure 1).
- Step 2 Measure or pace off the dimensions.
- Step 3 Measure the depth at several locations and select an average.
- Step 4 Convert the dimensions, including depth, to feet.
- Step 5 Calculate the area in square feet using the following formulas:
 - a. Rectangle: Area = length (feet) x width (feet)
 - b. Circle: Area = diameter (feet) x diameter (feet) x .785
 - c. Triangle: Area = base (feet) x height (feet) x 0.5
- Step 6 Multiply the area (square feet) times the depth (in feet) to obtain the volume in cubic feet.
- Step 7 Multiply the volume in cubic feet by 7.5 to convert it to gallons.

Figure 1: Common Shapes and Dimensions



Method 3 Duration and Flowrate

Calculating the volume of larger spills, where it is difficult or impossible to measure the area and depth, requires a different approach. In this method, separate estimates are made of the duration of the spill and the flow rate. The methods of estimating duration and flowrate are:

Duration: The duration is the time that elapsed from when the spill started to when the flow was restored.

Start time: The start time is sometimes challenging to establish. Here are some approaches:

- Local residents can be used to establish start times. Inquire as to their observations. Spills that occur in rights-of-way are usually observed and reported promptly. Spills that occur out of the public view can go on longer. Sometimes, observations like odors or sounds (e.g., water running in a normally dry creek bed) can be used to estimate the start time.
- Changes in flow on a downstream flowmeter can be used to establish the start time. Typically, the daily flow peaks are "cut off" or flattened by the flow loss. This can be identified by comparing hourly flow data during the spill event with flow data from prior days.
- Conditions at the spill site change over time. Initially, there will be limited deposits of toilet paper and other sewage solids. The sewage solids form a light-colored residue after a few days to a week. After a few weeks to a month, the sewage solids turn dark. The quantity of toilet paper and other materials of sewage origin increases over time. These observations can be used to estimate the start time in the absence of other information. Taking photographs to document the observations can be helpful if questions arise later in the process.
- It is important to remember that spills may not be continuous. Blockages are not usually complete (some flow continues). In this case, the spill would occur during the peak flow periods (typically 10:00 to 12:00 and 13:00 to 16:00 daily). Spills that occur due to peak flows in excess of capacity will occur only during, and for a short period after, heavy rainfall.

End time: The end time is usually much more accessible to establish. Field crews observe the "blow down" that occurs when the blockage is removed. The "blow down" can also be observed in downstream flowmeters.

Flow Rate: The flow rate is the average flow that left the sewer system during the time of the spill. There are three common ways to estimate the flowrate:

The Manhole Flowrate Chart: This chart, attached as Page 4, shows sewage flowing from manhole covers at a variety of flow rates. The observations of the field crew can be used to select the appropriate flow rate from the chart. If possible, photographs help document the basis for the flow rate estimate.

- Flowmeter: Changes in flows in downstream flowmeters can be used to estimate the flow rate during the spill.
- Counting Connections: Once the location of the spill is known, the number of upstream connections can be determined from the sewer maps. Multiply the number of connections by 200 to 250 gallons per day per connection or 8 to 10 gallons per hour per connection.

For example: 22 upstream connections x 9 gallons per hour per connection = 198 gallons per hour / 60 minutes per hour = 3.3 gallons per minute

Spill Volume: Once duration and flow rate have been estimated, the volume of the spill is the product of the duration in hours or days and the flow rate in gallons per hour or gallons per day.

For example:

Spill start time = 11:00 Spill end time = 14:00 Spill duration = 3 hours 3.3 gallons per minute X 3 hours X 60 minutes per hour = 594 gallons

Flow Estimation Example Pictures



Appendix D

Common Causes of Sanitary Sewer Overflows (SSO)



