

Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	09/09/2024 to 09/12/2024			
Media Program:	Water			
Regulatory Program(s)	CWA – NPDES			
Facility Name:	Los Alamos National Laboratory			
Company Name:	Managed by Triad National Security, LLC for the United States Department of Energy's National Nuclear Security Administration			
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FRS Number:	110010571880			
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LIST OF ACRONYMS

CWA	Clean Water Act (CWA)	NNSA	National Nuclear Security Administration
DOE	United States Department of Energy	PLC	programmable logic controller
EPA	Environmental Protection Agency	RLW	radioactive liquid waste
HE	high explosives	RLWTF	Radioactive Liquid Waste Treatment Facility
HEWTF	High Explosive Wastewater Treatment Facility	RO	reverse osmosis
LANL	Los Alamos National Laboratory	SCC	Strategic Computing Center
LANSCC	Los Alamos Neutron Science Center	SERF	Sanitary Effluent Reclamation Facility
LDCC	Laboratory Data Computing Center	SET	Solar Evaporation Tanks
LEDA	Low Energy Demonstration Accelerator	SMO	Sample Management Office
LLW	low-level (radioactive) waste	SWQB	Surface Water Quality Bureau
MES	mechanical evaporation system	SWWS	Sanitary Wastewater System
MW	Mega Watt	TA	Technical Area
NHMFL	National High Magnetic Field Laboratory	TRU	transuranic
NMAC	New Mexico Administrative Code		
NMED	New Mexico Environment Department		

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

Environmental Protection Agency (EPA) Region 6 inspector, Amy Andrews, and New Mexico Environment Department (NMED)/ Surface Water Quality Bureau (SWQB) inspector, Shawnee Suazo, arrived at the Los Alamos National Laboratory (LANL) on September 9, 2024, for an announced inspection. LANL is managed by Triad National Security, LLC (Triad) for the United States Department of Energy (DOE)’s National Nuclear Security Administration (NNSA). We met with the personnel named on the coversheet of this inspection report. I presented my credentials to Ms. Griffin and informed her that this was a joint inspection between EPA and NMED to determine compliance with the facility’s National Pollutant Discharge Elimination System (NPDES) permit, Number NM0028355, and the Clean Water Act (CWA). The inspection was conducted under the authority of the NPDES permit program, in accordance with the Federal CWA. This report is based on information supplied by LANL representatives (the permittee), observations made by the EPA inspector, and records and reports maintained by the permittee and the EPA. NMED staff accompanied EPA for training purposes.

The schedule of the inspection was as follows: Inspectors arrived at LANL Technical Area (TA) 59 field offices at approximately 2:00 PM on September 9, 2024, to conduct an entrance interview (made introductions, presented credentials, and discussed the purpose of the inspection). The entrance interview was concluded at 2:50 PM, at which time inspectors were escorted to the LANL Badge Office for security purposes. Every day of the inspection, inspectors met with Ms. Griffin and Mr. Dailey, who escorted the inspectors to all locations. Tours of all outfalls and most associated treatment facilities were conducted on September 10, 11, and 12, 2024. On September 12, 2004, the closing conference was conducted at approximately 4:00 PM, and inspectors exited the facility by 4:30 PM.

Tours of the treatment facilities and associate outfalls were conducted in the following order:

September 10, 2024	September 11, 2024	September 12, 2024
Morning	Morning	Morning
▪ Treatment facility of the Power Plant (Building 22), ▪ Outfall 001, ▪ Outfall 03A027, ▪ Outfall 03A199, and ▪ SWWS and associated Outfall 13S	▪ Cooling tower blowdown treatment facility of the NHMFL and associated Outfall 03A160 ▪ Outfall 03A022 (previously named Outfall 04A022)	▪ RLWTF and associated Outfall 051
Afternoon	Afternoon	Afternoon
▪ HEWTF and associated Outfall 05A055 ▪ Cooling tower blowdown treatment facility of LANSCE and associated Outfall 03A048 ▪ Cooling tower blowdown treatment facility of LEDA and associated Outfall 03A113	▪ Outfall 03A181 ▪ Water Quality Laboratory and Sample Management Office (SMO)	▪ SERF Treatment Plant

Note: acronyms are defined on Page 2

FACILITY DESCRIPTION

Under assigned NPDES permit number NM0028355, LANL is classified as a major industrial discharger under Section 402 of the CWA and NPDES program. This permit authorizes sanitary and process industrial discharges from eleven (11) outfalls located at seven (7) Technical Areas spread out over an approximately 36-square-mile area within the Laboratory boundaries (see table below). Discharge is to receiving waters named: Perennial portion of Sandia Canyon in Waterbody Segment Number 20.6.4.126 (NMAC, *State of New Mexico Standards for Interstate and Intrastate Surface Waters*), and Mortandad Canyon, Canada del Buey, Los Alamos Canyon, ephemeral portion of Sandia Canyon, Ten Site Canyon, and Canon de Valle, in Waterbody Segment Number 20.6.4.128 NMAC of the Rio Grande Basin. Segment 20.6.4.126 includes the designated uses of coldwater aquatic life, livestock watering, wildlife habitat and secondary contact. Segment 20.6.4.128 includes the designated uses of livestock watering, wildlife habitat, limited aquatic life and secondary contact.

Outfall Number	Technical Area	Receiving Stream	Type of Discharge	Potential Discharge Sources
001	TA-3	Sandia Canyon	Continuous	Power Plant (Building 22) cooling water SWWS Facility Effluent SERF Effluent Treated cooling water blowdown from the SCC
13S	TA-46	Canada del Buey	Currently no discharge – Effluent routed to Outfall 001 or recycled to SERF for reuse	SWWS Effluent
051	TA-50	Mortandad Canyon	Batch/Intermittent OR Effluent routed to Evaporator	RLWTF Effluent
03A022	TA-3	Mortandad Canyon	Intermittent	Treated non-contact cooling water and stormwater from roof drains of Building TA-3-66
03A027	TA-3	Sandia Canyon	Intermittent/Primary flow was routed to Outfall 001 in 2016 OR recycled to SERF for reuse	Treated cooling water blowdown from the SCC
03A048	TA-53	Los Alamos Canyon	Intermittent	Treated cooling water blowdown from LANSCE cooling towers
03A113	TA-53	Sandia Canyon	Intermittent	Treated cooling water blowdown from LEDA cooling towers
03A160	TA-35	Mortandad Canyon	Intermittent/Routed to SWWS in May 2018	Treated cooling water blowdown from the NHMFL
03A181	TA-55	Mortandad Canyon	Intermittent	Treated cooling water blowdown from TA-55
03A199	TA-3	Sandia Canyon	Intermittent	Treated cooling water blowdown from the LDCC
05A055	TA-16	Water Canyon / Canyon de Valle	Intermittent / Typically routed to Evaporator	HEWTF Effluent

Note: acronyms are defined on Page 2

OUTFALL 001 & SERF DESCRIPTION

Outfall 001 is located at TA-3 and discharges to a perennial reach of Sandia Canyon in Water Quality Segment 20.6.4.126 NMAC of the Rio Grande Basin. It is a continuous discharge with a monthly average flow rate of 0.154 MGD and the daily maximum flow rate is 0.333 MGD. The discharge from this outfall creates a perennial portion of Sandia Canyon that is effluent dominated. The outfall discharges on average 0.050 MGD of cooling water from the power plant, 0.026 MGD treated sanitary wastewater effluent from the Sanitary Wastewater System (SWWS) Facility, 0.040 MGD recycled sanitary effluent from the Sanitary Effluent Reclamation Facility (SERF), and 0.051 MGD treated cooling tower blowdown from the Strategic Computing Complex (SCC). See Outfall 13S Description for SWWS treatment process.

The Co-Generation Power and Steam Plant provides steam heating to most of the buildings at TA-3. Makeup water is supplied to the pump/fan bearings to provide once through cooling. The cooling water is routed to the power plant cooling towers and allowed to cool. There are currently no chemicals added to the makeup water or cooling towers. The cooled water overflows from the cooling tower basin and is routed to Manhole A and de-chlorinated prior to discharge to Outfall 001.

The SERF provides tertiary treatment of Treated SWWS effluent so that it can be reused/recycled as makeup water in the cooling towers at the Laboratory. The SWWS effluent is collected in the Reuse Tank, located at the Power Plant, then rerouted to SERF. At the SERF the SWWS effluent is treated to remove naturally occurring silica using precipitation, pH control, microfilters, and reverse osmosis. The treated water is stored in a tank and then blended with untreated SWWS effluent prior to being discharged to Outfall 001 and/or to the SCC Cooling Towers for use as makeup water. At the SCC Cooling Towers, the SERF Effluent is used as makeup water and circulated through the towers, chillers, and then blown down to Outfall 03A027 and/or to Outfall 001. The blowdown can also be discharged to the SWWS Facility or back to the SERF for treatment.

The SCC currently has ten cooling towers that provide cooling water to the chillers and heat exchangers to support cooling of computers, equipment, and the building office areas. Makeup water is fed to the tower basins, circulated through the facility chillers and heat exchangers, and routed back to the cooling towers multiple times before it is blown down and recharged with fresh makeup water. The cooling towers are maintained by two identical water treatment systems that draw a small amount of water from the basin discharge line (for circulation and/or blowdown) into a process logic controller and monitoring system to determine conductivity and chlorine content. This system determines the amount of water treatment chemicals and makeup water added to the tower basins. It also determines the amount and rate of blowdown from the tower.

OUTFALL 13S & SWWS DESCRIPTION

Outfall 13S is located at TA-46 and discharges to Canada del Buey, an ephemeral reach in Water Quality Segment 20.6.4.128 NMAC. The outfall was the primary discharge point of effluent from SWWS before it was re-routed to discharge from Outfall 001. Outfall 13S is still capable of discharging treated sanitary wastewater effluent from the Sanitary Wastewater System (SWWS) Facility. The SWWS Facility treats sanitary wastewater, process water (i.e., laboratory rinse water, reverse osmosis concentrate, industrial water) and cooling water (i.e., once through cooling water, cooling tower blowdown) discharged to the sanitary sewer and/or collected in storage containers/tanks from all technical areas at the Laboratory. All wastewater discharged to the SWWS Facility for treatment must comply with the

facility's Waste Acceptance Criteria and, if it is something other than sanitary waste (i.e., cooling water, process water), must have a completed/approved Waste Stream Profile Form.

Wastewater flows to the SWWS Facility by gravity through the collection system and into a mechanical bar screen which removes large solids and then through a grit chamber to a splitter box, where glycerin (a carbon food source for the microorganisms) and soda ash (to adjust the alkalinity) are added before the wastewater is routed to the two Equalization Basins and then the four aeration basins. Dog food is added to the Aeration Basis to promote microorganism health and growth as needed. From the Aerations Basins the wastewater is routed to the secondary clarifier. One clarifier is being used as a digester and the second is used as a clarifier. The clarified water is routed to the chlorine contact chamber to be disinfected. The chlorine is generated by a mixed oxidant (MIOX) treatment unit that uses brine water and electrophoresis to create a mixed oxidant solution that is used for disinfection. Disinfected water is discharged from the chlorine contact chamber to the Effluent Holding Pond for storage until it can be pumped to the Reuse Tank at the Power Plant or discharged to Outfall 13S. If disinfected water is to be discharged to Outfall 13S, the effluent is dechlorinated immediately prior to discharge. Disinfected water pumped to the reuse tank is dechlorinated at the Power Plant Manhole A as it is discharged to Outfall 001.

