7-27-2021

MS4 SWMPP 2021

National Technology & Engineering Solutions of Sandia, LLC (NTESS)

Department of Energy (DOE)

STORMWATER MANAGEMENT PROGRAM PLAN

For coverage under the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit for stormwater discharges within the Middle Rio Grande Watershed:

Sandia National Laboratories

U.S. Department of Energy
National Nuclear Security Administration
Sandia Field Office
Albuquerque, NM

Update Date: July 27, 2021

Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA-0003525.
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Versions

SWMPP Version	Date Submitted to the EPA	Reason for Update (e.g., Annual Report, Modification)	Notes
v.0 May 4, 2015	June 17, 2015, via email	n/a	Initial submission of NOI and corresponding SWMPP
v.1 October 30, 2015	n/a	Update of implementation status and receiving waters	
v.2 August 16, 2016	November 28, 2016, via email	Annual Report and SWMPP update as required by MS4 Permit	
v.3 August 9, 2017	On or before December 1, 2017, via email	Annual Report and SWMPP update as required by MS4 Permit	
v.4 August 12, 2018	On or before December 1, 2018, via email	Annual Report and SWMPP update as required by MS4 Permit	
v.5 August 10, 2019	On or before December 1, 2019, via email	Annual Report and SWMPP update as required by MS4 Permit	
v.6 July 20, 2020	On or before December 1, 2020, via email	Annual Report and SWMPP update as required by MS4 Permit	Addition of E. coli and PCB white papers in Appendices R7 and R-8. Addition of Sediment Pollutant Reduction Plan Assessment in Appendix Q-4
v.7 July 27, 2021	On or before December 1, 2021, via email	Annual Report and SWMPP update as required by MS4 Permit	

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Units of Measure

°C	degrees Celsius
cfu	colony-forming units
ft	feet
°F	degrees Fahrenheit
GSF	gross square footage
L	liter
lb	pound
MG	million gallons
mg/L	milligrams per liter
Ml	milliliter
mph	miles per hour
NM	New Mexico
pCi/L	Picocuries per liter
ppm	parts per million
sq. mi.	square mile

Acronyms

AMAFCA	Albuquerque Metro Area Flood Control Authority
amsl	above mean sea level
AOP	administrative operating procedure
ASER	Annual Site Environmental Report
bgs	below ground surface
B&G	block and gravel
BMP	best management practice
BOD_5	biological oxygen demand
CFR	Code of Federal Regulations
CGP	Construction General Permit
CISEC	Certified Inspector of Sediment and Erosion Control
COA	City of Albuquerque
COD	chemical oxygen demand
CPESC	Certified Professional of Erosion and Sediment Control
CWA	Clean Water Act
DCIA	Directly Connected Impervious Area
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
E. coli	*Escherichia coli*
EISA	Energy Independence and Security Act
EO	executive order
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
ES&H	Environmental Safety & Health
FEMC	Facilities and Emergency Management Center
FOP	field operating procedure
GA STORM	Graded Approach STORM
GI	green infrastructure
GIS	geographic information system
HWMU	Hazardous Waste Management Unit
HWY	highway
IA	impervious area
IDDEP	Illicit Discharge Detection and Elimination Program

Acronyms (continued)

IS	Infrastructure Services
KAFB	Kirtland Air Force Base
LEED	Leadership in Energy and Environmental Design
LID	low impact development
MEP	maximum extent practicable
MQL	minimum quantification levels
MRG	Middle Rio Grande
MS4	Municipal Separate Stormwater Sewer System
MSGP	Multi-Sector General Permit
MSP2	Materials Sustainability and Pollution Prevention
N/A	not applicable
NEPA	National Environmental Policy Act
NM	New Mexico
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NPN	nitrate plus nitrite
NTESS	National Technology and Engineering Solutions of Sandia
OSE	Office of the State Engineer (New Mexico)
P2/GH	Pollution Prevention/Good Housekeeping
PCB	polychlorinated biphenyl
Ph	potential of hydrogen
PJAA	Percent Jurisdiction Area Approach
P2/GH	Pollution Prevention/Good Housekeeping
PQL	practical quantitation limit
R&D	research and development
RCRA	Resource Conservation and Recovery Act
RUSLE2	Revised Universal Soil Loss Equation, Version 2
SFO	Sandia Field Office
SMO	Sample Management Office

SNL	Sandia National Laboratories
SPCC	Spill Prevention, Control and Countermeasure Plan

Acronyms (continued)

SSO	sanitary sewer overflow
SSP	Site Sustainability Plan
SSPP	Strategic Sustainability Performance Plan
SWCRC	Solid Waste Collection and Recycling Center
SWMPP	Stormwater Management Program Plan
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
SWSP	stormwater sampling point
TA	Technical Area
TAG	Technical Advisory Group
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UA	Urbanized Area
UNM	University of New Mexico
U.S.	United States
WAG	DOE Water Assistance Group
WLA	Waste Load Allocation
WOTUS	Waters of the United States
WQCC	Water Quality Control Commission (New Mexico)
WQS	water quality standard

1. Introduction

On December 22, 2014, the United States (U.S.) Environmental Protection Agency (EPA) issued the National Pollutant Discharge Elimination System (NPDES) Middle Rio Grande (MRG) Watershed Based Municipal Separate Stormwater Sewer System (MS4) Permit NMR04A000 (herein MS4 Permit or Permit). The EPA subsequently modified the Permit on April 9, 2015 and February 10, 2016. The modified (and most current) MS4 Permit is provided in Appendix A of this Stormwater Management Program Plan (SWMPP).

This SWMPP was prepared in accordance with MS4 Permit requirements for the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA), owner of Sandia National Laboratories (SNL), located in Albuquerque, New Mexico (NM). SNL operations are conducted under a Management and Operating (M&O) Contract with the DOE/NNSA. The DOE/NNSA Sandia Field Office (SFO) administers the M&O Contract and oversees contractor operations. On June 17, 2015, SFO and Sandia Corporation, M&O contractor, submitted Notices of Intent (NOIs) and the initial SWMPP to the EPA to obtain MS4 Permit coverage. SFO received approval from the EPA on November 18, 2015 under Tracking Number NMR04A011 (Appendix C-1). Sandia Corporation received approval from the EPA on December 22, 2015 under Tracking Number NMR04A012 (Appendix C-2). Effective on May 1, 2017, Sandia Corporation, operator under the MS4 Permit underwent a name change to the National Technology & Engineering Solutions of Sandia, LLC (NTESS). While the name changes, the operator of the MS4 remains the same; therefore, there is no transfer of requirements to a new operator.

The SWMPP describes the best management practices (BMPs) employed at SNL, measurable goals, and anticipated implementation dates for compliance with the Permit requirements to ensure that stormwater discharges from the SNL MS4 do not contribute pollutants to Waters of the United States (WOTUS), namely the Tijeras Arroyo and the Rio Grande. The SWMPP is updated annually, and as necessary, to include new information and/or document the development, implementation and assessment of program elements, as required in Part III.B of the Permit. Version 6 of the SWMPP documents compliance activities and program elements developed and implemented between July 1, 2019 and June 30, 2020; it is required to be submitted on or before December 1, 2020.

1.1 Purpose of the MS4 Permit

The MS4 Permit was developed for MS4 operators within the MRG Watershed that discharge stormwater to WOTUS.

The EPA's MS4 program addresses pollution from stormwater runoff that is conveyed by MS4s and discharged into rivers and streams. The EPA defines an MS4 as a conveyance or system of conveyances that is:

- Owned by a state, city, town, village, or other public entity that discharges to WOTUS;

- Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.);
- Not a combined sewer; and
- Not part of a Publicly Owned Treatment Works (sewage treatment plant).

In 1990, the EPA established Phase I of the NPDES program, requiring operators of "medium" and "large" MS4s, generally those serving populations greater than 100,000, to implement stormwater management programs to control the discharge of pollutants from their stormwater systems. In 1999, the Phase II NPDES program extended coverage of the MS4 stormwater permits to qualifying "small" MS4s.

The MRG Watershed MS4 Permit provides coverage to MS4 operators located fully or partially within the Albuquerque Urbanized Area (UA) (based on the 2000 and 2010 decennial censuses). In addition, the Permit attempts to regulate stormwater discharges on a watershed basis by providing incentives for collaboration and legally-binding cooperation among the various MS4s within the MRG; however, SFO and NTESS share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

1.2 Permittee Eligibility [MS4 Part I.A]

1.2.1 Permit Area [MS4 Part I.A.1]

SNL is located within the boundary of Kirtland Air Force Base (KAFB) and Bernalillo County, adjacent to the City of Albuquerque, NM. While SNL is located within the boundary of KAFB, the KAFB MS4 does not include the SNL MS4. The KAFB MS4 and SNL MS4 are managed and regulated separately.

The stormwater drainage system at SNL discharges to two locations: Tijeras Arroyo, located in the MRG Watershed, as identified in Appendix A of the MS4 Permit; and the KAFB MS4. The SNL MS4 was (in part) identified in the 2010 decennial census to be within the Albuquerque UA (see SWMPP Appendix B-2), and was identified as a "potentially eligible MS4" in the MS4 Permit. For more specific information about the boundary of the SNL MS4, refer to Section 1.4.5 and maps in Appendix B of this SWMPP.

1.2.2 National Historical Preservation Act [MS4 Part I.A.3.b]

Discharges from SNL/NM meet Criterion A of MS4 Part I.A.3.b(i): "storm water discharges, allowable non-storm water discharges, and discharge-related activities do not affect a property that is listed or is eligible for listing on the National Register of Historic Places as maintained by the Secretary of the Interior". SFO and NTESS comply with the National Historical Preservation Act as follows:

1. There are no DOE/NNSA-owned SNL properties listed on the National Register of Historic Places. Specifically, there are no historic properties identified in the path of SNL's stormwater and allowable non-stormwater discharges or where construction activities are planned to install BMPs to control such discharges.

2. Construction and stormwater management and sampling activities proposed in this SWMPP are not anticipated to impact any known archaeological or cultural resources. NTESS adheres to Corporate Procedure ESH100.1.EP.2, *Implement NEPA, Cultural Resources, and Historic Properties Requirements* and conducts a National Environmental Policy Act (NEPA) review prior to any earth-disturbing activity at SNL. A NEPA review is conducted for every proposed disturbance to evaluate all necessary permitting actions, including those related to preservation of archaeological or cultural resources.
3. The requirements of Part IV.U of the MS4 Permit do not apply to SNL.

1.2.3 Authorized Non-Stormwater Discharges [MS4 Part I.A.4]

Any such discharge that is identified as a significant contributor of pollutants to the SNL MS4, or is causing or contributing to a water quality standards (WQSs) violation, will be addressed as an illicit discharge pursuant to Part I.D.5.e of the MS4 Permit. Table 1-1 lists authorized non-stormwater discharges and the reason these discharges are not expected to be significant contributors of pollutants to the MS4. This list, and the requirements associated with these types of discharges, are maintained in Corporate Procedure MN471022 *Surface and Stormwater Discharges* (included as Appendix E-1 of this SWMPP).