Infographic Credit to: Carol Stream, Illinois (Public Works), EPCOR 2023

Appendix E

Public Comments to the Sanitary Sewer Overflow Response Plan

Comment No.	Comment	Subscribe for Future Posts?	Date/Time Submitted	Unique ID	Applicable to SSORP?	Concern Addressed in SSO under		Notes
1	Sewer is backed up and coming out the back of my house	N/A	Nov 5, 2023 04:23 PM	SSOP-ID-0002	NO			Ongoing dialogue with commenter to address concerns. NTUA appreciates being informed about the backup and has scheduled an inspector to view the site.
	This Is NOT a comment. This is a test to see if the comments box has a character limit. Thank you. Ya'a'tééh & Greetings, We take this time to share with you our proposed overall Sanitary Sewer Overflow Response Plans (SSORP). Please read through the description and purpose of the plan. We ask for comments after your review. Please use attached on-line form under the kells to the night. You comments will help us in ensuring each one gets address dand acknowledged. DEADLINE: Please submit comments no later than Friday, December 8, 2023							
2	The objective of the SSORP is to document NTUA's plans for mitigating or preventing potential emergency overflows whenever possible, and to prepare NTUA customers as well as responding agencies and departments to efficiently deal with the effects of such events; and to protect public health, environment, and property.	N/A	Nov 8, 2023 12:19 PM	SSOP-ID-0003	NO	N/A		N/A
3	bealth water cuality. the environment and customer senice- Water, ever waste water is becoming a valuable commodity. I like to suggest two diversion in existing buildings when possible and a requirement for all new buildings. If Greywater Diversion, to the landscape for a lusher green landscape and especially to grow trees for shading during the summer months. Diverting greywater will lessen the flow to septic tanks and even at as a pre-waning of overflow. This is important when a building has a lesk and water quickly fills up the septic tank. 20(3) is the diversion of PEE when possible to degrees the flow to the septic tank, to harvest as a fartilizer and to reduce nitrogen contamination in the groundwater. 95% of all introgen from our bodies is in the pee. State of Arizona has a conservation water grant out right now the we can help you win to install 25 to 100 demonstrations of both concepts. The grant could also be used to replace septic tanks.	N/A	Nov 9, 2023 03:42 PM	SSOP-ID-0004	NO			Ongoing dialogue with commenter to address concerns. Reducing the amount of waterwater entering NTUA's collection system is a worthy goal, but once liquids of any kind enter the collection system and then lare are part of an SSO, that overflow cannot be recycled, re-used or put to any other beneficial use.
4	I have been having problems at home and did not know who to reach out to about my issue there is a sewage small that comes from my main master bedroom n it smells throughout the night we have dealt with it for about a month 1/21 did try to drain some liquid down that Lought from Lowe's n it did take care of some smell. I still continue to smell it especially when I use the hot water.	N/A	Nov 10, 2023 02:41 PM	SSOP-1D-0005	NO			Ongoing dialogue with commenter to address concerns. Contact numbers in the SSORP were revised to clarify who and where to call.
5	Water line not connected.	N/A	Nov 12, 2023 06:32 PM	SSOP-ID-0006	NO			
6	One thing I would recommend is that you have a second site or back up site in case of overflow. That dhis happen in my area and it coverflowed in my varia dan dow have to deal with foundation problems and hole in my variad. Also having a phone number to report on evenings and weekends would have helped. I had to call so many numbers before anyone responded and then the response time was a not long. Better marked or mainsinged mains do na they could not locate the manholes in our area. When they did it was covered and weeks and trees had grown over it.	NO	Nov 15, 2023 01:55 PM	SSOP-1D-0007	YES	Concern #1: Having a back up Site Solution: Although we cannot simply add a second site due to the large scale of our operations, any concerns of overflow are addressed in the section labeled "Restore Flow" Under Paragraph 3	Concern #2: Having a phone number listed in the SSO. Solution: We have listed both the (800) and local number under section "Public Observation of SSO"	Comments noted and NTUA revised the SSORPs where appropriate.
7	Don't know what type of comment you are looking for. We have a septic tank which we are on the list for replacement. We have 2 leach fills because this first one failed after several years. I know getting septic tank service is expensive and a lot of people can not afford to have it pumped.	NO	Nov 16, 2023 09:46 AM	SSOP-ID-0008	NO			
8	No comments	NO	Nov 25, 2023 03:37 PM	SSOP-ID-0009	NO			
9	Sanitation is very important because: Children Elderly People w medical needs to keep sanitation clean	NO	Nov 29, 2023 01:43 PM	SSOP-ID-0011	NO			
10	Santation is very important because: Children Elderly Popole w medical needs to keep santation clean	NO	Nov 29, 2023 01:43 PM	SSOP-ID-0012	NO			
11	Know what you can and can't flush .	NO	Nov 30, 2023 05:12 AM	SSOP-ID-0013	YES	Concern: Having information listed to know what users can and cannot flush. Solution: We have added "Appendix D: Common Causes of Sanitary Sewer Overflows" to inform the public what they can and cannot flush.		Information will also be shared on the NTUA website. Included FOG material
12	No comment	YES	Dec 1, 2023 03:27 PM	SSOP-ID-0015	NO			
13	Current I am not tapped into the sewer line. I have a septic that has to be pumped by an outside source. I would be nice to have a local septic service locally. Jam interested in a sewage line down our lane on farm road 1 st lane. We are next to the main farm road.	YES	Dec 4, 2023 11:40 AM	SSOP-ID-0016	NO			
14	My issue does not pertain to wastewater because our household does not have a waterline or sewage line. I applied to NTUA for a waterline but no one has did an assessment. It would be great if I can get a response on my application. Thank you.	YES	Dec 5, 2023 07:05 PM	SSOP-ID-0017	NO			Ongoing dialogue with commenter to address concerns. The comment is not relevant to the draft SSORP but NTUA made contact with the commenter. The NTUA Project Manager had determined that the customer is waiting on feasibility studies from NECA.
15	Will this overflow be going into the Chinie Lagoon and into the Naziini wash (Greenriver). As it is, now the road isn't crossable due to lagoon water flowing through on NR 8085. NTUA doesn't help with the crossing of where the sewer runs in the wash.				NO			Ongoing dialogue with commenter to address concerns. There have been many initiatives by the family to get this issue resolved, and was addressed by the chapter. The issue however is with the roads and DOT. NTLA is still gathering information from the commenter to ensure we are doing all that we can to
<u> </u>	Will the your elderly customers receive a discount if they are requiring this service?	NU	uec 6, 2023 03:12 PM	550P-ID-0018	<u> </u>			neip.
16	How will the customers be prioritized?	YES	Dec 7, 2023 08:52 AM	SSOP-ID-0019	NO			