OUTFALL 051 & RLWTF DESCRIPTION

Outfall 051 is located at TA-50 and discharges to Effluent Canyon which is a tributary to Mortandad Canyon in Water Quality Segment 20.6.4.128 NMAC. The outfall discharges treated radioactive liquid waste effluent that originates at TA-50-1. The discharge is comprised of treated effluent from the Radioactive Liquid Waste Treatment Facility (RLWTF). The RLWTF receives and treats radioactive liquid waste (RLW) process, cooling, and/or storm water from various generator facilities located throughout LANL. All wastewater that is discharged to the facility must comply with the facility's Waste Acceptance Criteria and must have a completed and approved Waste Stream Profile Form prior to its discharge. The RLWTF collection system is a set of underground double walled piping and vaults that conveys water to TA 50 from generators at LANL. The treatment operations include the following:

- Main low-level waste (LLW) treatment includes influent collection and storage. LLW treatment includes the addition of chemicals to the influent in reaction tanks, filtration, ion exchange, and reverse osmosis (RO). Treated effluent may be discharged to the NPDES Outfall 051, the Solar Evaporation Tanks (SET) located at TA-52, or the mechanical evaporation system (MES) located at TA-50-257. The main LLW treatment process generates solids/sludge and RO concentrate that is routed to the secondary treatment process.
- The transuranic (TRU) treatment includes influent collection, storage, TRU treatment, and sludge concentration, and sludge solidification. The treated effluent water from the TRU treatment process is not discharged to the environment, it either receives additional treatment in the Secondary RO or it is sent to the bottoms storage tanks located at TA-50-248. Sludge from the TRU treatment process is concentrated, solidified with cement in a drum tumbler, and shipped to the Waste Isolation Pilot Plant as a solid TRU waste for disposal.
- Secondary treatment consists of a rotary vacuum filter to treat sludge from the main LLW treatment process, a secondary RO to treat RO concentration from the main LLW treatment process and/or effluent from the TRU treatment process, and bottoms storage tanks located at TA-50-248 for RO concentrate. Treated water is either stored as bottoms or routed back to the main LLW reaction tanks. Sludge from the rotary vacuum filter is drummed and shipped offsite for disposal as LLW radioactive solid waste. Bottoms from the storage tanks are shipped offsite in tanker trucks for disposal as LLW radioactive solid waste.

OUTFALL 03A022 DESCRIPTION

Outfall 03A022 is located at TA-3 and discharges to Mortandad Canyon, Water Quality Segment 20.6.4.128 NMAC. The information available about the discharge going to Outfall 03A022 is based upon dye testing, historical building drain information, process equipment observations, and best engineering judgement. Outfall 03A022 has previously been referred to as 04A022 but was renamed due to internal LANL outfall category determinations (treated vs untreated cooling tower blowdown). Outfall 03A022 receives discharges of treated once through cooling water potentially from the facility circulating water tank/sump overflow located in the basement of TA-3-66 and/or from the facility Air Washers located in the TA-3-66 mezzanine (overflows when the building cooling demand is high and the units are set to “sustain” (not routine)), emergency treated once through cooling water from the foundry cooling system, and storm water from the TA-3-66 Area J and K roof drains. The cooling and storm water from TA-3-66 is de-chlorinated using de-chlorination tablets that are located at Outfall 03A022.

OUTFALL 03A027 DESCRIPTION

Outfall 03A027 is located at TA-3 and discharges to a perennial reach of Sandia Canyon in Water Quality Segment 20.6.4.126 NMAC. The outfall is capable of discharging treated cooling water that originates from the Strategic Computing Complex (SCC) at TA-3-2327. The cooling tower blow-down is comprised of potable water and/or recycled Sanitary Wastewater System (SWWS) effluent from the Sanitary Effluent Reclamation Facility (SERF) that is treated by the cooling tower water treatment system. The SCC currently has ten cooling towers that provide cooling water to the chillers and heat exchangers to support cooling of computers, equipment, and the building office areas. Makeup water is fed to the tower basins, circulated through the facility chillers and heat exchangers, and routed back to the cooling towers approximately 2-3 times before it is blown down and recharged with fresh makeup water. The cooling towers are maintained by two identical water treatment systems that draw a small amount of water from the basin discharge line (for circulation and/or blowdown) into a process logic controller and monitoring system to determine conductivity and chlorine content. This system determines the amount water treatment chemicals and makeup water added to the tower basins. It also determines the amount and rate of blowdown from the tower. The blowdown from the SCC Cooling Towers can be routed to discharge at Outfall 03A027; discharge at Outfall 001; the Reuse Tank at the Power Plant for recycle at SERF; or discharge to the SWWS treatment plant. The route of the blowdown is determined by demand, volume, and outfall/equipment availability.

OUTFALL 03A048 DESCRIPTION

Outfall 03A048 is located at TA-53 and discharges to ephemeral tributary to Los Alamos Canyon in Water Quality Segment 20.6.4.128 NMAC. Outfall 03A048 receives cooling tower blowdown from two water treatment systems that each treat a set of five cooling towers (ten total) that serve the LANSCE Facilities at TA-53-963, 964, 978, and 979. The five West Cooling Towers located at TA-53-963 cool the magnets, targets, and other equipment along the beam line at LANSCE. The five East Cooling Towers located at TA-53-978 cool targets and other equipment along the beam line. Each water treatment system includes an automatic chemical feed system which can add treatment chemicals, add makeup water, and/or blowdown the towers. Bromicide and corrosion inhibitor are added to the cooling water along with makeup water prior to being circulated through the cooling towers. The cooling loop includes a bag filter to reduce the particulates that concentrate in the system. The de-chlorination chemical is added to the blowdown line.

OUTFALL 03A113 DESCRIPTION

Outfall 03A113 is located at TA-53 and discharges to an ephemeral reach of Sandia Canyon in Water Quality Segment 20.6.4.128 NMAC. The outfall discharges treated cooling water that originates at TA-3-950 and 952. Outfall 03A113 receives cooling tower blowdown from the Low Energy Demonstration Accelerator (LEDA) Cooling Tower and associated water treatment system located at TA-53-952 and 950, respectively. The cooling tower provides cooling to the former LEDA beam line operations. The water treatment system includes an automatic chemical feed system which can add treatment chemicals, add makeup water, and/or blowdown the tower. Bromicide and corrosion inhibitor are added to the cooling water along with makeup water prior to being circulated through the cooling tower. The cooling loop includes a bag filter to reduce the particulates that concentrate in the system. The de-chlorination chemical is added to the blowdown line.

OUTFALL 03A160 DESCRIPTION

Outfall 03A160 is located at TA-35 and discharges to Ten Site Canyon, A tributary to Mortandad Canyon, in Water Quality Segment 20.6.4.128 NMAC. The outfall discharges treated cooling water that originates from the National High Magnetic Field Laboratory (NHMFL). The cooling towers provide cooling water to a process heat exchanger which cools a 1400 Mega Watt (MW) generator (TA-35-301) and power supplies (TA-35-294), and Helium recovery system (TA-35-294). These towers and the associated heat exchanger are maintained using a chemical corrosion inhibitor. The towers may be operated year-round and include conductivity sensors to control blow down and the addition of makeup water. Blowdown from the towers is routed to the Sanitary Wastewater System (SWWS) facility or may be discharged to Outfall 03A160. The NHMFL is currently constructing a water treatment system for the cooling towers. This system will add corrosion inhibitor and biocide to the towers automatically using a programmable logic controller (PLC) monitoring system. The discharge to Outfall 03A160 was routed to SWWS on May 5, 2018. It is the intent of the facility to no longer discharge to the outfall unless there is an operational upset that prevents cooling water from being discharged to the SWWS.

OUTFALL 03A181 DESCRIPTION

Outfall 03A181 is located at TA-55 and discharges to Effluent Canyon which is a tributary to Mortandad Canyon in Water Quality Segment 20.6.4.128 NMAC. The outfall discharges treated cooling tower blowdown that originates at TA-55-006. The cooling tower water supply line has a chemical injection unit with a chemical feed line. The water treatment system is controlled manually, where operators monitor properties such as pH, and conductivity, and add biocide as needed. The blowdown water comes off the cooling tower pump discharge through a solenoid valve and a flow totalizer where part of the blowdown is routed through a turbulator, which adds the chlorine reduction/scavenger chemical, if the water is routed to Outfall 03A181.

OUTFALL 03A199 DESCRIPTION

Outfall 03A199 is located at TA-3 and discharges to an ephemeral tributary to Sandia Canyon in Water Quality Segment 20.6.4.126 NMAC. The outfall discharges treated cooling tower blowdown that originates from the Laboratory Data Communications Center (LDCC) at TA-3-1837. The LDCC currently has three cooling towers that provide cooling water to the chillers to support cooling of computers and building systems. Makeup water is fed to the cooling tower basins,

circulated through the facility chillers, and routed back to the cooling towers approximately 2-3 times before it is blown down and recharged with fresh makeup water. The cooling tower is maintained by a water treatment system that draws a small amount of water from the basin discharge line into a process logic controller and monitoring system to determine conductivity and chlorine content. This system determines the amount and adds water treatment chemicals to the basin. The LDCC Cooling Towers are treated with corrosion inhibitor, biocide, a pH adjustment chemical, and small amounts of tracing/monitoring chemicals. The PLC/monitoring system also determines the blowdown rate. Blowdown is discharged to Outfall 03A199 or may be discharged to the SWWS. The de-chlorination chemical is added to the blowdown as it is discharged to Outfall 03A199.

OUTFALL 05A055 DESCRIPTION

Outfall 05A055 is located at TA-16 and discharges to an ephemeral tributary of Canon De Valle in Water Quality Segment 20.6.4.128 NMAC. The outfall discharges treated wastewater that originates at TA-16-1508 at the High Explosives Wastewater Treatment Facility (HEWTF). The HEWTF receives and treats high explosives (HE) contaminated process and/or storm water from various sumps, tanks, and facilities at TA-9 and TA-16. All water that is received at the HEWTF must comply with the Waste Acceptance Criteria, must have a completed and approved Waste Stream Profile Form, and is tracked in a water treatment logbook. The HE contaminated wastewater and storm water is collected by pumper truck and discharged to one of two sand filters where it is filtered to remove solids. The filtered water from the sand filters is collected in a belowground storage tank and then pumped through cartridge filters to an equalization tank at the HEWTF. The wastewater from the equalization tank is circulated through Granular Activated Carbon (GAC) and/or Ion Exchange (IX) to remove residual HE, barium, perchlorate, and other contaminants. The treatment process is designed to circulate the wastewater through the process multiple times prior to storage in the post treatment tanks and discharge to either electric evaporators or to Outfall 05A055. The HEWTF operations may include bypass of either the GAC tanks and/or IX columns when discharging to the electric evaporator(s).