Table 1-1: Authorized Non-Stormwater Discharges

Allowable Non-Stormwater Discharges	Reason discharge is not expected to be a significant contributor of pollutants:
Potable water sources from planned and unplanned discharges, including uncontaminated routine water line flushing, fire hydrant flushing, and incidental water line breaks.	Discharges from planned line flushing are dechlorinated to less than 1 ppm chlorine prior to discharge to the stormwater drainage system (per corporate procedure). Diffusers are used on the end of the line to prevent erosion from the high-pressure discharge. Where possible, intentional discharges occur directly to storm drains, to prevent contact with sediment and road contaminants (such as oil). Where erosion is observed resulting from a potable water release, corrective actions will be initiated immediately to prevent or address the discharge of sediment to the SNL MS4.
Lawn, landscape, and other irrigation waters	All pesticides, herbicides and fertilizers are applied in accordance with approved manufacturing labeling and any applicable permits for discharges associated with pesticide, herbicide and fertilizer application.
Diverted stream flows	There are no stream flows diverted into or from the SNL MS4.
Rising groundwater	There is no rising groundwater that flows to the SNL MS4.
Uncontaminated groundwater infiltration and pumped groundwater	There is no groundwater infiltrated or pumped into the SNL MS4.

Allowable Non-Stormwater Discharges	Reason discharge is not expected to be a significant contributor of pollutants:
Foundation and footing drains, or water from crawl space pumps	These sources are not contaminated with process materials and are required to be discharged to the wastewater sewage system. Discharges to the ground surface require approval from the Environmental Compliance and Monitoring Department per corporate procedure.
Air conditioning or compressor condensate	Equipment is inspected and maintained in good repair. Condensate is released in low volumes.
Springs	There are no springs that discharge to the SNL MS4.
Individual residential car washing	There are no individual residences, and therefore no residential car washing within the SNL MS4.
Flows from riparian habitats and wetlands	There are no flows from riparian habitats or wetlands into the SNL MS4.
Dechlorinated swimming pool discharges	There are no swimming pools or associated discharges within the SNL MS4.
Street wash waters that do not contain detergents and where no un-remediated spills or leaks of toxic or hazardous materials have occurred	Streets and roads are maintained and cleaned using a mechanical street sweeper. Streets are not "washed" with detergents within the SNL MS4. At times, water may be used sparingly for dust control while street sweeping, in a manner that does not induce runoff.
Discharges or flows from firefighting activities (excludes discharges from training exercises associated with emergency response and firefighting)	Discharges from firefighting activities would occur in an emergency only. Part I.D.5.e(ii) states that discharges from firefighting activities are excluded from the effective prohibitions against non-stormwater and need only be addressed where they are identified as significant sources of pollutants.
Other similar occasional incidental non-stormwater discharges	Incidental windblown mist from cooling towers may occur, but is not likely to collect or pool on the ground due to the very low humidity of the site area.

1.2.4 Limitations of Coverage [MS4 Part I.A.5]

The mixing of stormwater discharges with sources of non-stormwater in not authorized at SNL unless such non-stormwater discharges are: in compliance with a separate NPDES permit; exempt from permitting under the NPDES program; or determined not to be a substantial contributor of pollutants to WOTUS. [MS4 Part I.A.5.a]

Industrial stormwater is discharged at SNL in accordance with the provisions of the Multi-Sector General Permit (MSGP) as authorized by NMR053114 (SFO) and NMR053122 (NTESS). Industrial sites and activities will remain compliant with the requirements of the MSGP and the associated Stormwater Pollution Prevention Plan (SWPPP). A map of the MSGP sites within the boundary of the SNL MS4 is included as Appendix B-6 of this SWMPP. [MS4 Part I.A.5.b]

Stormwater is discharged from construction activities at SNL in accordance with the provisions of the Construction General Permit (CGP). At any given time, there are multiple sites with NOIs for coverage under the CGP that will remain compliant with the requirements of the CGP and their associated SWPPPs. [MS4 Part I.A.5.c]

SFO and NTESS will implement measures or controls that are consistent with the EPA-approved total maximum daily load (TMDL), as documented in this SWMPP. [MS4 Part I.A.5.f]

1.3 Notice of Intent [MS4 Parts I.A.3.a, I.A.6.a, I.B, I.D.5.h(i) and Appendix E]

NOIs and a joint SWMPP were filed with the EPA for the SNL MS4 by both Permittees on June 17, 2015 for coverage under the MS4 Permit as new Phase II Class C Permittees. The NOIs are provided as Appendices C-1 and C-2 of this SWMPP. SFO's NOI tracking number is NMR04A011 and NTESS's NOI tracking number is NMR04A012.

1.3.1 NOI Public Notice

The NOIs and initial SWMPP for the SNL MS4 were advertised through a public notice placed in the Albuquerque Journal on Monday May 11, 2015, which was followed by a 30-day review and comment period (Appendix C-3). Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail (Appendix C-4). Electronic copies were made available through the University of New Mexico (UNM) Digital Repository online database (http://digitalrepository.unm.edu/snl_ms4/). Physical copies of the documents posted to the UNM Digital Repository online database were made available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, NM.

1.3.1.1 Permittee's Responses to NOI Public Comments

No public comments were received associated with the 30-day public review and comment period between May 11 and June 10, 2015.

1.3.1.2 Availability of Records to Public

Public participation in the review, modification, and implementation of this SWMPP is encouraged and provided for, as described in Section 11 of this SWMPP. The current MS4 Permit, NOIs, and SWMPP and reports submitted to the EPA are available to the public and any interested party through the UNM Digital Repository online database (http://digitalrepository.unm.edu/snl_ms4/), and will be maintained on this website throughout the Permit term.

1.3.2 Classification and Population

As prescribed by Appendix A of the MS4 Permit, SFO and NTESS are classified as Class C Permittees. This SWMPP complies with the requirements set forth in the Permit for Class C Permittees.

The SNL MS4 serves a total population of approximately 14,050 people. This population includes employees, subcontractors, consultants, and staff of/to NTESS and the staff of the DOE/NNSA/SFO who perform job duties within the jurisdictional boundary of the SNL MS4. Since the SNL MS4 does not include all SNL property, the MS4 population is less than the total SNL population.

1.3.3 NOIs Filed

The NOIs filed for Permit coverage of the SNL MS4 were submitted to the EPA via e-mail at R6_MS4Permits@epa.gov on June 17, 2015. The NOIs were also mailed to the New Mexico Environment Department (NMED) and the Pueblo of Isleta via registered mail to the following addresses:

New Mexico Environment Department
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

Pueblo of Isleta
Attn: Ramona M. Montoya, Environmental Division Manager
P.O. Box 1270
Isleta, NM 87022

1.3.4 Duty to Reapply [MS4 Part IV.C]

The current Permit expired on December 19, 2019. As of July 27, 2021 EPA has not issued a new permit. At a meeting in Albuquerque, NM on June 27, 2019, EPA staff verbally communicated to the MS4 Technical Advisory Group (TAG) that a new permit will not be issued before December 19, 2019 and that the current permit will enter into "administrative continuance". According to Part IV.V of the Permit:

IV.V Continuation of The Expired General Permit
If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time the permittee must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or
2. Issuance of an individual permit for your discharges; or
3. *A formal permit decision by the permitting authority not to reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or an individual permit.*

Based on the above permit language, it is the understanding of DOE and NTESS that permit coverage has continued uninterrupted and without the requirement of re-application or any additional actions on our part when it expired on December 1, 2019. DOE and NTESS will continue to comply with the Permit until otherwise instructed by EPA or one of the conditions listed above is met.

1.4 Site Description

1.4.1 Ownership, Operation and Mission

SNL is a multi-mission laboratory managed and operated by NTESS, a wholly owned subsidiary of Honeywell International Inc., for the DOE/NNSA. The SFO administers the contract (DE-NA-0003525) and oversees contractor operations at the site.

SNL is engaged in research and development (R&D) of non-nuclear components of weapons systems, energy projects, and other programs in the national interest. Management encourages and seeks partnerships with appropriate U.S. industry and government groups to collaborate on emerging technologies that support the mission. R&D at SNL covers a broad spectrum of activities and new emerging technologies in areas such as microelectronics and electronic products, computer systems, materials studies, robotics, micro-electromechanical systems, biomedical engineering, and solar, wind, and fusion energy research.

1.4.2 Climate

Large diurnal temperature ranges, summer monsoons, and frequent drying winds are characteristic of the regional climate in the Albuquerque Basin and the Sandia, Manzanito, and Manzano mountains. Temperatures are typical of mid-latitude dry continental climates with summer high temperatures in the basin of approximately 90 °F and winter high temperatures around 50°F. Daily low temperatures range from approximately 60°F in the summer to approximately 20°F in the winter. The dry continental climate also produces low average humidity in the late spring and summer prior to the onset of the monsoon season. Daytime relative humidity can be between 10 and 20 percent in the spring and early summer, with an average humidity near 30 percent. Winter relative humidity averages near 50 percent.

Site-specific meteorology at SNL/NM is influenced by the proximity to topographic features, such as mountains, canyons, and arroyos. These features influence local wind patterns across the site. Canyons and arroyos tend to channel or funnel wind, whereas mountains create an upslope/downslope diurnal pattern to wind flows. Winds tend to blow toward the mountains or up the Rio Grande Valley during the day, and nocturnal winds tend to blow down the mountain towards the Rio Grande Valley. These topographically-induced wind flows can be enhanced or negated by weather systems that move across the southwestern U.S. The strongest winds occur in the spring when monthly wind speeds average 10.3 mph. Wind gusts commonly reach 50 mph.

Precipitation varies across the region with many locations in the higher elevations of the mountains receiving annual rainfall twice that of locations in the Albuquerque Basin. Nearly all

of SNL/NM west of the foothills is considered to be arid, receiving less than 10 inches of rain annually. Some remote test areas in the mountains and foothills may have annual rainfall in excess of 10 inches. Data collected at SNL from 1994 to 2012 indicates that approximately 60 percent (approximately 5 inches) of the annual rainfall occurs in four months of the year; July, August September and October (see Appendix D). Precipitation at this time is mainly in the form of brief, heavy storm events. This wetter period aligns with the wet season designated by the MS4 Permit on page 2 of Part III (July 1 through October 31). The winter season in the Albuquerque Basin and around SNL is generally dry, with an average of less than 2-inches of precipitation falling between December and February.

1.4.3 Topography, Geology and Soils

SNL is set in the high desert region in central NM. The most prominent topographic features in the vicinity of SNL are the Sandia and Manzano Mountains, which form the eastern boundary of KAFB. The Sandia Mountains form a 13-mile long escarpment distinguished by steep cliffs, pinnacles, and narrow canyons; the tallest point is Sandia Crest at 10,678 ft. The Sandia Mountains are divided from the Manzano Mountains (to the south) by Tijeras Canyon. West of the mountains lies a broad upland bench called the Llano de Sandia. Approximately 6 miles west of the KAFB boundary lies the Rio Grande. The mountains to the east and plains on the west create a diverse range of geological, hydrological, ecological, and climatic settings.

The SNL MS4 is located to the west of the mountains on the Llano de Sandia. Topography of the Llano de Sandia is gently sloping to level. Elevations range from approximately 5,800 ft above mean sea level (amsl) along its eastern extent, to approximately 5,300 ft amsl along its western extent. The predominant direction of surface drainage is from the east to the west with an average slope of about 2.5 percent, however, localized drainage directions vary.