Appendix F

NTUA Job Briefing Report (Tailgate Session)

	(TAILGATE SESS	ION)
tion:		Date:
c Order/Project:		
rgency Number(s) Police:	EMS:	Other:
Job at Hand with Associated I	Hazards:	
Work procedures involved:		
Special precautions:		
Energy source control:		
Personal protective equipmer	t requirements:	
Equipment required:		
References:		
Weather:		
Debriefing:		
Miscellaneous:		
gnature of Crew Members:		
	2	3
	5	6
	ö	9 12

Appendix G

Chinle Probable SSO Event Location Map



Kayenta Probable SSO Event Location Map





Tuba City Probable SSO Event Location Map

Appendix H

NTUA SSO Telephonic Report



NAVAJO TRIBAL UTILITY AUTHORITY TELEPHONIC REPORT SANITARY SEWER OVERFLOW

Caller Information

Time Call Received:	<u>a</u> .	n./p.m.	Date:		
Name of Caller:		Caller's Phor	ne Number: 🔤		
Name of customer (if	not caller):				
Address of Leak:					
Description of Compla	aint:				
Example: Visible Ove	orflow, water/wastowater b	ubbling up Strop	ng odor stand	ing or pooling of	

Example: Visible Overflow, water/wastewater bubbling up, Strong odor, standing or pooling of water/wastewater

Will someone be home for us to check the leak? Yes () No ()

Appendix I

Helpful Tips for Cleaning Sewer Backups

HELPFUL TIPS FOR SELF CLEANING SEWER BACKUPS

Overview

When a sewer backup is caused by a problem in a private building sewer, the property owner must take care of the cleanup.

MSD strongly suggests you consider hiring a certified water/flood restoration company for professional cleaning services.

But, if you decide to clean it up yourself, here are some recommendations for cleaning it up safely:

Staying Safe and Healthy

A sewer backup can cause more than just a big mess. Water from a sewer backup can create possible health and safety hazards, as well as damage to your property. After the water goes down, it's important to take steps to minimize risks.

- Avoid shocks or explosions. Gas or electric equipment and appliances may become hazardous in the presence of water.
 - After a severe sewer backup (several or more inches of water), you may need to contact the power company to shut off your electric and/or gas.

Cleaning the Property

Step 1: Document the Damages

Step 2: Drain or Pump Out Any Standing Water

Step 3: Sort Contaminated Items

- Anything that has been touched by water from a sewer backup is contaminated.
- Items that CANNOT be cleaned and disinfected can harbor the germs found in the backup water or create an environment for mold growth.
- We recommend disposing of all items that CANNOT be cleaned.

Step 4: Remove Contaminated Items

- Place everything that cannot be cleaned and disinfected into heavy-duty garbage bags. Tie these bags tightly and remove them from your house.
- Cut out any affected carpet, padding, drywall, and paneling and remove them from your house.
- Do not touch any electrical equipment or step in puddles or standing water where electric appliances are present until the electric is shut off.
- Do not light matches or try to relight pilot lights, in case of a gas leak.
- Keep children and pets away from areas where sewage backed up.
- Protect yourself. Sewer backup waters may contain bacteria, viruses, and other germs that can make you sick. Avoid skin contact with contaminated areas and items by wearing rubber boots, gloves, and protective eyewear. If you have any cuts or sores, be sure to cover them with bandages.
- Do not touch your mouth, eyes, or nose while you are cleaning.
- Do not track possible contamination into other parts of your house. Remove your boots before walking from the sewer backup area to other areas of your house. Wash your work clothes in hot water.
- Wash your hands with antibacterial soap and warm water after being in the affected area.



Step 5: Clean and Disinfect Items

- Clean hardwoods, metals, plastics, house/building foundation, and tile flooring using a detergent solution.
- Let the items air dry
- Then, disinfect with a solution of one part chlorine bleach to nine parts water.

Step 6: Dry/Dehumidify the Area

 Drying the area of the sewer backup is important to prevent mold and mildew. Use large fans and dehumidifiers to remove moisture from the area. This process can take a few days, depending on the size and scope of the area.

1



¹ Tips from the Customer Guide to Sewer Backups and Other Issues from the Metropolitan Sewer District of Greater Cincinnati, <u>https://msdgc.org/sites/default/assets/downloads/programs/Sewer Backup Program/Customer Guide to Sewer Backups.pdf</u>.