Section II – OBSERVATIONS

Observations are not listed in order that they were observed.

GENERAL PROGRAMMATIC OBSERVATIONS

- The LANL Triad Environmental Protections and Compliance – Compliance Programs (EPC-CP) has a total of 85 team members, of which, three (3) employees are full time samplers who do work on all LANL permits from NMED and EPA, including stormwater. There are several other employees who are also qualified to help with sampling as needed but is not their primary job role.
- Sample results management is conducted inside Environmental Information Management (EIM). Electronic Data Deliverables (EDDs) from the various laboratories are input directly to EIM. EIM generates the DMR values to be reported, and facility personnel download a spreadsheet of the data for verification.
- Rinse water generated during sampling events is collected and disposed-of down the Water Quality Laboratory sink, which goes to the RLWTF.

- The Water Quality Laboratory has a refrigerator where samples are stored prior to shipment, but no temperature log to verify that samples remain at the proper temperature.
- Most liquid laboratory reagents are only good for one year after opening (unsealing of the lid), however pH buffers from some manufacturers are stated to last less time than this. On the date of this inspection, the pH buffer solutions had an opened-on date, but also need a recalculated expiration date based on the earlier of either the manufacturer's printed expiration date, or the amount of time from opening.
- pH buffer solution should not be reused for multiple calibrations, as this can cause drift in calibration values.
- All sample bottles and sample preservative are purchased by the Sample Management Office (SMO) for direct use EPC-CP samplers rather than being shipped to LANL by the laboratories. SMO also handles sample packaging and shipping.

OUTFALL 001 & SERF OBSERVATIONS

- The main purpose of the Sanitary Effluent Reclamation Facility (SERF) is to remove silica from the cooling tower makeup water. SERF also removes calcium and magnesium from the makeup water, but these are not the primary concern. SERF allows LANL to reuse the cooling water around seven or eight times, rather than the normal 1.8 to 2.2 reuse times, saving significant quantities of water over time. Prior to SERF implementation, the cooling towers had to be cleaned (scraped and pressure washed) around three times per year; now they are able to clean the towers once per year, mostly for windblown dust rather than silica buildup.
- SERF processes between 110,000 to 120,000 gallons of water per day.
- SERF is able to reuse almost 100 percent of the water during the summer, but during the winter it does need to discharge some of the water due to colder temperatures (not needing as much cooling power).
- The effluent from SERF is always blended with SCC cooling water and SWWS effluent prior to discharge at Outfall 001.
- The Strategic Computing Complex (SCC) added 5 more cooling towers to its cooling system. This project was completed in 2020.
- A piping modification was completed in 2019 that altered the flow path of effluent stored in the Reuse Tank to be routed (as needed) to the power plant cooling tower to allow for cooling of effluent prior to discharge.
- A piping modification was completed in 2019 to allow for blowdown associated with the Strategic Computing Complex (SCC) Cooling Towers to be routed to the Reuse Tank where (as needed) it can either be recycled to SERF or routed to the power plant cooling tower prior to discharge.
- Piping modification to allow for effluent stored in the Reuse Tank to be routed (as needed) to the power plant cooling tower prior to discharge.
- Plans to route TA-55 Cooling Tower blowdown, to the Reuse Tank at TA-3 have been canceled.
- Outfall 001 was having TRC exceedances due to the dechlorination (liquid sodium bisulfate) lines freezing. Permittee has built a building to keep the lines from freezing. The building has two delivery meters and spill containment.

- The sample at Outfall 001 is collected via two ISCO autosamplers. One autosampler is dedicated to PCB sampling, due to prior false positive samples for PCBs. The other autosampler is used for various other regulated samples. On the date of this inspection the autosampler was collecting a WET test sample.
- On the date of this inspection, the thermometer used to monitor temperature of the sample collection in the ISCO autosampler used for Whole Effluent Toxicity (WET) test was touching the bottom of the glass. This could result in an improper storage temperature reading of the collected sample.
- Surrounding vegetation near outfall 001 was overgrown on the date of this inspection.
- Concrete structure surrounding the outfall was deteriorating and many cracks were visible.
- The flow meter at Outfall 001 is 9-inch Parshall Flume. There is turbulence in the bottom of the flume, at the location the electronic flow meter collects the flow level. The flow rate table for the flume was present in the electronic flow meter box.
- The staff gauge at the effluent Parshall Flume had algae buildup and was damaged at the current flow level, making it impossible to read. Facility personnel were unable to provide documentation showing that they check the electronic flow meter against the primary flow meter on a regular basis; This verification must be done monthly.

OUTFALL 13S & SWWS OBSERVATIONS

- Outfall 13S has not reported a discharge since October 2014.
- SWWS is gravity-fed from 50 lift stations, which means the influent will continue to flow if power is lost.
- SWWS does not generally have inflow/infiltration (I/I) issues unless there are large amounts of snow melt (several feet). Manholes around LANL have been replaced with secondary containment covers that have made a significant difference in preventing I/I.
- The Waste Acceptance Criteria Program is similar to a voluntary Pretreatment Program under 40 CFR 403. Industrial dischargers to SWWS are required to fill out a Waste Stream Profile Form and get the form approved by LANL EPC-CP personnel prior to discharging industrial waste. Signs are posted at sinks and drains that go to SWWS as a warning to prevent accidental discharge of industrial wastes without the Waste Stream Profile (see Photo XX in Appendix 1).
- All SWWS plant operators are certified by the State of New Mexico in accordance with 20.7.4 NMAC.
- The laboratory at SWWS is dedicated to SWWS operational samples; they do not run NPDES compliance samples at this laboratory.
- SWWS could discharge to Outfall 13S within a couple of hours if needed, however several valves and the outfall pipe cover would have to be opened to discharge (could not happen accidentally).

OUTFALL 051 & RLWTF OBSERVATIONS

- Outfall 051 is from the Radioactive Liquid Waste Treatment Facility (RLWTF), which is gravity-fed by 4 miles of underground collection system pipe and 63 vaults. All piping and vaults have leak detection. A small amount of hauled waste is also accepted.
- All influent is industrial process waste, characterized in the Waste Acceptance Criteria Program prior to discharge. No sanitary waste is accepted.
- The Influent Storage Facility includes six (6) 50,000-gallon tanks for extra capacity. This was a “lessons learned” from the Cerro Grande forest fire. Some of the buildings are designed to flood if they catch fire to mitigate other radioactive hazards. The plant is designed to accept (via gravity) all the water from these buildings, so influent flows can be quite high during a fire. This plant always maintains at least a small crew of operators, even during evacuations.
- There is a requirement from NMED Ground Water Quality Bureau to permanently remove from service all single walled tanks to prevent future leaks. This process is referred to as “stabilization” and includes draining, epoxy coating the tanks, and sealing all in/out pipes.
- Effluent from the RLWTF either goes to Outfall 051 or to the mechanical evaporator. There are future plans for solar evaporation ponds, which are expected to come online in 2026 or 2027.
- Discharge to Outfall 051 is by batch discharge. A sample is collected from a recirculation line immediately after the last treatment rather than at the end of the outfall pipe.
- The effluent is high-quality, purified by reverse osmosis, and effluent must have ions and hardness added in prior to being sent to Outfall 051, or the effluent will fail the WET test.
- It takes seven (7) or eight (8) hours to discharge a batch (10,000 to 12,000 gallons) to the outfall. It takes significantly longer to evaporate the batch.
- Discharge is currently sent to the outfall only a few times per year, however operators would like to switch to a quarterly schedule. It is preferred to send discharge to the mechanical evaporator during winter to avoid freezing of pipelines.

OUTFALL 03A022 OBSERVATIONS

- Discharges to Outfall 03A022 come from a cooling tower for the building, a foundry, machining equipment, laboratory equipment, and building air conditioning. Power loss to the building or loss of water pressure in the cooling system causes city water to turn on to cool the equipment, which results in the building sump overflowing to the outfall. Discharges used to be very rare but are now around three or four times per year.
- Outfall 03A022 is equipped with an ISCO autosampler in case of emergency discharge.
- There is no flow meter at this outfall, flows are estimated with a watch and a bucket (as allowed by the NPDES permit).
- Currently dechlorination tablets are located at the outfall, but there are plans to upgrade the sump to handle higher flows, which will require a better dechlorination system.

- The building sump concrete contains PCBs that sometimes show up in the sampling analytical results. There is a plan, scheduled for the holiday break, to paint/seal the concrete to prevent future PCB migration. Until the concrete is sealed, they are trying to minimize discharges.

OUTFALL 03A027 OBSERVATIONS

- Outfall 03A027 has not discharged since 2016; multiple valves and the outfall cover would need to be opened to discharge.
- The flow meter is at the SCC prior to the valve that directs the flow to Reuse. Probably would never split flow to both Outfall 03A027 and Reuse at the same time, however permittee is not confident that they could measure partial flow rates if that did happen.

OUTFALL 03A048 OBSERVATIONS

- Inspectors were able to observe sample collection for total residual chlorine (TRC) at Outfall 03A048.
- The inline compliance flow meter is verified weekly against a clamp-on ultrasonic meter attached to the pipe.

OUTFALL 03A113 OBSERVATIONS

- The inline compliance flow meter is verified weekly against a clamp-on ultrasonic meter attached to the pipe.
- There is a floor drain in the water treatment system room that drains to SWWS.
- Outfall 03A113 is a small black pipe located next to a large, corrugated stormwater pipe.
- This facility discharges a maximum of about once per day.

OUTFALL 03A160 OBSERVATIONS

- The National High Magnetic Field Laboratory Project, and the associated cooling towers that discharge to Outfall 03A160, are under construction and are not currently discharging. The project is separating the large cooling tower from the small systems in the building to save energy and water. The expected project completion is January 2025.
- The last reported discharge was in 2018.
- At the time of the inspection the two new tanks and cooling tower were sitting unassembled on the ground near the building.
- This outfall has the potential to discharge effluent containing copper contaminants, therefore ion exchange is required prior to discharge to prevent this issue.
- Outfall 03A160 is a culvert in the ground with the outfall pipe on a canyon cliff face. Due to safety hazards of scaling the cliff face, the sample location is after all treatment but prior to actual discharge location.
- Operators at this treatment system would like to switch to solid chemicals instead of liquid due to safety hazards associated with moving liquid tanks in muddy winter conditions.

OUTFALL 03A181 OBSERVATIONS

- Outfall 03A181 discharges water from the water treatment system for the cooling towers at TA-55, the Radioisotope Thermoelectric Generator Assembly, and is run by operators of TA-55.
- This system discharges daily and is controlled manually.
- There have been multiple TRC exceedances at this location in the last 3 years.
- Operators are not happy with the current biocide setup and are planning to add a brominator (will submit plans to EPA with upcoming permit reapplication).

OUTFALL 03A199 OBSERVATIONS

- The flow meter at Outfall 03A199 is ultrasonic and verified yearly against a pipe flow meter.
- Samples are collected at discharge pipe by hand.