KAFB is located within the Albuquerque geologic basin. The Albuquerque Basin is one of several north-south-trending sediment-filled basins formed by the Rio Grande Rift. This major structural feature is approximately 30 miles wide, 100 miles long, and 3,000 square miles (sq. mi.) in area. The Rio Grande has been an aggrading stream for much of its history and has filled the Albuquerque-Belen Basin with up to 10,000 ft of alluvial sediments. Sediments are divided into two separate geologic units: the Santa Fe Group and recent alluvium. Santa Fe Group sediments are characterized by poorly to moderately consolidated alluvial and colluvial deposits ranging in size from boulders to clays. Quaternary alluvium overlying deposits of the Santa Fe Group were deposited as a series of coalescing alluvial fans extending westward from the base of the mountains. These sediments range from poorly sorted mudflow material to well-sorted stream gravel. The contact between the Quaternary alluvium and underlying Santa Fe Group sediments is not readily evident from well logs.

The hydrogeological system beneath SNL/NM is separated into two zones by the Tijeras Fault Complex, which marks a distinct geological boundary. To the east of the Tijeras Fault Complex, the hydrogeology is characterized by fractured and faulted bedrock covered by a thin layer of alluvium with depths to groundwater ranging from 45 to 325 ft below ground surface (bgs) within the Albuquerque Basin. On the west side of the Tijeras Fault Complex, groundwater is contained in sediments of the Santa Fe group at depths ranging from 295 ft to 570 ft bgs.

There are five primary soil series present in and around SNL/NM: Embudo, Latene, Madurez, Tijeras, and Wink. These soils are similar in composition and structure and are classified as "B" soils in the hydrologic soil grouping scheme. Group B soils consist chiefly of well drained soils with moderately fine to moderately coarse textures.

1.4.4 Hydrology, Drainage Basins and Receiving Waters

The major drainage features within KAFB are the Arroyo del Coyote and the Tijeras Arroyo. Both Arroyos are ephemeral[1], and flow for short durations in response to precipitation. They are both receiving waters to the Rio Grande and are WOTUS. Approximately 90 percent of the SNL MS4 discharges to the Tijeras Arroyo, and 10 percent discharges to the KAFB MS4. Stormwater discharged to the KAFB MS4 is ultimately conveyed to the Rio Grande via the Albuquerque Metro Area Flood Control Authority (AMAFCA) North Diversion Channel.

The Arroyo del Coyote drains much of the eastern mountainous portion of KAFB, including the drainages of Madera Canyon, Lurance Canyon, and Sol se Mete Canyon. The Arroyo del Coyote flows from east to west and joins the Tijeras Arroyo just south (downstream) of the SNL MS4.

The Tijeras Arroyo drains the west slopes of the Sandia and the Manzano mountains, as well as Tijeras Canyon, before entering the northeast boundary of KAFB. The Tijeras Arroyo flows through KAFB in a generally southwestern direction. Immediately upstream (northeast) of KAFB, the arroyo channel widens as it leaves the igneous and metamorphic terrain of Tijeras Canyon and enters the poorly consolidated basin sediments that comprise the Santa Fe Group and Quaternary alluvium. This change in channel morphology and bed material results in a significant increase in infiltration potential. Only during heavy or prolonged rainfall or rapid snowmelt does the Tijeras Arroyo have the potential to carry water all the way through KAFB. After leaving KAFB, the Tijeras Arroyo flows through portions of the Bernalillo County and the City of Albuquerque MS4 jurisdictions before reaching the Rio Grande, approximately 4 miles downstream of the KAFB boundary.

1.4.5 MS4 Boundary and Inclusion Rationale

DOE/NNSA owns numerous discrete areas within the KAFB boundary that vary widely in terms of land use and degree of development. Paraphrasing the pertinent portions of 40 Code of Federal Regulations (CFR) 122.26(b)(8), an MS4 is defined as:

> "A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains…that discharges to Waters of the United States".

[1] According to Appendix A of the 2016-2018 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List (herein 2016-2018 §303(d) List), application of the NMED Surface Water Quality Bureau's Hydrology Protocol (survey date 6/24/09) indicates Tijeras Arroyo Assessment Unit NM-9000.A_070 as ephemeral; however, until such time that the process detailed in 20.6.4.15 NMAC Subsection C is completed to regulate the waterbody under 20.6.4.97 NMAC, it will remain under 20.6.4.98 NMAC.

Most of the land owned by DOE/NNSA and associated with SNL/NM is undeveloped with no stormwater conveyance infrastructure, and/or does not discharge to WOTUS, and therefore does not meet the definition of an MS4. The area of SNL/NM included for Permit coverage is identified on the maps in Appendices B-1, B-2, and B-3.

The SNL MS4 contains the only portion of SNL/NM that falls within the Albuquerque UA (see map in Appendix B-2). The SNL/NM MS4 is a developed area of approximately 1.16 sq. mi., containing significant impervious surfaces comprised mainly of buildings, roads, and parking lots located within Technical Areas (TAs) I, II, and IV, and serves a population of approximately 11,080 people. A centralized stormwater drainage system exists throughout the area, comprised of numerous gutters, ditches, inlets, and storm drains.

There is only one channelized inflow to the SNL MS4; an approximately 10-acre portion of the KAFB residential housing neighborhood and RV park located immediately to the north of TA-I drain to two storm drains that flow to an open concrete-lined channel (Appendix B-2). Stormwater from this area enters the SNL MS4 and is ultimately conveyed to the Tijeras Arroyo.

There are four outflows from the SNL MS4 (Appendices B-2 and B-3). Stormwater from approximately 90 percent of the SNL MS4 is conveyed to a concrete-lined channel that discharges directly to the Tijeras Arroyo; the main outfall located at the southern end of the MS4. The remaining 10 percent discharges from the northwest quadrant of the SNL MS4 to the KAFB MS4 through three separate discharge points. Stormwater entering the KAFB MS4 at these points is ultimately conveyed to the Rio Grande via the AMAFCA North Diversion Channel.

In addition to permitting the engineered SNL MS4, SFO and NTESS believe it prudent to identify a site with a history of considerable sediment loss that is contiguous to the southern boundary of TA-IV. This site is known as the TA-IV Escarpment and was previously identified as a source of notable erosion. Stormwater sampling downstream of this area performed in accordance with the MSGP identified the movement of sediment pollutants in stormwater. In 2014, corrective actions were initiated to include the installation of a sediment basin (approximately 5 acre-feet) and large-scale engineered rock check dams. Stabilization of critical portions of the TA-IV Escarpment was initiated in 2019. Two areas historically prone to erosion were regraded and hydro-seeded with native vegetation; establishment of vegetation is ongoing and expected to take 1-2 years.

1.4.5.1 Other DOE/NNSA-Owned Areas of SNL

There are remote areas of land owned by DOE/NNSA and considered to be part of SNL, located well-outside the UA defined by the census and lacking any urban-type activities. These areas do not meet the definition of an MS4 and do not discharge to WOTUS. The majority of these areas lie south of Tijeras Arroyo and include TA-V, TA-III, and the Coyote Test Field.

1.4.6 Other NPDES Permit Coverage

The SNL sites located within the boundary of the SNL MS4 that are covered under the CGP and/or MSGP are listed in Table 1-2. Stormwater discharges associated with industrial and/or construction activities at these sites will be addressed pursuant to the MSGP or CGP, as applicable. Table 1-2 will be revised with every SWMPP update to reflect the current status of NPDES Permit coverage at SNL. The MSGP SWPPP and NOIs for SNL are available to the public through the UNM Digital Repository online database located at http://digitalrepository.unm.edu/snl_msgp/.

Table 1-2: Sites covered under the MSGP or CGP within the SNL MS4 boundary between July 1, 2020 and June 30, 2021.

SNL MS4 Drainage Area	Site Name	Permit	NOI Number	Status (as of June 30, 2021)
SWSP-24	Building 812	CGP	NMR1002DJ (NTESS) NMR1002DY (Summit)	Active Construction
SWSP-05	TA-IV Chilled Water Line	CGP	NMR1003X1 (NTESS) NMR1003X4(JB Henderson)	Active Construction
SWSP-05	Building 706 Hi-Bay	CGP	NMR10027C (NTESS) NMR10027O (TCI)	Active Construction
SWSP-05	20th & G Intersection	CGP	NMR1002F3 (NTESS) NMR1002EY (DOE)	Stabilized, revegetation in progress
SWSP-05	Building 905	CGP	NMR1000FF (NTESS)	Stabilized, revegetation in progress
SWSP-05	Battery Test Facility	CGP	NMR1000XA (NTESS)	Stabilized, revegetation in progress
SWSP-05	TA-IV Escarpment	CGP	NMR1001X4 (NTESS)	Stabilized, revegetation in progress
SWSP-05	TA-II Escarpment	CGP	NMR1002LR (NTESS)	Stabilized, revegetation in progress
SWSP-05	Building 972	CGP	NMR10020U (NTESS) NMR10020X (Summit)	Terminated
SWSP-05	20th Street Parking	CGP	NMR1001ZM (NTESS) NMR1001ZQ (TLC)	Terminated
SWSP-05	Contractor Laydown Yard	CGP	NMR10027B (NTESS) NMR10027C (Summit)	Stabilized, in use
SWSP-05	Fleet Services	MSGP Sector P	NMR053114 (SFO) NMR053122 (NTESS)	Active
SWSP-05	Hazardous Waste Handling Unit	MSGP Sector K	NMR053114 (SFO) NMR053122 (NTESS)	Active
SWSP-05	Solid Waste Collection and Recycling Center	MSGP Sector N2	NMR053114 (SFO) NMR053122 (NTESS)	Active
SWSP-05	Stent 11 (MSP2)	MSGP Sector N2	NMR053114 (SFO) NMR053122 (NTESS)	Active
SWSP-05	Advanced Manufacturing Processes Laboratory	MSGP Sector AC	NMR053114 (SFO) NMR053122 (NTESS)	Active

SWSP = stormwater sampling point

1.5 Compliance with Other Laws and Regulatory Requirements [MS4 Parts I.D.1 and IV.N]

Part I.D.1 of the MS4 Permit states that if a permittee is already in compliance with one or more requirements of the MS4 Permit because it is already subject to and complying with a related local, state, or federal requirement that is at least as stringent as the MS4 Permit requirement, then the permittee may reference the relevant requirement as part of the SWMPP and document why the MS4 Permit requirement has been satisfied.

The SFO and NTESS maintain compliance with numerous state and federal regulations and laws that are related to (but do not conflict with) the requirements of the MS4 Permit. In many cases, compliance with the additional regulations and laws (as described in the following sections) meets or exceeds the requirements of the MS4 Permit, or demonstrates compliance with NPDES permits (i.e., CGP, MSGP and MS4 Permit).

1.5.1 Endangered Species Act [MS4 Part I.C.3, in part]

Stormwater discharges from the SNL MS4 are classified as Endangered Species Act Eligibility Criterion C, which means that federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near the site's action area[2], and the site's discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat.

There are no federally-listed species and/or federally-designated critical habitats on KAFB. Critical habitat for the action area is limited to the outfall where Tijeras Arroyo, an ephemeral[1] arroyo, discharges into the Rio Grande. The following are federally-listed and State of NM-listed species and/or federally-designated critical habitats located in Bernalillo County and the action area:

Species

- New Mexico meadow jumping mouse, Zapus hudsonius luteus (Federally Endangered)
- Southwestern willow flycatcher, Empidonax traillii extimus (Federally Endangered)
- Rio Grande silvery minnow, Hybognathus amarus (Federally Endangered)
- yellow-billed cuckoo, Coccyzus americanus (Federally Threatened)
- Mexican spotted owl, Strix occidentalis lucida (Federally Threatened)
- desert massasauga, Sistrurus catenatus ssp. edwardsii (Under Federal Review)
- gray vireo, Vireo vicinior (NM Threatened)
- spotted bat, Euderma maculatum (NM Threatened)
- peregrine falcon, Falco peregrinus (NM Threatened)
- Bell's vireo, Vireo bellii (NM Threatened)

[2] 50 CFR 402 defines "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

- Baird's sparrow, Centronyx bairdii (NM Threatened)

Habitats

- Rio Grande silvery minnow critical habitat (final designated)
- yellow-billed cuckoo critical habitat (proposed)

Stormwater discharges and discharge-related activities are not likely to adversely affect the species and critical habitats listed here. Although several endangered and threatened species are recognized as having the potential for occurring in the vicinity of the SNL MS4, it is not anticipated that MS4 infrastructure or operations will impact any protected species. The SNL MS4 and associated drainage area has been developed and in use for more than 50 years.

The Environmental Systems Department maintains Corporate Procedure ESH100.2.ENV.2, *Comply with Environmental Requirements for Migratory Birds, Protected Species, and Other Biota* and an extensive record of biological surveys. To ensure no impact, following completion of a NEPA review and prior to construction/operational activities, the Environmental Systems Department conducts a survey to determine the presence of nesting birds protected under the Migratory Bird Treaty Act and any other species that may have protection. Mitigations may be required to be implemented based on the results of the surveys. For construction projects, copies of these surveys are maintained on-site in the site-specific CGP SWPPPs.

As justified here, SFO and NTESS can verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered and threatened species critical habitat, in accordance with the requirements of Part I.C.3.b(vi).

A current list of endangered and threatened species is available at the U.S. Fish and Wildlife Service website http://criticalhabitat.fws.gov/crithab/. A current list of State of NM endangered and threatened species is available at http://www.wildlife.state.nm.us/conservation/wildlife-species-information/threatened-and-endangered-species/. For additional documentation, see Appendices Q-1 and Q-2.

1.5.2 Energy Independence and Security Act

SNL is a federal facility and currently complies with the Energy Independence and Security Act (EISA), Section 438 of the Clean Water Act (CWA). The purpose of EISA Section 438 is to preserve or restore predevelopment hydrology for all development and redevelopment projects with a footprint that exceeds 5,000 gross square feet (GSF). Any SNL projects that disturb more than 5,000 GSF of *ground area* (which includes laydown yards, but not road or parking lot maintenance) are subject to EISA Section 438 requirements. Existing SNL facilities that have an overall footprint of greater than 5,000 GSF that disturb less than 5,000 GSF of ground area as part of any single development or redevelopment project are not subject to EISA Section 438 requirements.

The Facilities and Emergency Management Center (FEMC) *Design Standards Manual* includes the EISA Section 438 requirements and provides guidance on its use, based on the EPA's

Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act, dated December 4, 2009.

Post-construction runoff is managed at SNL by detaining stormwater on-site in accordance with one of the two options provided by the EPA guidance:

1. Option 1 stipulates on-site detention of the runoff from a 95th percentile storm. At SNL, the 95th percentile storm is equivalent to 1.0 inches, per the EPA Guidance and 20 years of on-site precipitation data collected from a tipping bucket rain gage located at the SNL/NM Photovoltaic Systems Research and Development Facility. This is the preferred option for new developments and for retrofitting existing facilities.
2. Option 2 requires calculation of the pre-development and post-development runoff, and detainment volume difference. Pre-development means before development of any kind or what the ground cover would have been in the natural state.

Compliance with the requirements of EISA Section 438 will allow for compliance with the requirements of Parts I.D.5.b(ii)(b) and I.D.5.b(iii) of the MS4 Permit.

1.5.3 New Mexico Office of the State Engineer

In compliance with Section 19.26.2 of the New Mexico Administrative Code (NMAC) issued by the Office of the State Engineer (OSE), EISA Section 438, and the MS4 Permit, detention basins will continue to be constructed at SNL for post-construction stormwater management and may be constructed as sediment control BMPs. SNL's stormwater management detention basins and sediment basins will not be designed and constructed for the purpose of storing or appropriating waters of the State of NM; they will be designed as follows:

- To allow for the infiltration of stormwater within 96 hours following the storm event.
- To discharge stormwater in a controlled manner should a storm event exceed the design volume of the basin.
- Sediment basins on active construction sites or other highly erosive areas will be constructed for the purpose of detaining water long enough to allow for the majority of sediment to drop-out of suspension.

SFO and NTESS do not interpret compliance with the requirements of the MS4 Permit as conflicting with compliance with 19.26.2 NMAC.

1.6 Legal and Enforcement Authority [MS4 Part I.D.2]

SNL is a multi-mission laboratory managed and operated by NTESS, a wholly owned subsidiary of Honeywell International, Inc., for the DOE/NNSA. SFO administers the contract (DE-NA-0003525) and oversees contractor operations at the site.

SFO and NTESS have the legal authority to control discharges to and from the SNL MS4, and therefore operate as co-Permittees under separate MS4 Permit coverage (i.e., NOIs). The SWMPP is managed by NTESS personnel and jointly certified by SFO and NTESS. Where possible, reports and other documentation filed in accordance with the requirements of the MS4 Permit will be certified jointly, or otherwise submitted in duplicate by each co-Permittee.

Several parts of the MS4 Permit require an enforcement plan. SFO and NTESS comply with these requirements through corporate procedure and contract as follows:

- The Corporate Policy System affords NTESS the ability to "enforce" compliance with stormwater requirements, which may include disciplinary action up to and including termination of employment.
- SFO may issue a written stop work order for an activity that is imminently dangerous to the life or health of the workforce, public, or the environment. NTESS can identify an imminent danger activity to instruct a worker stoppage and contact SFO immediately for a written stop work order.
- SFO can enforce compliance with the requirements of the MS4 Permit on NTESS through contract DE-NA-0003525, by application of the following clauses: Clause I-19, DEAR 970.5204-2 Laws, Regulations, and DOE Directives (DEC 2000)(Class Deviation); Clause I-21 DEAR 970.5215-3 Conditional Payment of Fee, Profits, and Other Incentives-Facility Management Contracts (AUG 2009) Alternate II (August 2009) (NNSA Class Deviation Oct 2011) (NNSA Class Deviation May 2016); and Section I.B, incorporating by reference DEAR clause 970.5223-1, Integration of Environment, Safety, and Health Into Work Planning and Execution (DEC 2000). These clauses require NTESS to comply with all applicable federal, state, and local laws and regulations, including DOE regulations; impose requirements on subcontractors at any tier to the extent necessary to ensure NTESS's compliance with the requirements of the MS4 Permit; and cooperate with federal and non-federal agencies having jurisdiction over environment, safety, and health matters under the contract.

1.7 MS4 Stormwater Team [MS4 Part I.D.3]

The MS4 Stormwater Team (Table 1-3) is responsible for developing, implementing, maintaining and revising this SWMPP. Members of the Stormwater Team hold licenses and certifications including Certified Professional of Erosion and Sediment Control (CPESC), and Certified Inspector of Sediment and Erosion Control (CISEC). Training documentation and certificates are included as Appendix O-1 of this SWMPP.

Implementation of the SWMPP will involve multiple departments within the Corporation in addition to the Environmental Compliance and Monitoring Department and the Environmental Systems Department.

Table 1-3: SNL MS4 Stormwater Team

Roles and Responsibilities	Primary Contacts
1. DOE/NNSA, Sandia Field Office	
• Files NOI. • Certifies joint SWMPP. • Oversees NTESS's compliance with MS4 Permit requirements. • Certifies SWMPP updates, Annual Reports, DMRs and all other necessary documentation. • Requires compliance with conditions in ordinances, permits, contracts and/or orders. • Complies with all other permit requirements through enforcement of operating contract with NTESS.	Sarah Zappitello (505) 845-6885 sarah.zappitello@nnsa.doe.gov
2. NTESS *Note: NTESS assumes responsibility for the roles listed below. These roles may be managed under the direction of more than one department.*	
Environmental Compliance and Monitoring (00641) and Environmental Systems (00643) Departments	

• Files NOI.
• Prepares SWMPP.
• Certifies joint SWMPP.
• Certifies SWMPP updates, Annual Reports, DMRs and all other necessary documentation.
• Complies with MS4 Permit requirements to:
  • Control the discharge of stormwater and pollutants (construction and post-construction).
  • Prohibit illicit discharges and sanitary sewer overflows to the MS4 and require removal of such discharges.
  • Control the discharge of spills and prohibit the release of materials other than stormwater into the MS4.
  • Require compliance with conditions in ordinances, permits, contracts and/or orders.
  • Carry out all inspection, surveillance and monitoring procedures necessary to maintain compliance with the MS4 Permit.
	John Kay, Stormwater Program Lead
	(505) 844-9485
	jtkay@sandia.gov
	
	John Kay, MS4 Permit Lead
	(505) 844-9485
	jtkay@sandia.gov
	
	Carolyn Daniel, MSGP Lead
	cdaniel@sandia.gov
	
	Ross Casey, CGP Lead
	rscasey@sandia.gov
	
	Martin Baca, Stormwater Field Lead
	
	J. Ben Martinez, Environmental Release Response and Reporting Team Lead
	
	Doug Vetter, Oil Storage Tank Program Lead
	
	Jennifer Payne, Vegetative Restoration Ecologist

Roles and Responsibilities	Primary Contacts
Infrastructure Services (04700) and Facilities and Emergency Management (04800)	
• Reviews projects to identify opportunities for GI/LID. • Designs and implements GI/LID features. • Maintains stormwater facilities and features. • Maintains *Integrated Pest Management Plan* and provides oversight of pesticide use. • Maintains *Gardener's Maintenance Manual* and provides oversight of irrigation and fertilizer application. • Maintains Snow Removal Procedure that includes requirements for use and storage of de-icing agents. • Maintains Street Sweeping Procedure.	Freeman Leaming, Stormwater Drainage System Engineer Jennifer Jill Reisz Westlund, Strategic Planner for Sustainability Jim Corcoran, Landscape Architect

DMR = Discharge Monitoring Report
GI = green infrastructure
LID = low impact development

2. Water Quality Standards [MS4 Part I.C]

The MS4 Permit includes provisions to ensure that permittees do not cause or contribute to exceedances of applicable WQSs, and to control discharges to the maximum extent practicable (MEP). This section of the SWMPP presents the WQSs applicable to the SNL MS4. Measures taken to ensure compliance with those standards are contained throughout the remainder of this SWMPP.