OUTFALL 05A055 OBSERVATIONS

- Outfall 05A055 hasn't discharged since 2007, effluent is almost always evaporated instead of discharging.
- The treatment system at Outfall 05A055 is prepping for a tank replacement soon to replace carbon steel tanks with stainless steel tanks and a new sand filter. The outfall may need additional discharge capacity (will notify EPA if needed). This facility is considered "Mission Critical" for LANL operations.
- The treatment system must be manually connected to a hose prior to discharge to Outfall 05A055.

Section III – AREAS OF CONCERN

Requirement 1

NPDES Permit NM00228355, Part I: A. Effluent Limitations and Monitoring Requirements: Various Outfalls: *Total Residual Chlorine (TRC), Escherichia coli bacteria (E. coli), and Polychlorinated biphenyls (PCBs).*

Concern 1

The following effluent limit exceedances have been reported in the last two years:

Outfall	Pollutant	Date	Limit Set	Limit Value	Reported Value
Outfall 001	TRC	12/31/2022	Weekly, Instantaneous Maximum	0.011 mg/L	0.02 mg/L
Outfall 001	TRC	02/28/2023	Weekly, Instantaneous Maximum	0.011 mg/L	0.03 mg/L
Outfall 001	E. coli	05/31/2023	Twice per Month, Daily Maximum	410 cfu	1413.6 cfu
Outfall 03A022	TRC	05/31/2023	Weekly, Instantaneous Maximum	0.011 mg/L	0.03 mg/L
Outfall 03A022	TRC	10/31/2023	Weekly, Instantaneous Maximum	0.011 mg/L	0.11 mg/L
Outfall 03A022	PCBs	07/31/2023	Once per Permit Term, Monthly Average	0.00064 ug/L	0.723 ug/L
Outfall 03A022	PCBs	07/31/2023	Once per Permit Term, Daily Maximum	0.00064 ug/L	0.724 ug/L
Outfall 03A048	TRC	5/31/2023	Weekly, Instantaneous Maximum	0.011 mg/L	0.05 mg/L

Outfall	Pollutant	Date	Limit Set	Limit Value	Reported Value
Outfall 03A181	TRC	1/31/2023	Weekly, Instantaneous Maximum	0.011 mg/L	0.05 mg/L
03A181	TRC	04/30/2024	Weekly, Instantaneous Maximum	0.011 mg/L	0.18 mg/L

Notes: mg/L – milligrams per liter
ug/L – micrograms per liter
cfu – colony forming units

Requirement 2

NPDES Permit NM00228355, Part I: A. Effluent Limitations and Monitoring Requirements: *Outfall 051 - Radioactive Liquid Waste Treatment Facility*

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING	MONITORING REQUIREMENTS		
Whole Effluent Lethality (51711) (48-Hr Acute NOEC) (*3)	VALUE	MEASUREMENT FREQUENCY	DMR REPORTING FREQUENCY	SAMPLE TYPE
Daphnia pulex	100%	1/3 Months	Monthly	Grab

*3 Monitoring and reporting requirements begin on the effective date of this permit. 100% limitation became effective on March 1, 2016. Critical dilution 100%, and the dilution series are 32%, 42%, 56%, 75%, 100%. Also see Part II, Section I. Whole Effluent Toxicity (48-Hour Acute Limits).

Concern 2A

WET Testing failed to meet the critical dilution of 100% on November 8, 2022, the No Observed Effect Concentration (NOEC) was 56%. The permit requirement for Outfall 051 is a NOEC of 100%. Permittee states that the effluent produced by this treatment plant is generally very high purity, which is missing the hardness needed to support aquatic life, and they must add back in calcium and magnesium in order to pass the WET test. This was likely the issue with this sample.

Concern 2B

WET Testing results have been reported incorrectly on DMRs dated December 2021 and March 2022. Permittee is reporting “0” (zero) where a passing value would be “100.” Permittee will need to work with EPA to get this revised.

Outfall T051Q

22414 Whole effluent toxicity / Location 1 / Season 0 / Base

Limit Start Date	Limit End Date	Sample Type	Frequency of Analysis
3/1/16	9/30/19	3 Hour Composite	Quarterly
Limit			
Limit Unit Desc	Percent	Percent	
Statistical Base	48HR MIN	MO AV MN	
Limit Value	100	100	
DMR Values			
12/31/21	0	0	
3/31/22	0	0	

Requirement 3

NPDES Permit NM00228355, Part III: Standard Conditions C.6. Flow Measurements: *Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.*

Concern 3

Flow measurement device at Outfall 001 is not maintained properly and must be repaired by a qualified technician. Secondary flow meters must be confirmed and documented monthly to be within 10% of primary flow meters.

Requirement 4

NPDES Permit NM00228355, Part III: Standard Conditions B.3.a: *The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.*

Concern 4

On November 14, 2022, there was an unauthorized discharge from one of the cooling towers at the Strategic Computing Facility (SCC). Approximately 3,000 gallons of treated cooling tower water and makeup water supplied by the SERF was released, which flowed into a series of stormwater culverts directing flow to Ephemeral Tributary of Sandia Canyon.

Requirement 5

NPDES Permit NM00228355, Part III: Standard Conditions C.5.a. Monitoring Procedures: *Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.*

Concern 5

Thermometers in autosamplers and sample holding refrigerator are not maintained properly and have not been verified against a National Institute of Standards and Technology (NIST) reference thermometer within the last year. There is no temperature log for the sample holding refrigerator to provide evidence that samples have been held at the proper holding temperature.

Section IV – FOLLOW UP

Documents requested for review during the inspection were sent to the inspectors via secure file transfer between September 20 to 30, 2024, and on November 19, 2024, after exiting the Facility on September 12, 2024. All requested documentation was received by inspectors. Documentation requests for all outfalls included the following:

- Submitted and signed DMRs all documentation directly related to the creation of DMRs, including:
 - Laboratory Bench Sheets (handwritten &/or typed) used to construct DMRs from above.
 - Laboratory Sampling Reports used to construct DMRs (i.e., lab reports from external labs).
- WET Testing Laboratory reports
- Flow meter logs showing daily flow rates
- Calibration sheets for influent and effluent primary and secondary flow meters
- Calibration sheets for laboratory equipment (scales, thermometers, incubators, etc.)
- Excursion, Overflow or Bypass Summary Reports (if relevant)
- Photographs, as discussed during the inspection

Appendix 1

Photograph Log



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 001, 20240715, 1053.PNG

Date of Photo: 07/15/2024

Time of Photo: 10:53 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 001



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 13S, 20240818, 1546.jpg

Date of Photo: 08/18/2024

Time of Photo: 3:46 PM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 13S



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 051, 20240226, 1014.jpg

Date of Photo: 02/26/2024

Time of Photo: 10:14 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 051



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 03A022, 20241002, 1038.JPG

Date of Photo: 10/02/2024

Time of Photo: 10:38 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A022



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 03A027, 20241105, 1215.jpeg

Date of Photo: 11/05/2024

Time of Photo: 12:15 PM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A027



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfal 03A048, 20240228, 1456.jpg

Date of Photo: 02/28/2024

Time of Photo: 2:56 PM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A048



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 03A113, 20240821, 1003.jpg

Date of Photo: 08/21/2024

Time of Photo: 10:03 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A113



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 03A160, 20240226, 0919.jpg

Date of Photo: 02/26/2024

Time of Photo: 0:19 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A160



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfal 03A181, 20240821, 0848.jpg

Date of Photo: 08/21/2024

Time of Photo: 8:48 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A181



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 03A199, 20241022, 1130.JPG

Date of Photo: 10/22/2024

Time of Photo: 11:30 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 03A199



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: Outfall 05A055, 20241119, 1114.jpg

Date of Photo: 11/19/2024

Time of Photo: 11:14 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Outfall 05A055



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Photograph Log

Photo No. 12

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0074.jpg

Date of Photo: 09/11/2024

Time of Photo: 3:14 PM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: pH buffer bottles showing opened-on dates.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0065.JPG

Date of Photo: 09/10/2024

Time of Photo: 9:31 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: ISCO autosampler at Outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_066.JPG

Date of Photo: 09/10/2024

Time of Photo: 9:32 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Thermometer in ISCO autosampler at Outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0069

Date of Photo: 09/10/2024

Time of Photo: 9:39 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Turbulence in Parshall Flume flow meter at Outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0065.JPG

Date of Photo: 09/10/2024

Time of Photo: 9:36 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Staff gauge in Parshall Flume flow meter at Outfall 001.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0072.JPG

Date of Photo: 09/10/2024

Time of Photo: 11:59 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Warning signs over sinks and drains to SWWS to prevent unauthorized discharge of industrial wastes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0075.JPG

Date of Photo: 09/12/2024

Time of Photo: 10:02 AM

Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Sampling station at RLWTF prior to Outfall 051.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Location: Los Alamos National Laboratory – Individual Industrial Discharger Permit NM0028355		
City: Los Alamos	County/Parish: Los Alamos County	State: New Mexico



Photo File Name: IMG_0109

Date of Photo: 09/10/2024

Time of Photo: 3:12 PM

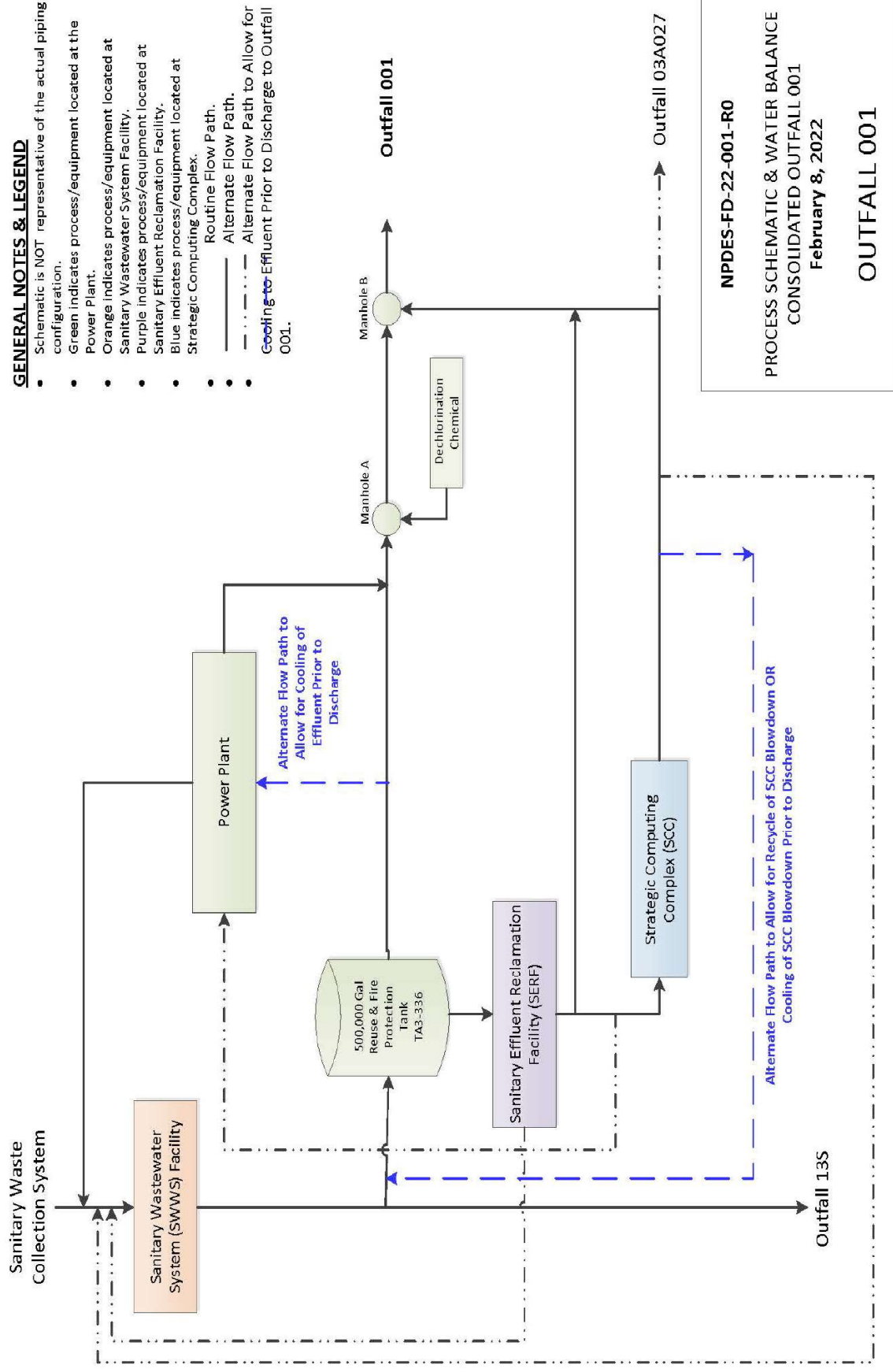
Photographer: Due to National Security needs, photographs could not be taken by inspectors during the inspection. Photos were requested during inspection and required to go through security review before release. Original electronic images are maintained by Triad/LANL.