2.1 Applicable Standards [MS4 Part I.C.1.b]

WQSs that apply to discharges from the SNL MS4 include the State of New Mexico Water Quality Control Commission (WQCC) Standards for Interstate and Intrastate Surface Waters, and the Pueblo of Isleta Surface Water Quality Standards (Section 16 of this SWMPP). While the MS4 Permit prohibits the discharge of stormwater from the SNL MS4 that would cause or contribute to an exceedance of any regulated constituent, stormwater sampling is only required for key indicator water quality constituents. These include: temperature, total suspended solids (TSS), total dissolved solids (TDS), chemical oxygen demand (COD), biological oxygen demand (BOD_5), dissolved oxygen (DO), oil and grease, *Escherichia coli* (*E. coli*), pH, nitrate plus nitrite (NPN), total Kjeldahl nitrogen (TKN), dissolved phosphorus, total phosphorus, polychlorinated biphenyls (PCBs), and gross alpha. The WQS for each of these constituents and the most stringent standard applicable to the SNL MS4 are listed in Table 2-1.

Table 2-1: Applicable water quality standards for monitored constituents

Constituent	Unit	WQCC WQSs 10/12/2000	Isleta Pueblo WQSs 03/18/2002	Most Stringent Applicable WQSs	Laboratory Reporting Limit
Temperature	°C	< 32.2	< 32.2	< 32.2	N/A
pH	--	6.6-9.0	6.0-9.0	6.6-9.0	N/A
DO	mg/L	>5	>5	>5	N/A
TSS	mg/L	--	--	--	5
TDS	mg/L	1,500[a]	--	1,500[a]	10
COD	mg/L	--	--	--	20
BOD_5	mg/L	--	--	--	2
Oil and Grease	mg/L	--	15[d]	15[d]	4
E. coli	cfu/100 mL	940[b]	88[b]	88[b]	1.0
NPN	mg/L	10	10	10	0.02
TKN	mg/L	varies[c]	varies[c]	varies[c]	0.1
Dissolved Phosphorus	mg/L	--	--	--	0.05
Total Phosphorus	mg/L	--	--	--	0.05
PCBs	µg/L	0.00064	0.00017	0.00017	0.0000203

Constituent	Unit	WQCC WQSs 10/12/2000	Isleta Pueblo WQSs 03/18/2002	Most Stringent Applicable WQSs	Laboratory Reporting Limit
Gross Alpha	pCi/L	15	15	15	0.775

-- no established standard;
NA=not applicable
WQS = water quality standard
[a] Standard reflected as monthly average. Data for SNL MS4 will be reported as single sample result from one qualifying rain event.
[b] Single sample value
[c] Based on acute ammonia as nitrogen; no TKN standard listed; pH dependent; typical anticipated range is 2-6 mg/L, calculated as: $N\ (mg/L) = 6.0225(pH)^3 - 128.94(pH)^2 + 888.82(pH) - 1933.6$
[d] Single sample value

2.2 Notification of Exceedance [MS4 Part I.C.1.c]

In the event of an exceedance of any Pueblo of Isleta WQS at an "in-stream sampling location," SFO and NTESS will notify the EPA and the Pueblo of Isleta in writing within 30 days of discovery of the exceedance. An "in-stream sampling location" is a sampling location *in* a WOTUS. To date, the SNL MS4 has no in-stream sampling locations installed or proposed for installation for compliance with the MS4 Permit.

The MS4 Permit holds no specific requirement for permittees to provide notice of an exceedance of the WQCC Standards for Interstate and Intrastate Surface Waters, except as part of the Annual Report. Reporting of exceedances in the Annual Report is addressed in Section 13 of this SWMPP.

2.3 Impaired Waters Status [MS4 Part I.C.2]

Impaired waters in NM are those that have been identified by an EPA-approved CWA §303(d) List as not meeting applicable NM WQSs. The MS4 Permit requirements for discharges to impaired waters also extend to controlling pollutants in MS4 discharges to tributaries of the impaired waters.

The only impaired water in the MRG watershed located downstream of discharges from the SNL MS4 is the Rio Grande. The Rio Grande within the Albuquerque UA is segregated into several reaches, each with reach-specific impairments.

Table 2-2: Reaches of the Middle Rio Grande within the Albuquerque UA and their associated impairments and TMDLs (from the 2020-2022 §303(d) List)

2016-2018 Integrated List	Impairments	TMDLs
Isleta Pueblo to Tijeras Arroyo (AU ID: NM-2105_50)	DO PCB (fish tissue) *E. coli* Mercury (fish tissue)	*E. coli*

Tijeras Arroyo to Alameda (AU ID: NM-2105_51)	DO PCB (fish tissue) Temperature Mercury (fish tissue)	None
Alameda to HWY 550 (AU ID: NM-2105.1_00)	Gross Alpha PCB (fish tissue) PCB (water column) Mercury (fish tissue)	*E. coli*

Stormwater from the SNL MS4 is discharged (via other WOTUS) to two reaches of the Rio Grande: the Isleta Pueblo to Tijeras Arroyo reach (ID: NM-2105_50) and the Alameda Bridge to Highway (HWY) 550 reach (ID: NM-2105.1_00). Within the Isleta Pueblo to Tijeras Arroyo reach, water quality has been determined to be impaired for four constituents; *E. coli*, DO, PCBs (in fish tissue), and Mercury (fish tissue). The only impairment with a TMDL for this reach is *E. coli*. Within the Alameda Bridge to HWY 550 reach, water quality has been determined to be impaired for four constituents: PCB (in fish tissue), PCB (in the water column), Mercury (fish tissue) and gross alpha. There is currently no TMDL for any of these impairments. Although there is no impairment for E. coli, there is an E. coli TMDL for the reach.

The reach of the Tijeras Arroyo that receives and conveys stormwater discharges from SNL to the Rio Grande (Rio Grande to Four Hills Bridge, ID: NM-9000.A_070) is classified as intermittent and is not listed as an impaired water.

2.4 Discharges to Impaired Waters with an Approved TMDL and Their Receiving Waters [MS4 Part I.C.2.b(i)]

The TMDL requirements of Part I.C.2.b(i) apply to SNL. On April 13, 2010, the WQCC published TMDLs for bacteria for the Isleta Pueblo to Alameda Bridge reach and the Alameda Bridge to HWY 550 reach. They were approved by the EPA on June 30, 2010 (US EPA, 2010). The 2010 TMDLs specify *E. coli* as the indicator parameter used to assess compliance for bacteria (2016-2018 §303(d) List). When those two reaches were split into three separate reaches in 2016 (Section 2.3), the *E. coli* TMDL was retained for both the Alameda Bridge to HWY 550 reach and the Isleta Pueblo to Tijeras Arroyo reach; therefore, all stormwater discharged from SNL is currently subject to a TMDL for E. coli.

Discharges of pollutants to an impaired water body with an established TMDL are not permitted under the MS4 Permit unless they are consistent with the established TMDL. Each individual MS4 is allowed to discharge a predetermined proportion of the total TMDL, which is referred to as the waste load allocation (WLA). The Permit specifies that the "percent jurisdiction area approach" (PJAA) be used to determine the maximum WLA for each MS4, or cooperating group of MS4s. Descriptions of the PJAA and relevant TMDL data for the MRG watershed are provided in Appendix B of the Permit. Detailed discussions of the TMDLs and the PJAA can also be found in *U.S. EPA-Approved TMDLs for the Middle Rio Grande Watershed, June 30, 2010* (U.S. EPA, 2010).

WLAs were determined for each of the monitoring locations described in Section 12.2 of this SWMPP that contribute discharge to Tijeras Arroyo. Summaries of the calculated SNL MS4 WLAs are provided in Table 2-3 and 2-4. A more detailed discussion of the calculation of the SNL MS4 WLAs is provided in Appendix F-1 of this SWMPP. The monitoring methods used to determine waste loads for evaluating TMDL compliance are described in Section 2.4.2.

Table 2-3: SNL WLAs for areas discharging to the Isleta Pueblo to Tijeras Arroyo Reach of the MRG

	Area (Miles^2)	WLAs by Flow Condition[a] (cfu/day)				
		High	Moist	Mid-Range	Dry	Low
SWSP-02[b]	0.03	$5.37x10^7$	$1.34x10^7$	$9.06x10^8$	$3.33x10^8$	$7.74x10^7$
SWSP-05	1.05	$1.88x10^9$	$4.70x10^8$	$3.17x10^8$	$1.17x10^8$	$2.71x10^7$
Total Area	1.05	$1.88x10^9$	$4.70x10^8$	$3.17x10^8$	$1.17x10^8$	$2.71x10^7$

[a] Values taken from Appendix B of MS4 Permit

[b] The drainage area within the SNL MS4 for SWSP-02 is approximately 0.03 sq. mi. The total drainage area for SWSP-02 is larger and estimated to be approximately 0.07 sq. mi because a portion of the runoff from KAFB drains to SWSP-02. The flow monitored by SWSP-02 continues to SWSP-05, and the SWSP-02 drainage area that falls within the SNL MS4 is included in the drainage area of SWSP-05.

Table 2-4. SNL WLAs for areas discharging to the Alameda Bridge to HWY 550 Reach of the MRG

	Area (sq mi)	WLAs by Flow Condition[a] (cfu/day)				
		High	Moist	Mid-Range	Dry	Low
SWSP-24	0.08	2.60×10^8	7.53×10^7	4.15×10^7	2.70×10^7	1.39×10^7
SWSP-35	0.02	6.50×10^7	1.88×10^7	1.04×10^7	6.74×10^6	3.48×10^6
SWSP-36	0.01	3.25×10^7	9.41×10^6	5.19×10^6	3.37×10^6	1.74×10^6
Total Area	0.11	3.58×10^8	1.04×10^8	5.71×10^7	3.71×10^7	1.91×10^7

[a] Values taken from Appendix B of MS4 Permit.

2.4.1 Bacteria-Specific BMPs

There are no long-term historic stormwater sampling data for *E. coli* or any bacteria for the SNL MS4. *E. coli* data are limited to 52 samples collected under this permit between 2016 and 2021. These samples indicate a range of *E. coli* from 0 to >24,196 mpn/100 mL, with a median value of 731 mpn/100 mL.

It is unclear what sources contribute to the *E. coli* found in stormwater at SNL. There are no known anthropogenic sources of *E. coli* within the SNL MS4 with the potential to impact stormwater. SNL meets the definition of a non-traditional MS4[3] and it does not contain

[3] Non-traditional MS4 means systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings. 40 CFR 122.26(a)(16)(iii).

residential areas or domesticated animals (e.g., dogs and cats) that have the potential to contribute large sources of bacteria to the MS4. Due to the urbanized nature of the SNL MS4 drainage area, wildlife populations are limited within the MS4 boundary.

There are no on-site wastewater treatment systems within the boundary of the SNL MS4 that discharge [treated] wastewater to the surface. Pre-treatment units for industrial wastewater are used to meet acceptable discharge limits, but all wastewater is conveyed via underground sewer lines to the Albuquerque Bernalillo County Water Utility Authority. Sanitary sewer overflows (SSOs) are rare at SNL; the most recent SSO occurred during the reporting period on February 1, 2018; it was approximately 50-gallons in size and was cleaned from an asphalt parking area before entering the stormwater drainage system.

During the 2019-2020 Monitoring period, a DNA based microbial source tracking (MST) investigation was conducted to help determine potential sources of E. coli in stormwater at Sandia. The MST investigation determined that there is essentially no human, avian, or canine source of E. coli in stormwater at SNL/NM. By process of elimination, the source of E. coli is likely wildlife (skunks, racoons, rodents) that are known to exist within the vicinity of the stormdrain system. Several measures to reduce E. coli that are being pursued include wildlife preclusion, sediment reduction, and decentralizing the storm drainage system. Full results of the MST study and recommended BMPs are provided in Appendix R-7.

2.4.2 Monitoring and Assessment

The Permit specifies that the TMDL applies only to areas within the Albuquerque UA; however, the SNL MS4 extends outside the boundary of the UA. Due to stormwater drainage access limitations, there are no monitoring locations that can be used to assess waste load for the UA only; therefore, *E. coli* is monitored for the entire SNL MS4 (not just the UA), and the WLAs are reported for each of the five monitoring locations. Additionally, the amount of *E. coli* attributable to only the portion of the SNL MS4 within the Albuquerque UA will be estimated on a proportional per-area basis.

Flow rates at SWSP-02 and SWSP-05 are determined by direct measurement using the slope-area method described in the *Bureau of Reclamation Water Measurement Manual* (U.S. Bureau of Reclamation, 2001). The depth-of-water is determined using an ultrasonic distance sensor. Water depth is converted to discharge (flow rate) using Manning's Equation and site-specific channel geometries. This provides direct measurement of flow for all inflow to the SNL MS4 jurisdiction, as well as discharge from approximately 90 percent of the MS4.

The calculated waste loads will be evaluated against the waste load allocations for each monitoring location, in addition to the Albuquerque UA, and the entire MS4.

2.5 Discharges Directly to Impaired Waters without an Approved TMDL [MS4 Part I.C.2.b(ii)]

The SNL MS4 does not discharge directly to an impaired water without an approved TMDL; therefore, the requirements of MS4 Part I.C.2.b(ii) do not apply to the SNL MS4.

2.6 Anticipated Program Development and Implementation Schedule [MS4 Table 1.a]

Table 2-4: Pre-TMDL bacteria program development and implementation schedule

Activity	Required Implementation Date	Implementation Status
Identify potential significant sources of pollutants of concern entering the MS4.	12/22/2015	Initiated; on-going
Develop and implement a public education program to reduce the discharge of bacteria in municipal stormwater contributed (if applicable) by pets, recreational and exhibition livestock, and zoos.	Not applicable to SNL MS4	Not applicable to SNL MS4
Develop and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by areas within the MS4 served by on-site wastewater treatment systems.	Not applicable to SNL MS4	Not applicable to SNL MS4
Review results to date from IDDEP (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4.	04/22/2016	Initiated; on-going; see Section 2.4.1
Develop and implement a program to reduce the discharge of bacteria in municipal stormwater contributed by other significant sources identified in the IDDEP (see Part I.D.5.e).	06/22/2016	Initiated; on-going; see Section 2.4.1
Include in the Annual Reports progress on program implementation for reducing bacteria and update measurable goals as necessary.	December 1 each year	Complete for December 1, 2021

3. Endangered Species Act Requirements [MS4 Part I.C.3]

Permittees are required to meet the requirements described in the following sections in order to ensure that actions allowed by the MS4 Permit are not likely to jeopardize the continued existence of an endangered species or threatened species listed in the U.S. Fish and Wildlife *Biological Opinion* dated August 21, 2014, or to adversely affect its critical habitat.

3.1 Dissolved Oxygen Strategy in Receiving Waters [MS4 Part I.C.3.a(i)]

The MS4 Permit requires permittees to identify structural elements, topographical and geographical formations, MS4 operations, or oxygen consuming pollutants contributing to reduced DO in the receiving waters of the Rio Grande. Permittees are required to submit a summary of investigations, findings, and activities undertaken with each Annual Report. Additionally, in the first and fourth SWMPP updates, permittees are required to include a detailed description of controls implemented (or proposed) and the corresponding measurable goals.

Since SFO and NTESS are first-time MS4 permittees, there are no long-term historic DO data collected from SNL. Since inception of this permit, DO has been measured in a total of 49 wet weather composite samples collected from various outfalls. There have been no persistent sources of low DO identified; however, DO in 4 of the 46 samples were below the minimum water quality standard of 5.0 mg/L. Three of these samples were collected during the same storm event (11/22/2016), and the other one occurred in a small storm drain (SWSP-24) where less than 3% of the total MS4 discharge occurs.

Based on the MS4 operations and known structural elements, SFO and NTESS cannot explain the occurrence of DO levels in stormwater below 5 mg/L. There are no known sources of standing/stagnant water, human or animal waste, excessive organic materials, or other conditions that explain the low DO readings. Generally, stormwater samples are processed and submitted to the lab hours after the storm event triggers collection by the automatic sampler. It is suspected that the DO may decrease while retained in the automatic sampler. When storm events occur early in the day, this hypothesis will be tested to determine the effect of hold time on DO.

DO and other pollutants that may contribute to decreased DO concentrations (such as TSS, COD, and BOD) will continue to be monitored. Based on future results, control measures including BMPs and measurable goals will be evaluated for implementation.

Based on review of facilities and operations within the SNL MS4, the following assessment of DO conditions and controls was made:

- Site wide visual inspections of the stormwater conveyance system were conducted to identify features and/or locations that could decrease DO in stormwater. The inspections did not identify any structural elements, topographical features, or geographical formations having the potential to significantly contribute to reduced DO.

- Naturally occurring organic materials (e.g., fallen leaves, tumbleweeds) may collect in the stormwater drainage system between storm events, and may contribute to localized areas of low DO. Should these areas be identified as contributors of low DO, the frequency of scheduled maintenance and cleaning will be increased.
- Stormwater discharges from operations within the SNL MS4 are identified and controlled through the Corporate Policy System. A NEPA review is required to be completed for all proposed work (MN471022, *NEPA, Cultural Resources, and Historic Properties*) and ongoing work is reviewed on an established frequency. Following a NEPA review, all applicable permits are obtained for operations, including NPDES permit coverage. The discharge of oxygen-consuming pollutants from operations or activities is prevented through adherence to regulatory requirements, performance of compliance reviews and implementation of corrective actions as necessary. Additionally, NTESS has rigorous spill response procedures (which include collaboration with the Environmental Compliance and Monitoring Department) through the Emergency Operations Center, and a Spill Prevention, Control and Countermeasure (SPCC) Plan (see Section 8.2.10 of this SWMPP).

3.2 Sediment Pollutant Load Reduction Strategy [MS4 Part I.C.3.b]

The MS4 Permit requires permittees to develop, implement, and evaluate a Sediment Pollutant Load Reduction Strategy to assess and reduce the sediment load of discharges to receiving waters of the Rio Grande. In early 2016, a thorough sediment assessment was conducted at SNL and a *Sediment Pollutant Load Reduction Plan* was developed (Appendix Q-3) to include the following elements:

- Sediment Assessment [MS4 Part I.C.3.b(i)]
- Estimate of Baseline Loading [MS4 Part I.C.3.b(ii)]
- Targeted Controls [MS4 Part I.C.3.b(iii)]
- Monitoring and Interim Reporting [MS4 Part I.C.3.b(iv)]
- Progress Evaluation and Reporting [MS4 Part I.C.3.b(v)]

Undeveloped areas within the SNL MS4 where soil is exposed at ground surface were catalogued and investigated thoroughly to estimate current rates of erosion (sediment loss in stormwater), identify existing control measures, and develop a strategy for further reducing sediment loss.

All undeveloped areas greater than 0.5 acres were mapped using a geographic information system (GIS). Twenty-four areas were identified. Ground-truthing was conducted to assess vegetation density, slope, drainage directions, and presence of control structures. The results of GIS mapping and ground-truthing were used to conduct sediment loss modeling using the RUSLE2 model. Model results estimate current sediment losses of 7.54 tons/year from approximately 230 acres of the SNL MS4. These estimates contain a large range of uncertainty due to model limitations. Eighteen of the 24 sediment areas were estimated using the Revised Universal Soil Loss Equation, Version 2 (RUSLE2) to yield less than 0.1 ton per acre per year, which has an accuracy of ±500 percent. The remaining six areas had an uncertainly of between

50 and 500 percent. Regardless, the amount of sediment loss from the SNL MS4 is very low, which is due primarily to its low gradient, the large areas stabilized by native vegetation, and the widespread use of block and gravel (B&G) inlet protection structures.

RUSLE2 modeling determined that the installation of B&G inlet protection structures (as proposed in the Sediment Pollutant Load Reduction Plan) reduces sediment in stormwater discharged from the SNL MS4 by about 80 percent for a given sediment area. Several B&G structures are currently installed in areas with high potential for sediment to enter the SNL MS4; and based on RUSLE2 modeling, the amount of sediment loss that occurred from the SNL MS4 prior to the installation of these existing sediment controls was approximately 275 percent higher than it is today.

Additional sediment controls are proposed for installation, including B&G structures, check dams, and rip rap in the six sediment areas where stabilizing vegetation and/or physical controls are not already present. Furthermore, several existing B&G structures were identified that require either maintenance or modification to ensure continued performance. The implementation of these control measures is expected to reduce the total sediment load for the SNL MS4 by 30 percent, from 9.43 tons per year to 6.51 tons per year.

Monitoring is conducted to evaluate the effectiveness of targeted controls and BMPs (Section 12 of this SWMPP). Documentation of methods and any available monitoring results are provided in this SWMPP and will continue to be included in each SWMPP update and Annual Report. The overall effectiveness of the Sediment Pollutant Load Reduction Plan was evaluated and a progress report is provided in Appendix Q-4.The progress report provides data and analysis in a manner that facilitates the evaluation of BMP effectiveness and compliance with Endangered Species Act requirements specified in Part I.C.3.b(iii) of the MS4 Permit.

4. SWMPP Components and Compliance

4.1 Purpose of SWMPP [MS4 Part I.D.1]

The SWMPP is developed to control and reduce discharges of pollutants from the SNL MS4 to the MEP, and to protect water quality within and downstream of SNL. The SWMPP meets the requirements of MS4 Permit NMR04A000, Section 402(p)(3)(B) of the Clean Water Act, and NPDES regulations (40 CFR 122.26 through 122.34).

Implementation, compliance, and enforcement of the MS4 Permit at SNL is documented in the SWMPP. The SWMPP is updated as necessary (annually at a minimum) and submitted to the EPA with the Annual Report which is due December 1st each year.

4.2 Control Measure Programs [MS4 Parts I.D.4 and I.D.5]

In accordance with the MS4 Permit, the SWMPP includes the control measure programs listed here. Each control measure program is addressed in a separate section of this SWMPP.

- Section 5: Construction Site Runoff Control Program - Controls the discharge of stormwater and pollutants associated with land disturbance and development activities.
- Section 6: Post-Construction Stormwater Management Program - Controls the discharge of stormwater from new development and redevelopment projects after construction site stabilization has been achieved to minimize water quality impacts.
- Section 7: Pollution Prevention/Good Housekeeping Program – Prevents or reduces pollutant runoff from municipal-like operations through training, maintenance, and waste management.
- Section 8: Illicit Discharge Detection and Elimination Program - Prohibits illicit (non-allowable non-stormwater) releases of materials into the MS4 and communicates spill response processes.
- Section 9: Control of Floatable Discharges Program - Controls floatables in discharges to the MS4 through implementation of source or structural controls.
- Section 10: Public Education and Outreach Program - Provides education to Members of the Workforce, DOE/NNSA/SFO personnel, and the public about stormwater quality protection and the impact of non-point source pollution.
- Section 11: Public Involvement and Participation Program - Encourages public involvement and provides opportunities for participation in review, modification and implementation of the SWMPP.