Description: Collection of TRC sample at Outfall 03A048.

Appendix 2

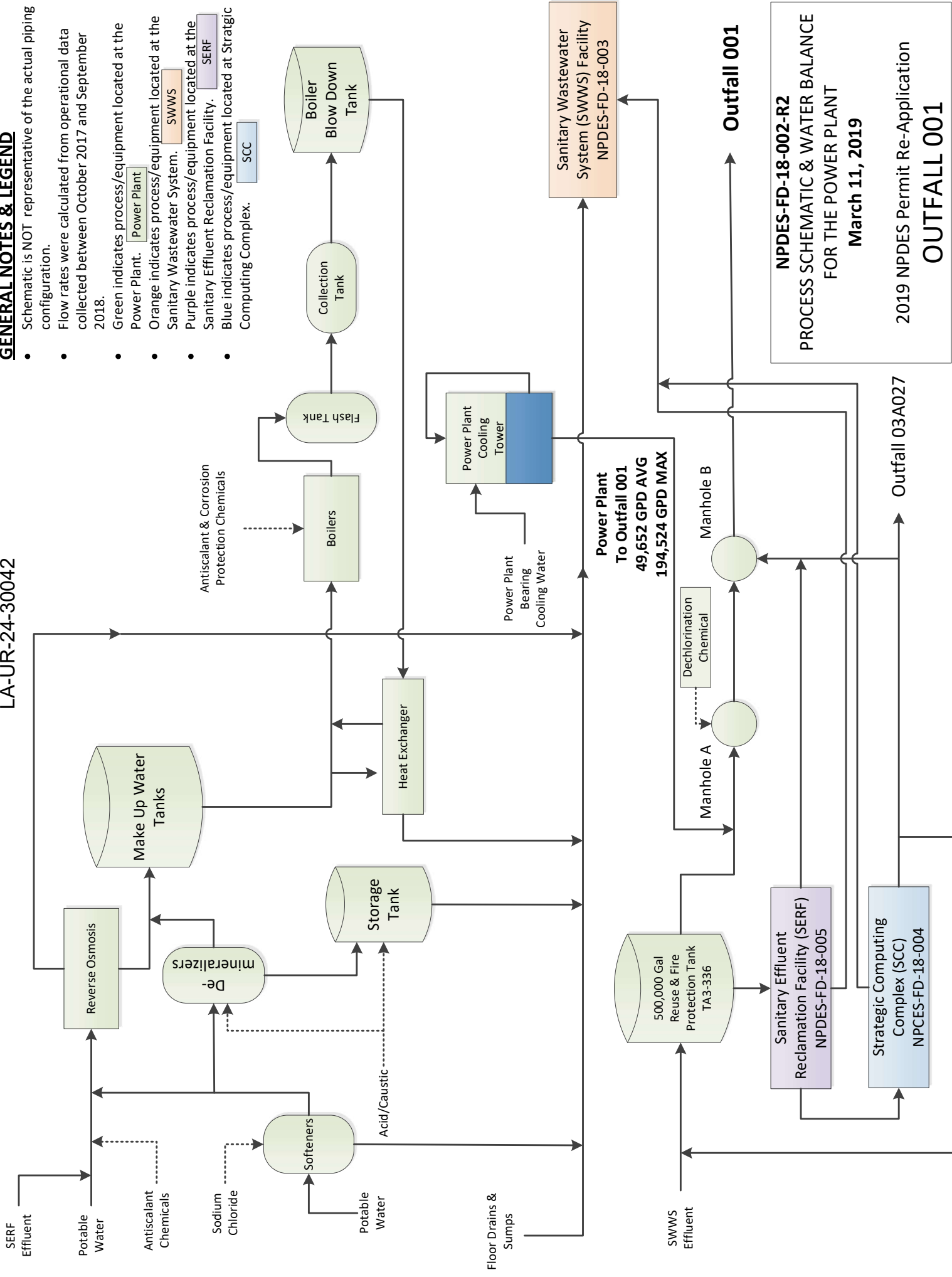
Process Flow Diagrams

OUTFALL 001 - APPROVED FLOW DIAGRAM



GENERAL NOTES & LEGEND

- Schematic is NOT representative of the actual piping configuration.
- Flow rates were calculated from operational data collected between October 2017 and September 2018.
- Green indicates process/equipment located at the Power Plant. Power Plant
- Orange indicates process/equipment located at the Sanitary Wastewater System. SWWS
- Purple indicates process/equipment located at the Sanitary Effluent Reclamation Facility. SERF
- Blue indicates process/equipment located at Strategic Computing Complex. SCC



NPDES-FD-18-002-R2
PROCESS SCHEMATIC & WATER BALANCE
FOR THE POWER PLANT
March 11, 2019
2019 NPDES Permit Re-Application
OUTFALL 001

LA-UR-24-30042

Precipitation and
pH Adjustment
Chemicals

SERF Feed
122,948 GPD AVG
195,876 GPD MAX

Reaction
Tank

Concentration
Tank

Microfilters (3)

pH Adjust
Tank

Antiscalant &
Biocide Chemicals

Filtrate
Tank

pH Adjustment
Chemicals

pH Adjust
Tank

Antiscalant &
Biocide Chemicals

Filtrate
Tank

SERF Influent to Blend
25,338 GPD AVG
46,080 GPD MAX

Blended
Storage Tanks
(3)

SERF Treated Water
117,515 GPD AVG
204,208 GPD MAX

Power Plant
NPDES-FD-18-002

SERF Blended Effluent
130,666 GPD AVG
24,908 GPD MAX

Strategic Computing Complex
(SCC) Cooling Towers
NPDES-FD-18-004

SERF Effluent to SCC
106,966 GPD AVG
237,564 GPD MAX

500,000 Gal
Reuse & Fire
Protection Tank
TA3-336
NPDES-FD-18-002

SERF Influent
148,210 GPD AVG
233,633 GPD MAX

SERF Effluent to Outfall 001
39,807 GPD AVG
121,914 GPD MAX

Outfall 03A027

Outfall 001

Manhole A

Manhole B

Dechlorination
Chemical

GENERAL NOTES & LEGEND

- Schematic is NOT representative of the actual piping configuration.
- Flow rates were calculated from data collected between October 2017 and September 2018.
- Green indicates process/equipment located at the Power Plant.
- Orange indicates process/equipment located at Sanitary Wastewater System Facility.
- Purple indicates process/equipment located at Sanitary Effluent Reclamation Facility.
- Blue indicates process/equipment located at Strategic Computing Complex.

Power Plant

SWWS

SERF

SCC

Evaporation
3 ac.ft./yr

Offsite
Disposal

Sanitary Wastewater System
(SWWS) Facility
NPDES-FD-18-003

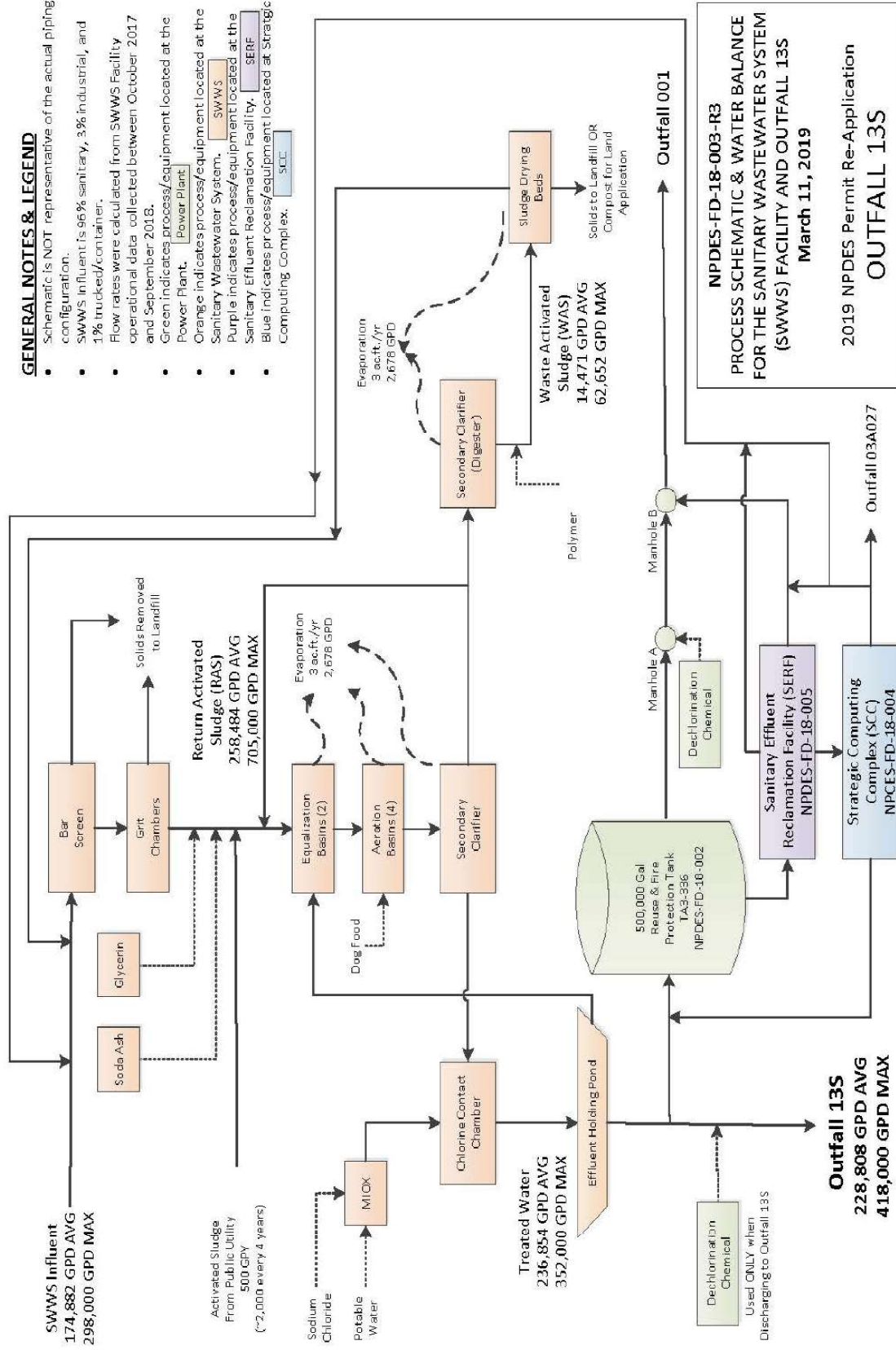
NPDES-FD-18-005-R4

PROCESS SCHEMATIC & WATER BALANCE
FOR THE SANITARY EFFLUENT
RECLAMATION FACILITY (SERF)