4.3 Organizational Structure of Programs [MS4 Part I.B.2.i]

For each control measure program, this SWMPP includes a description of the BMPs to be implemented; the measurable goals for each BMP; and the anticipated time frames (and interim milestones, as appropriate) for implementing each BMP. As the SWMPP evolves through annual updates, each control measure program will include the following subsections:

- Requirement Descriptions and Cooperative Status

- Mechanisms Used to Comply with Permit Requirements (BMPs)
- Measurable Goals
- Anticipated Program Development and Implementation Schedule
- Performance Assessment

4.4 Process for SWMPP Reviews [MS4 Part I.D.6.a]

The SWMPP will undergo an annual review (and update, as appropriate) in conjunction with preparation of the Annual Report. Each Annual Report will include the following components:

- A discussion of progress made in SWMPP implementation, including achievement of measurable goals and compliance with control measure program elements and other MS4 Permit conditions.
- An evaluation of the effectiveness of the SWMPP in complying with the Permit with respect to controlling pollutant discharges and complying with WQSs and TMDLs.
- The necessity for SWMPP modifications to comply with the Permit and control pollutant discharges, if applicable.

4.5 Schedules of Implementation

The NOIs for Permit coverage of the SNL MS4 and a complete SWMPP were submitted in accordance with Permit requirements on June 17, 2015. The initial SWMPP provided a summary of the applicable Permit requirements, descriptions of BMPs, measurable goals and anticipated implementation dates as required by MS4 Part I.B.2. The SWMPP will be updated annually, at a minimum, during the Permit term, and will include all applicable records.

4.6 SWMPP Modifications

The SWMPP may be modified under the conditions described in the following sections. Any modifications pursuant to Part IV.A of the MS4 Permit will be done in accordance with Part V.B [MS4 Part VI.D].

4.6.1 Permittee-Initiated Modifications [MS4 Part I.D.6.b]

The SWMPP may be modified with prior notification or request to the EPA and NMED in accordance with Part I.D.6 of the MS4 Permit. Modification requests or notifications shall be made in writing and signed in accordance with Part IV.H of the Permit.

- The permittee can make modifications that add, but do not eliminate, replace, or jeopardize fulfillment of any component, control, or requirements of the SWMPP at any time upon written notification to the EPA.
- The permittee can request approval from the EPA in writing at any time to make modifications that replace or eliminate an ineffective or infeasible component, control, or requirement of the SWMPP (including monitoring and analysis requirements). When requesting a modification, the permittee shall include the following information:
    - A description of why the SWMPP component is ineffective, unfeasible (including cost prohibitions), or unnecessary to support compliance with the Permit;
    - Expectations on the effectiveness of the proposed replacement component; and

- An analysis of how the proposed replacement component is expected to achieve the goals of the component to be replaced.

4.6.2 EPA-Required Modifications [MS4 Part I.D.6.c]

The EPA may request modifications to address impacts to receiving water quality, include requirements to comply with new or revised regulations, add measures needed to comply with the Clean Water Act, or add measures needed to comply with the MS4 Permit. If the EPA requests modifications, the permittee will be provided with an opportunity to propose alternative program modifications to meet the objective of the requested modification.

4.6.3 Modifications Due to MS4 Permit Conditions [MS4 Part V]

The MS4 Permit may be reopened and modified, in accordance with 40 CFR §122.62, §122.63, and §124.5. Only those portions of the SWMPP specifically required as Permit conditions shall be subject to the modification requirements of 40 CFR §124.5.

5. Construction Site Runoff Control Program [MS4 Part I.D.5.a]

5.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, implement, and enforce a program to reduce pollutants in any stormwater runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre (consistent with the permitting requirements of the NPDES CGP).

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

5.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

5.2.1 Development of Corporate Procedure [MS4 Part I.D.5.a(ii)(a)]

Corporate Procedure MN471022 *Surface and Stormwater Discharges* (Appendix E-1) is in place to address stormwater discharges at SNL and to require compliance with NPDES permits including the CGP, MSGP, and MS4. Enforcement of the procedure is addressed through the protocol discussed in Section 1.6 of this SWMPP. Administrative Operating Procedure (AOP) 16-01, *Stormwater Permitting for Construction Activities* and Field Operating Procedure (FOP) 13-01, *Stormwater Inspections* are used to define work activities.

5.2.2 Development of Requirements and Procedures [MS4 Parts I.D.5.a(ii)(b) through (h)]

5.2.2.1 Existing Construction Program (SWPPPs, Inspections and Records Management)

SFO and NTESS comply with all the requirements of Parts I.D.5.a(ii)(b) through (h) of the MS4 Permit, as described in AOP 16-01, *Stormwater Permitting for Construction Activities*.

When a construction project is in the planning phase, the project manager submits a NEPA checklist to the Environmental Systems and Environmental Compliance and Monitoring departments for review. This prompts a review by environmental subject matter experts to determine which environmental permits are necessary for the planned work. The Stormwater Program evaluates the NEPA checklist for applicability of all NPDES permits, EISA Section 438, and any other stormwater requirements. CGP coverage is required for any project that is planned to disturb one or more acres of land; or where multiple smaller projects or phases that are each less than one acre, but that collectively disturb one or more acres of land. Construction planned in (or adjacent to) areas with existing CGP coverage requires modification of the

existing SWPPP (and possibly the NOI). Where CGP coverage is not required, but the project has a potential to generate stormwater pollutants in a sensitive area or within the SNL MS4, stormwater controls and pollution prevention measures are required through the NEPA process. More details are provided in Section 5.3 of this SWMPP. Work is not authorized to commence until the NEPA checklist has been approved by all applicable entities (including SFO) and permit coverage is obtained.

When CGP coverage is required for a planned construction project, the project manager is responsible for coordinating with the Stormwater Program several months prior to commencement of construction activities to obtain a SWPPP and NOI under the CGP. The NM-specific requirements of the CGP prescribe that SWPPPs be "prepared in accordance with good engineering practices by qualified erosion control specialists (e.g., CPESC certified, engineers with appropriate training, etc.) familiar with the use of soil loss prediction models and design of erosion and sediment control systems based on these models (or equivalent soil loss prediction tools)". SWPPPs for SNL projects are produced by qualified staff in the Stormwater Program in accordance with the requirements of the CGP (documentation is included in Appendix O-1 of this SWMPP), and comply with Part I.D.5.a(ii)(d) of the MS4 Permit, as they consider potential water quality impacts and include: a site design, planned operations at the construction site, planned control measures during the construction phase, and planned controls to be used to manage runoff created after the development (Appendix G-3). The SWPPPs comply with the requirements of Part I.D.5.a(ii)(f) by identifying roles and responsibilities of SFO, NTESS, construction subcontractors, and operators, including who is responsible for site inspections and who has the authority to invoke corrective actions. Additionally, the SWPPPs discuss the details of erosion and sediment controls such as perimeter controls, sediment track-out, stockpiled soil, dust control, minimization of steep slope disturbance, topsoil preservation and prevention of soil compaction, storm drain and inlet protection, conveyance channels and basins, and temporary and permanent site stabilization. The details of pollution prevention measures such as implementing spill prevention and response, fueling and maintaining vehicles, vehicle and equipment washing, storage, handling and disposal of construction products, concrete and paint washout, and fertilizer application are also included.

Additional elements included in the SWPPPs to demonstrate compliance with the MS4 Permit include, but are not limited to:

- A checklist to demonstrate consideration of GI/LID/Sustainable Practices during design;
- Plans and specifications for EISA Section 438 features that ensure the hydrology associated with new development and redevelopment sites mimics (to the extent practicable) the pre-development hydrology of the previously undeveloped site (as discussed in Section 1.5.2 of this SWMPP); and
- Calculations or other documentation to demonstrate compliance with 19.26.2 NMAC issued by the OSE (as discussed in Section 1.5.3 of this SWMPP).

Operators (or permittees) for the construction projects include SFO (as applicable), NTESS, and the construction subcontractor(s); all are required to certify the SWPPP and submit separate NOIs to the EPA. Subcontractors are also required to sign a form acknowledging their responsibility to comply with the CGP and SWPPP requirements.

Construction site inspections are performed by the Stormwater Program in accordance with the CGP requirements to ensure proper construction, operation, maintenance, and repair of erosion and sediment controls, and pollution prevention measures. Inspections are performed routinely and after storm events at the frequency specified in each site-specific SWPPP, for the duration of the construction project and until a Notice of Termination (NOT) is filed. When inspections reveal necessary maintenance or repair of BMPs or other problems with the site, corrective action reports are created, and follow-up inspections are performed to document completion of corrective actions.

The Stormwater Program began writing SWPPPs and conducting inspections (as opposed to contracting with consultants) for SNL in 2013. Since then, construction subcontractors' understanding of and compliance with SWPPP and CGP requirements has greatly improved. Discovery, reporting, and recording of corrective conditions and implementation of corrective actions have also greatly improved. Regarding enforcement, in the couple of instances where construction projects were initiated without a SWPPP and CGP coverage, Environmental, Safety and Health (ES&H) issued stop work orders immediately. Work was not authorized to re-commence until all permits were in place.

As required by Part I.D.5.a(ii)(h) of the Permit, SWPPP records for every active construction site, including inspection and corrective action reports are maintained in the office of the Stormwater Program for three years following the NOT.

5.2.2.2 Existing Training Program

There is a well-developed process in place for educating Members of the Workforce[4] and construction subcontractors involved in planning, reviewing, permitting, and/or approving construction site plans, inspections and enforcement, as required by Part I.D.5.a(ii)(g) of the MS4 Permit. Corporate Training SW100, *Stormwater Pollution Prevention Training* was created in 2014 for Members of the Workforce and SFO personnel who have job duties that have the potential to impact stormwater quality. Additionally, immediately prior to the commencement of construction, Stormwater Program personnel administer site-specific SWPPP training to Members of the Workforce and SFO personnel responsible for installing or repairing stormwater controls, conducting inspections and implementing corrective actions. Training documentation is maintained to track compliance with these initiatives.

Corporate Training SW200, *Stormwater Discharges from Industrial Sites* was initiated in October 2005 to train the Stormwater Team and Members of the Workforce and SFO personnel who work at and oversee permitted industrial sites at SNL/NM.