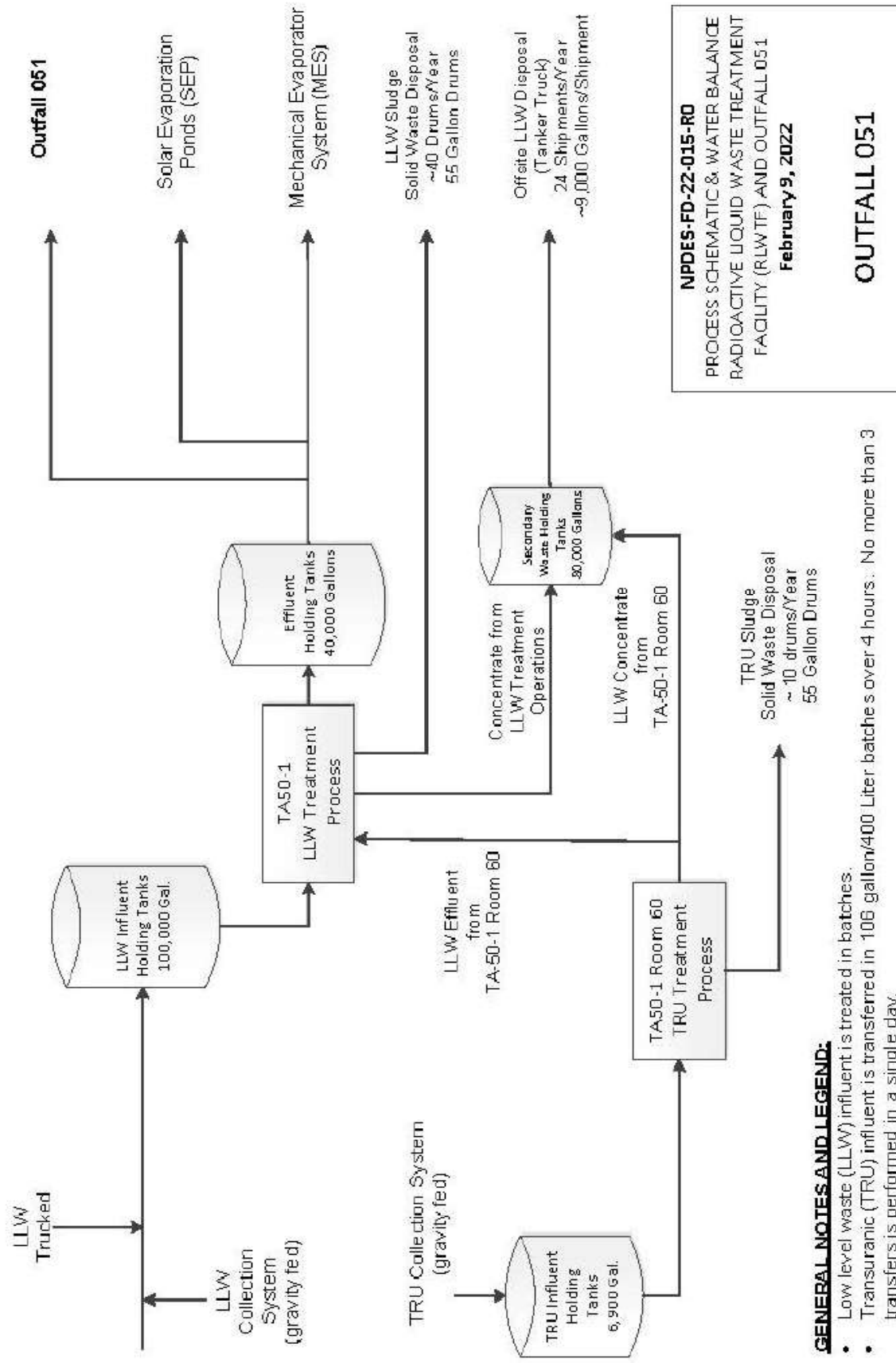
March 11, 2019

OUTFALL 001

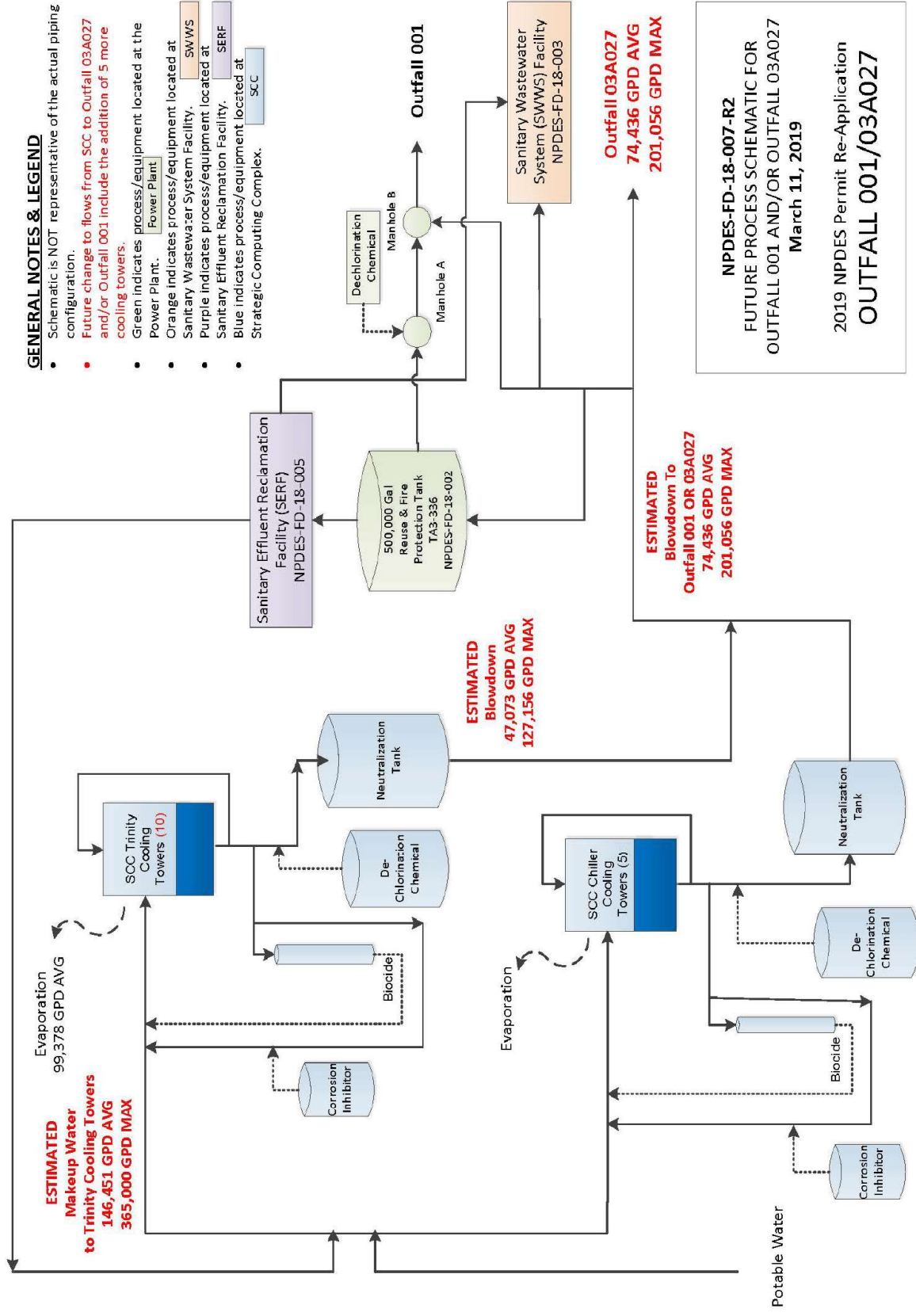
OUTFALL 13S - APPROVED FLOW DIAGRAM



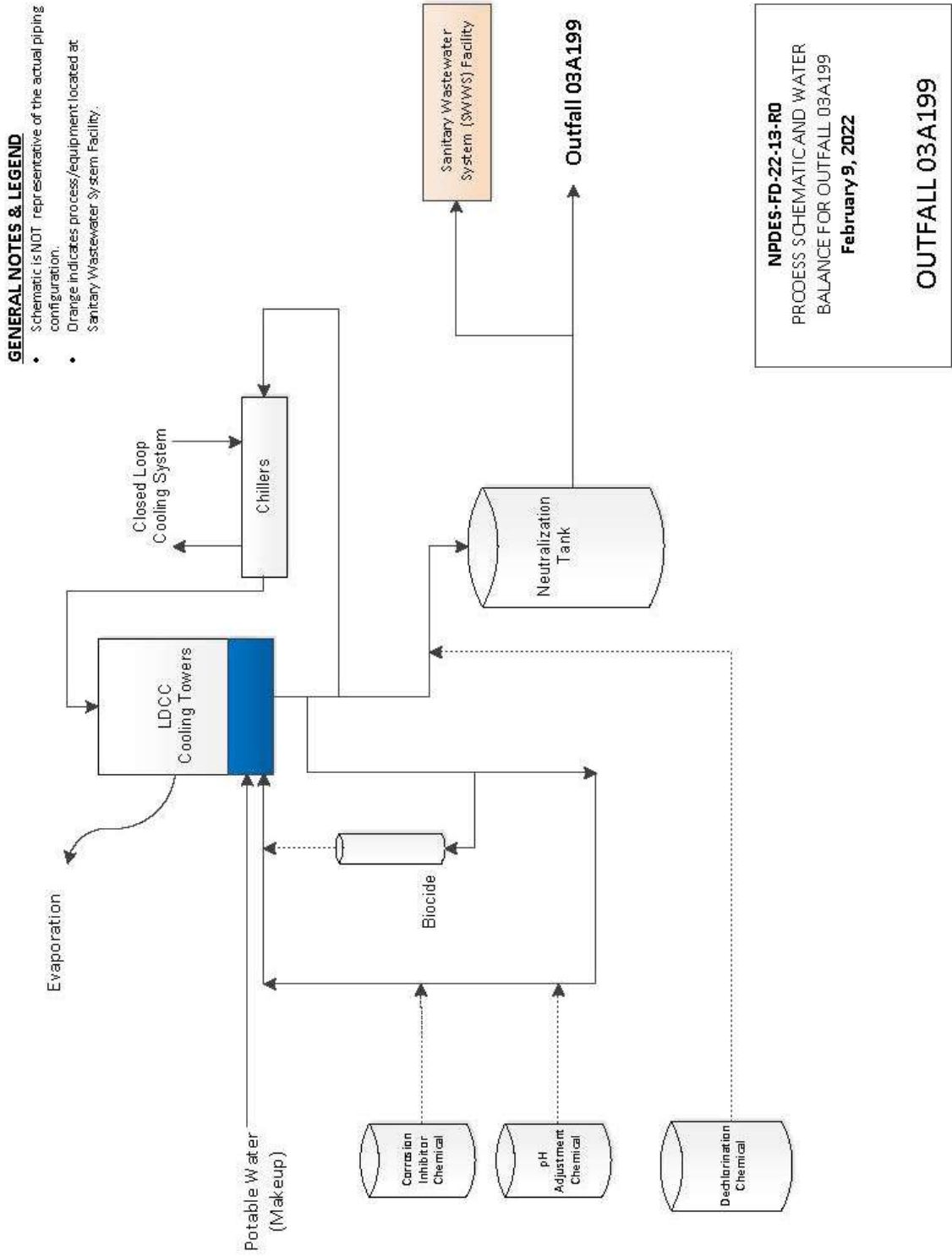
OUTFALL 051 - APPROVED FLOW DIAGRAM



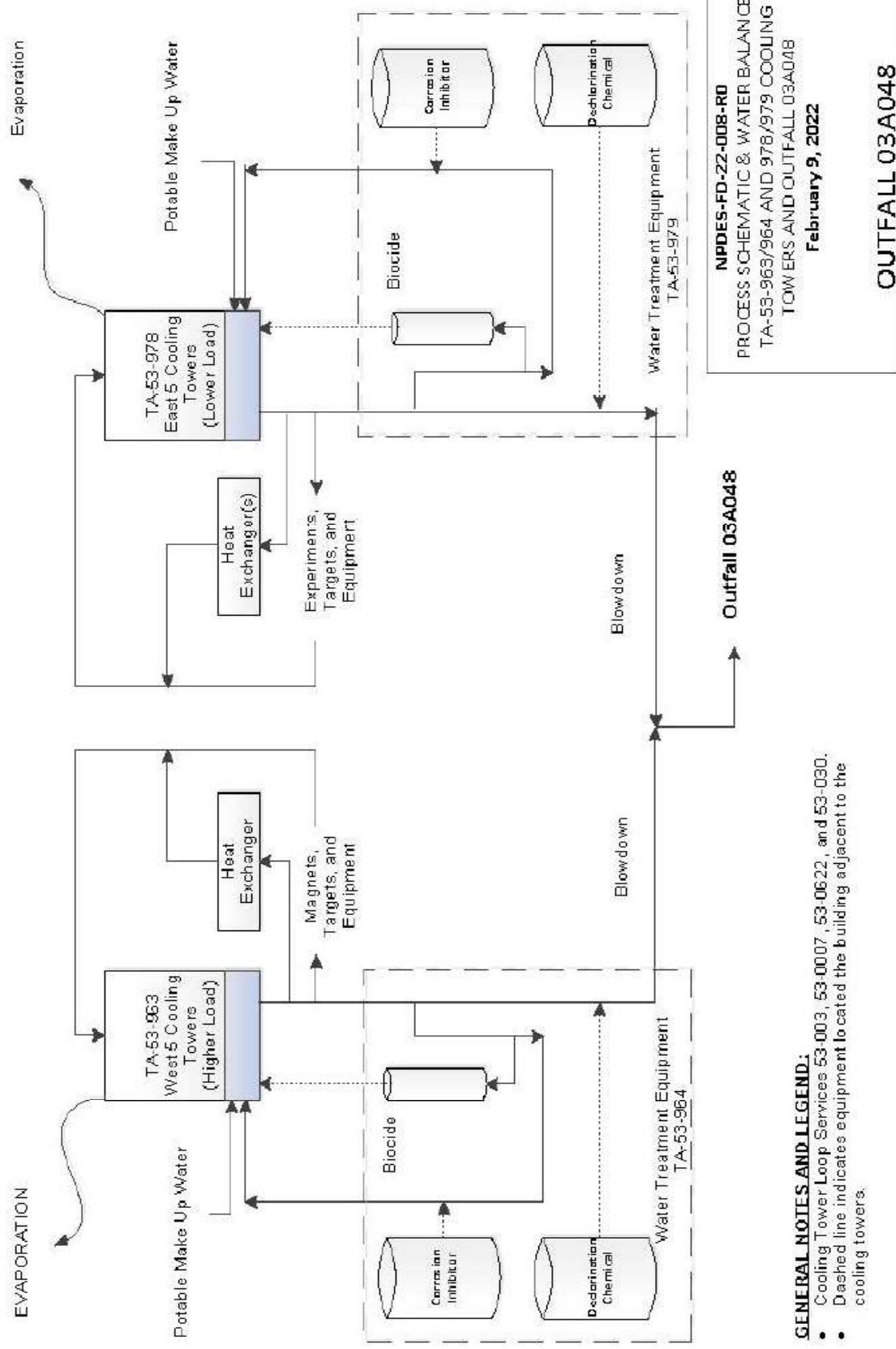
OUTFALL 03A027 APPROVED FLOW DIAGRAM



OUTFALL 03A199 - APPROVED FLOW DIAGRAM



OUTFALL 03A048 – APPROVED FLOW DIAGRAM



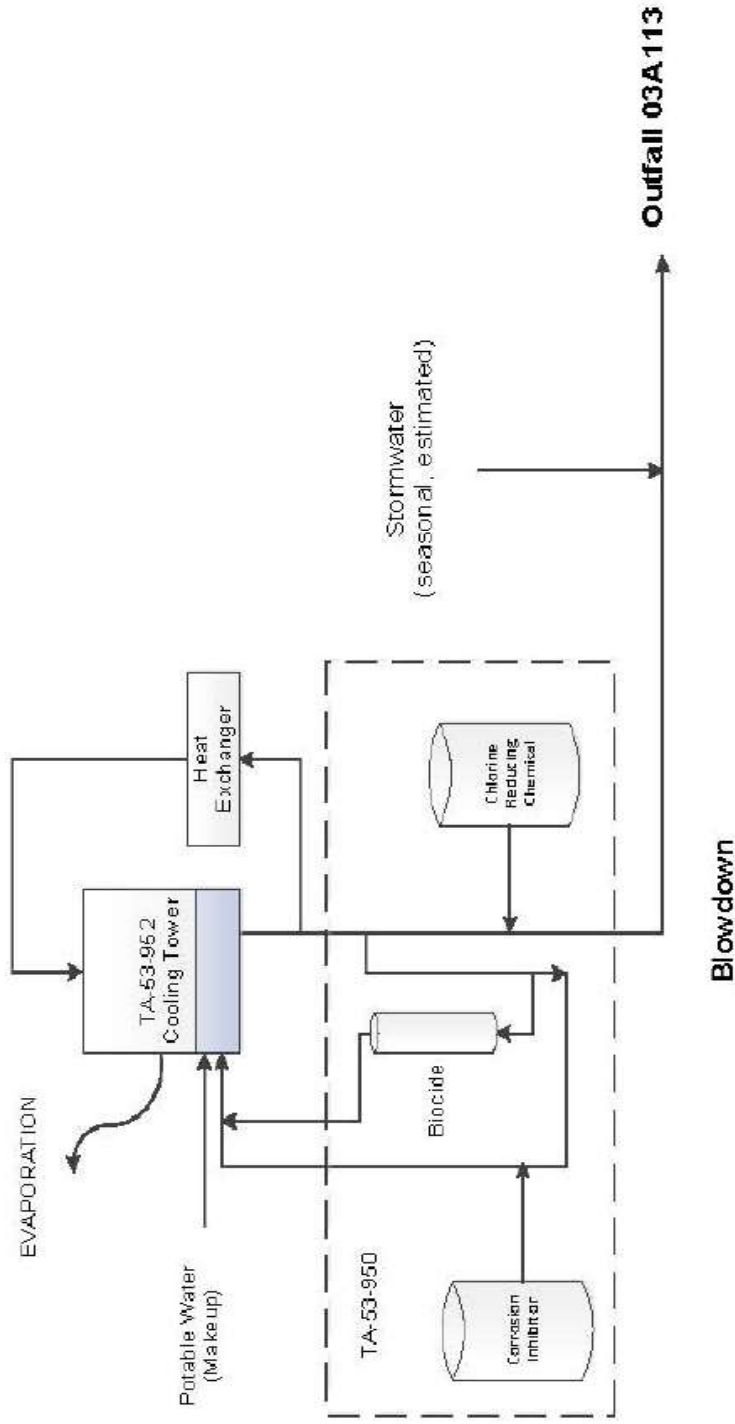
GENERAL NOTES AND LEGEND:

- Cooling Tower Loop Services 53-003, 53-0007, 53-0622, and 53-030.
- Dashed line indicates equipment located the building adjacent to the cooling towers.

OUTFALL 03A113 – APPROVED FLOW DIAGRAM

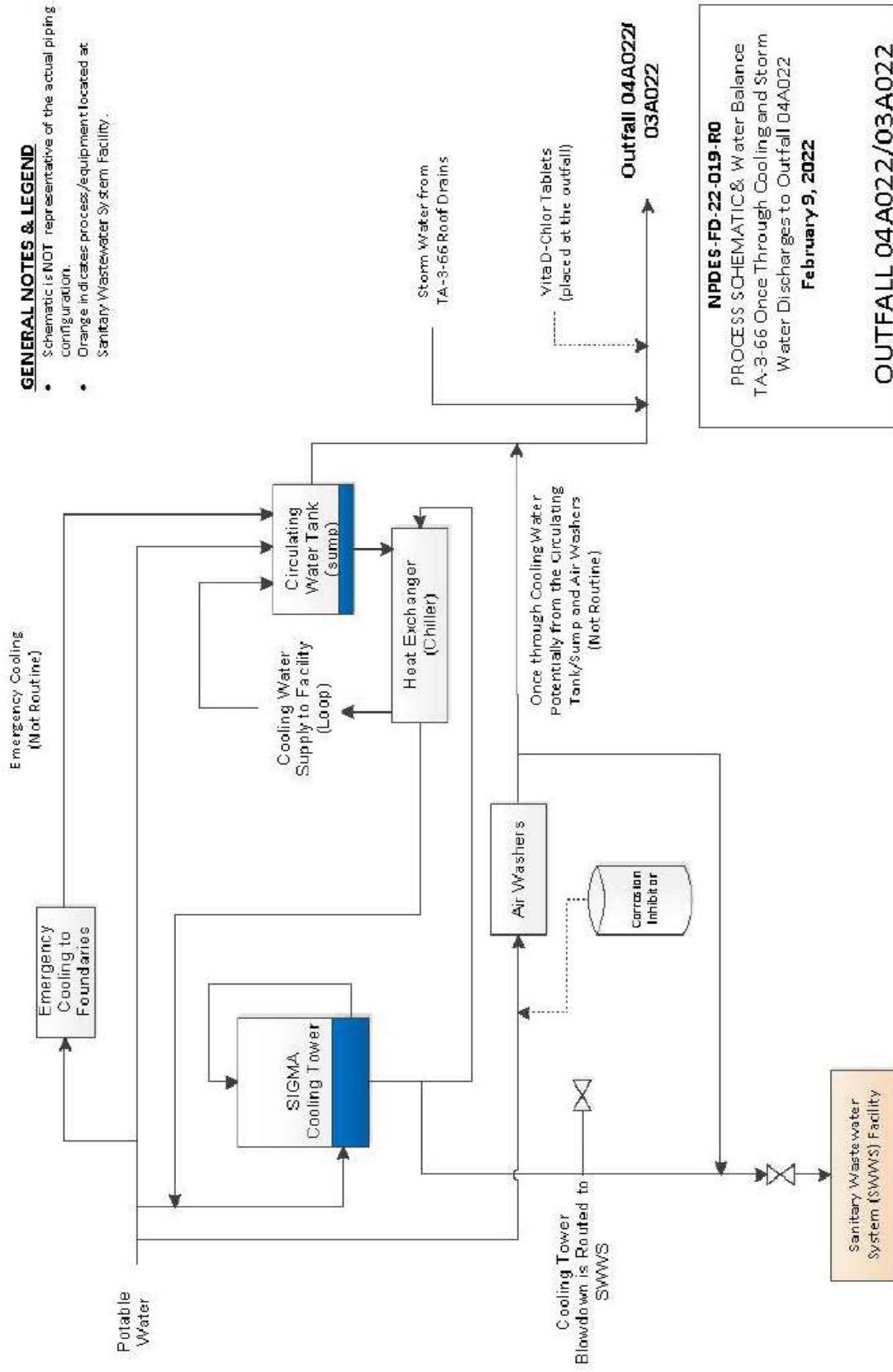
GENERAL NOTES AND LEGEND:

- Dashed line indicates equipment located the building adjacent to the cooling towers.



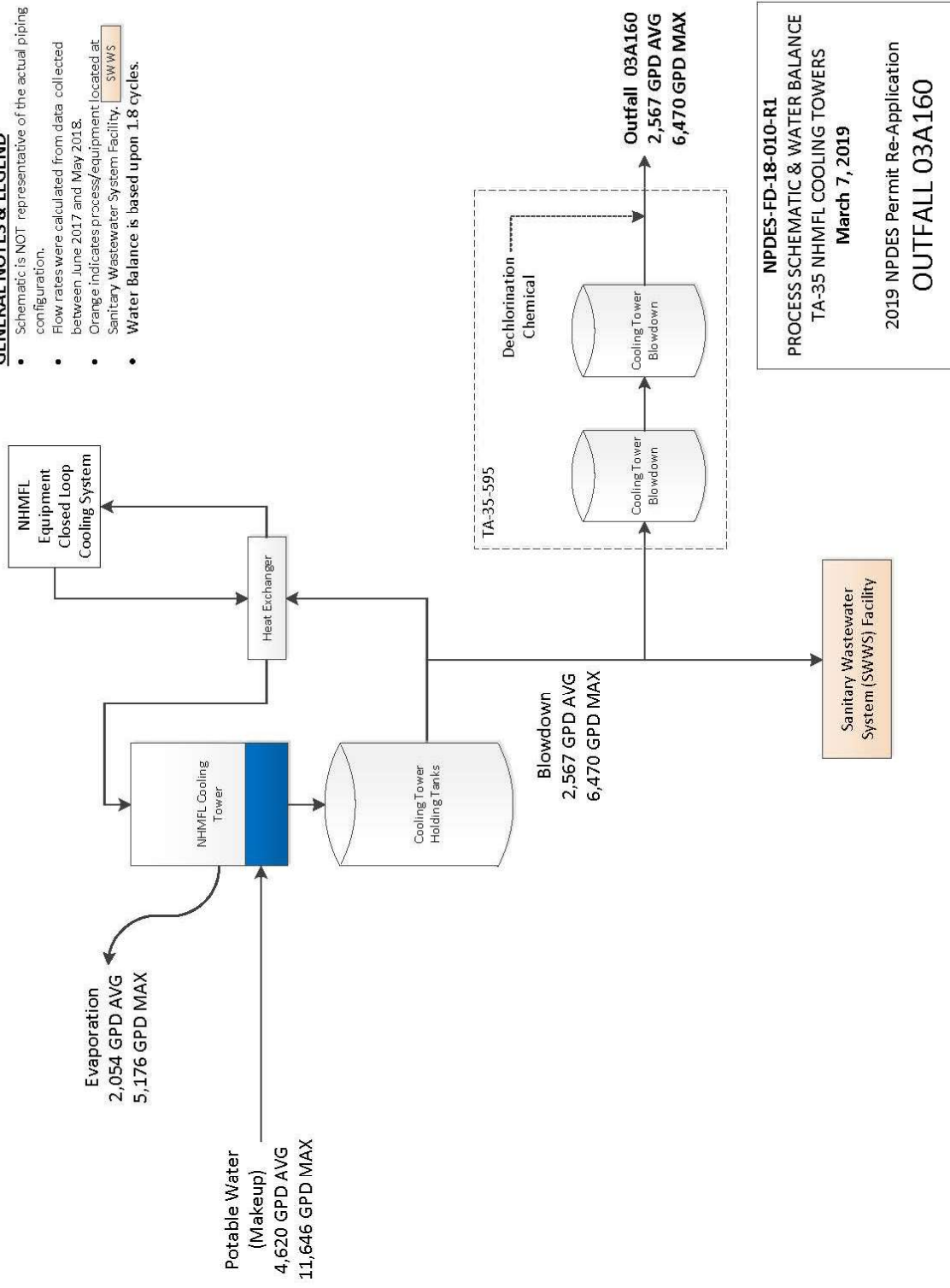
NPDES-FD-22-009-R0
PROCESS SCHEMATIC & WATER BALANCE
FOR OUTFALL 03A113
February 9, 2022
OUTFALL 03A113

OUTFALL 03A022 – APPROVED FLOW DIAGRAM



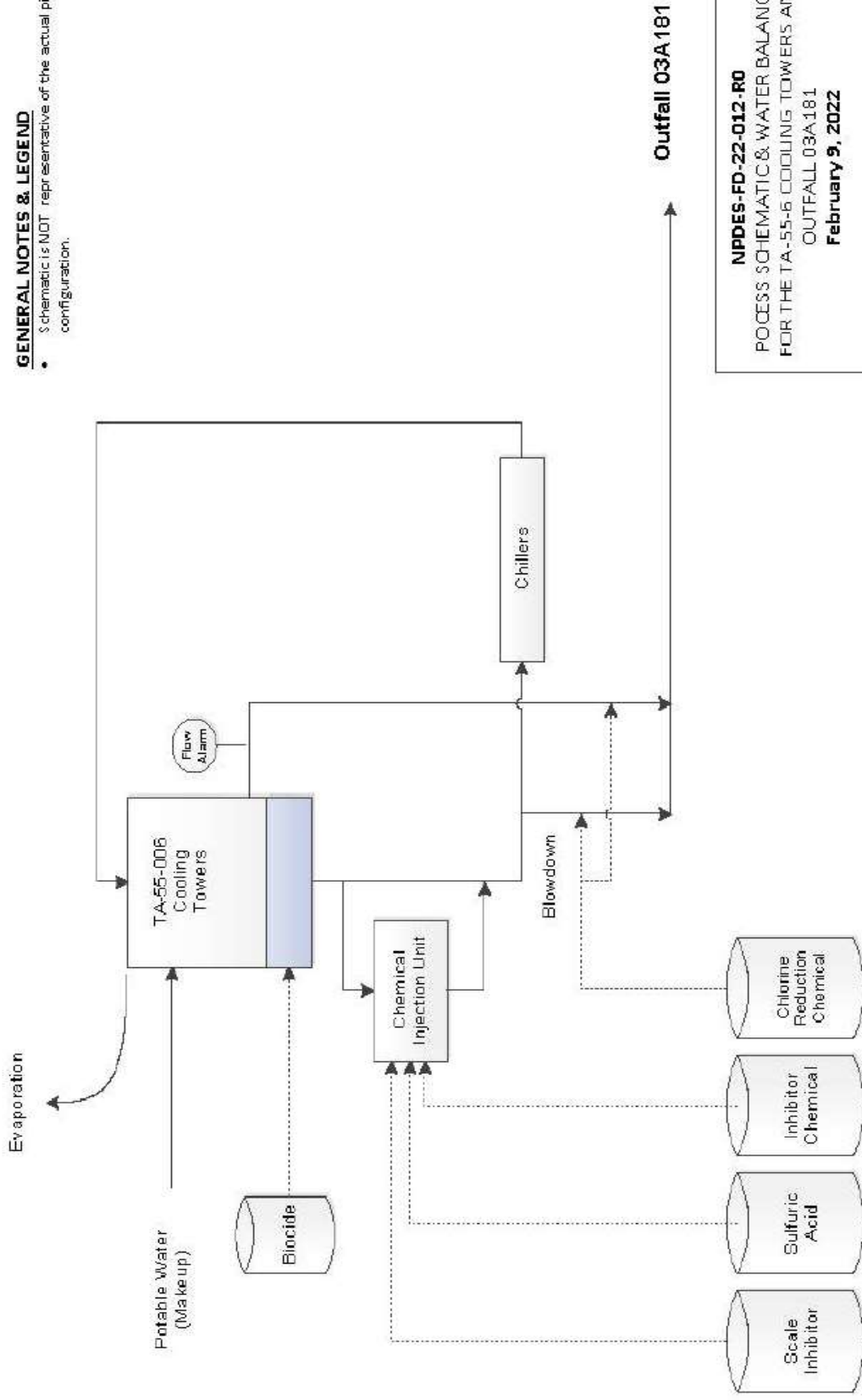
OUTFALL 03A160 - APPROVED FLOW DIAGRAM

- GENERAL NOTES & LEGEND**
- Schematic is NOT representative of the actual piping configuration.
 - Flow rates were calculated from data collected between June 2017 and May 2018.
 - Orange indicates process/equipment located at Sanitary Wastewater System Facility, **SWWS**
 - **Water Balance is based upon 1.8 cycles.**



OUTFALL 03A181 – APPROVED FLOW DIAGRAM

- GENERAL NOTES & LEGEND**
- Schematic is NOT representative of the actual piping configuration.



NPDES-FD-22-012-R0
PROCESS SCHEMATIC & WATER BALANCE
FOR THE TA-55-6 COOLING TOWERS AND
OUTFALL 03A181
February 9, 2022

OUTFALL 03A181

OUTFALL 05A055 – APPROVED FLOW DIAGRAM