5.2.2.3 Corporate Procedures and Processes

In addition to sustaining the CGP process discussed previously, several corporate procedures are maintained that address MS4 Permit requirements. In compliance with Part I.D.5.a(ii)(f),

[4] Members of the Workforce are NTESS employees and contract personnel who are subject to the Corporate Policies, Processes, and Procedures through the terms of their contract.

procedures and responsibilities for site inspections, maintenance and repair of control measures, and implementation of corrective actions are specifically addressed in each construction SWPPP, and are included more generally in FOP 13-01, *Stormwater Inspections*. Requirements for maintaining records including NOIs, NOTs, inspection and corrective action reports, and other applicable documentation as required in Part I.D.5.a(ii)(h), are included within each site-specific CGP SWPPP. *MN471022Surface and Stormwater Discharges* (Appendix E-1) includes the following elements:

- Requirements that operators of all SNL construction activities with a planned land disturbance of greater than or equal to one acre (consistent with the permitting requirements of the NPDES CGP) obtain a SWPPP from the Stormwater Program [I.D.5.a(ii)(d)], certify the SWPPP and file a NOI for coverage under the CGP.
- Requirements for construction site operators to construct, install and implement appropriate erosion and sediment control BMPs (both structural and non-structural), as specified in detail in the SWPPP and CGP [I.D.5.a(ii)(b)].
- Requirements for construction site operators to control waste such as, but not limited to, discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality, as specified in the SWPPP and CGP [I.D.5.a(ii)(c)].
- Notification that any projects beginning prior to permit coverage will be stopped immediately and will not be authorized to commence until a SWPPP and CGP coverage (at a minimum) have been obtained. Enforcement authority is discussed in Section 1.6 of this SWMPP [I.D.5.a(ii)(f)].
- Requirements for Members of the Workforce and DOE/NNSA/SFO personnel with certain job duties to complete Corporate Training SW100, *Stormwater Pollution Prevention Training* and SW200, *Stormwater Discharges from Industrial Sites* annually (discussed in detail in Section 7.2.1.1 of this SWMPP). Additional requirements for Members of the Workforce responsible for installing and/or repairing stormwater controls and measures, conducting stormwater inspections and implementing corrective actions to take site-specific SWPPP training [I.D.5.a(ii)(g)].

SFO and NTESS have and will continue to follow the public notice processes (documented in Sections 1.3 and 11.2 of this SWMPP) to consider input from the public regarding the development and implementation of this program [I.D.5.a(ii)(e)].

5.2.3 Annual Inspection of 100 Percent of Construction Sites [MS4 Part I.D.5.a(iii)]

As described previously, the Stormwater Program routinely conducts construction site inspections in accordance with the CGP and SWPPP requirements; therefore, 100 percent of all construction projects cumulatively disturbing one or more acres within the MS4 jurisdiction are inspected several times within a year. When site inspections reveal necessary maintenance, repair or other problems with the site, corrective action reports are created, and follow-up inspections are performed to document completion of corrective actions. All projects are inspected at completion of construction, prior to filing a NOT, to verify proper final stabilization.

SFO, as a Permittee, provides oversight of NTESS (operator and co-Permittee) and the construction activities at SNL by shadowing site inspections and reviewing CGP SWPPPs for sites that discharge within the SNL MS4 boundary. See Appendix G-1 for a summary of site inspections conducted during the reporting period.

5.2.4 Coordination with Departments Involved in Construction Projects and Activities [MS4 Part I.D.5.a(iv)]

When a construction SWPPP is developed, the Stormwater Program coordinates with many organizations that have responsibilities associated with the planning, reviewing, permitting, or approving of construction projects and activities, to ensure that stormwater runoff controls prevent erosion and maintain sediment on site. In 2015, project leads from the Stormwater Program, Infrastructure Services Center (ISC) and Facilities and Emergency Management Center (FEMC) participated in workshops to promote communication and develop processes for ensuring proper implementation of stormwater controls during and after construction. The MS4 Stormwater Team, listed in Table 1-3, meets quarterly to discuss and collaborate on construction and post-construction stormwater management projects, GI/LID/Sustainable practices opportunities, updates to stormwater-applicable corporate procedures, and any other stormwater-related topics.

5.2.5 Evaluation of Green Infrastructure/Low Impact Development/Sustainable Practices [MS4 Part I.D.5.a(v)]

Permittees are required to: (1) include an evaluation of opportunities for use of GI/LID/Sustainable practices; and (2) encourage project proponents to incorporate such practices into the site design to mimic the pre-development hydrology of a previously undeveloped site during the site plan review required in Part I.D.5.a.(ii)(d).

New buildings, major renovations and alterations of buildings greater than 5,000 GSF at SNL must comply with the Guiding Principles for Federal Leadership in High Performance Sustainable Building. Where the work exceeds a footprint of 5,000 sq.-ft and a budget of $5 million, buildings must achieve the U.S. Green Building Council's Certification of Leadership in Energy and Environmental Design (LEED) Gold for New Construction. A design charrette occurs in the construction planning stages of each project and includes an evaluation of Green Infrastructure/Low Impact Development/Sustainable practices. The checklist used to evaluate projects for LEED opportunities is provided in Appendix G-2. Additional details on GI/LID/Sustainable practices are discussed in Section 6.2 of this SWMPP.

A summary of the construction projects requiring CGP coverage within the SNL MS4 boundary that incorporated GI/LID/Sustainable practices is included in Appendix G-1.

5.3 Additional Activities to Address Construction Site Runoff

While most construction activities less than one acre in size do not require CGP coverage, there is potential for stormwater pollution to be discharged from construction projects and activities of any size. As a result, in 2014, in response to NEPA checklists, the Stormwater Program began

requiring the installation of stormwater controls and pollution prevention measures to address the most critical pollutant sources associated with these activities. The following construction site stormwater controls and pollution prevention measures are included in Corporate Procedure MN471022 *Surface and Stormwater Discharges* (Appendix E-1):

- Storm drains or drop inlets are required to be equipped with sediment control devices. The drain/inlet controls should be designed, installed and maintained to limit or prevent the discharge of debris, chemicals, sediment or other pollutants in stormwater runoff generated by the project. Controls should be installed such that sediment is prevented from entering the drain/inlet while allowing stormwater to pass through, avoiding flooding. Be mindful that storm drain/inlet controls can create traffic hazards; use safety markers where appropriate. Where drain/inlet controls pose a traffic risk, alternative controls should be installed upgradient of the storm drain.
- Chemicals/fuels stored outdoors are required to be contained in tightly sealed containers to prevent contact with precipitation *and* placed on secondary containment to prevent contact with stormwater.
- Chemicals/fuels stored indoors or under a waterproof structure do not require secondary containment, but it is recommended they be elevated above the ground surface (e.g., on a pallet) to prevent contact with stormwater runoff or other moisture.
- A spill kit suitable for responding to the types and quantities of chemicals/fuels is required to be maintained on-site. Personnel should be familiar with its use and location.
- Portable toilets are required to be secured (i.e., stake with rebar or bolt to trailer) to prevent tipping.
- Containers and trucks containing paint, concrete or other building products are required to be washed into an appropriate waste container. Discharges to the sanitary sewer, storm drain or ground surface are prohibited.
- A minimum 50-foot setback from storm drain/inlets is required to be maintained for fueling/maintaining vehicles/equipment, chemical/fuel storage, portable toilets, and concrete/paint washout containers.
- All activities and personnel are required to comply with Corporate Procedure NM471022, *Surface and Stormwater Discharges*.
- Water used or discharged during this project should be prevented from entering the stormwater drainage system.
- Pesticide and/or herbicide use is required to adhere to the requirements of the *Integrated Pest Management Plan, PLN-021*.
- Fertilizer application is required to adhere to the *Gardener Preventive Maintenance Guideline, GDL-128*.

5.4 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures and training developed to communicate stormwater requirements for construction will be reviewed annually and updated as necessary to ensure regulatory

and contact information is current, and to respond to the educational and training needs of Members of the Workforce.

2. The Stormwater Program will maintain a current list of active construction projects holding CGP coverage, including applicable Permit details.
3. For active construction sites eligible for CGP coverage located within the boundary of the SNL MS4, the number and frequency of inspections, required corrective actions (discovery during site inspections) and associated compliance history will be maintained and provided with each Annual Report. The summary includes annual and cumulative totals for each site, and will be maintained for the Permit term [I.D.5.a(ii)(h)].
4. A log will be maintained of any NPDES-related stop work orders issued within the boundary of the SNL MS4 [I.D.5.a(ii)(h)].
5. A summary will be maintained of the annual construction projects (one acre or more) that incorporated GI/LID/Sustainable practices.
6. The number of construction projects less than one acre in size within the SNL MS4 boundary that were required (through the NEPA process) to implement stormwater controls and pollution prevention measures within the reporting period will be reported.

5.5 Anticipated Program Development and Implementation Schedule [MS4 Table 2]

Table 5-1: Construction Site Runoff Control Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop Requirements [I.D.5.a.(ii)(a)]	12/22/2015	Completed
Develop Requirements and Procedures [I.D.5.a.(ii)(b) through (h)]	04/22/2016	Completed
Inspect 100 percent of Construction Sites [I.D.5.a.(iii)]	start 04/22/2016; annually thereafter	Completed through ongoing compliance with the CGP
Coordinate with Other Departments [I.D.5.a.(iv)]	12/22/2015	Completed
Evaluate New Projects for GI/LID/Sustainable Practices [I.D.5.a.(v)]	12/22/2015	Completed
Update the SWMPP and Submit Annual Report [I.D.5.a.(vi) and (vii)]	December 1 each year (first due 12/01/2016)	Completed for December 1, 2021
Enhance the program to include program elements of Parts I.D.5.a(viii) through (x).	update as necessary / applicable	In progress, continuous

5.6 Performance Assessment

Table 5-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate Trainings SW100 and SW200 were revised to include requirements of the MS4 Permit and 2015 MSGP.
July 2016 – June 2017	Minor updates to SW100 and SW200 were made to improve information provided to Members of the Workforce and DOE/NNSA/SFO personnel. The latest revision was made May 4, 2017.
July 2017 – June 2018	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 was created for Environmental Safety and Health (ES&H) Coordinators and others with job duties related to environmental compliance. Approximately 55 members of the workforce received training during the monitoring period.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020– June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions, including the new MSGP issued in 2021. ESH 350 training was provided to approximately 22 members of the workforce.
Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Two construction projects located within the SNL MS4 boundary (planned and began construction after the effective date of the MS4 Permit) were required to obtain coverage under the CGP. The Stormwater Program developed a SWPPP for each of these projects. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.
July 2016 – June 2017	Four construction projects located within the SNL MS4 boundary held coverage under the CGP during the reporting period. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.
July 2017 – June 2018	Five construction projects located within the SNL MS4 boundary held coverage under the CGP during the reporting period. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.
July 2018 – June 2019	Eleven construction projects located within the SNL MS4 boundary held coverage under the CGP during the reporting period. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.

July 2019 – June 2020	Twelve construction projects located within the SNL MS4 boundary held coverage under the CGP during the reporting period. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.
July 2020 – June 2021	Eleven construction projects located within the SNL MS4 boundary held coverage under the CGP during the reporting period. A list of active construction projects within the SNL MS4 with CGP coverage is included in Appendix G-1.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. The frequency and total number of inspections for each project is dependent upon the construction phase, receiving water, storm events, season, and compliance history. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There was a total of 11 corrective conditions found for the two sites listed in Appendix G-1. Poor NOI signage, inadequate sediment controls, a minor equipment leak, and on-site litter were among the most common corrective conditions. There was no evidence of impacts to the MS4 stormwater drainage system from these issues.
July 2016 – June 2017	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There was a total of 9 corrective conditions required for two sites as listed in Appendix G-1. Inadequate signage, inadequate sediment controls, and on-site litter were among the most common corrective conditions. There was no evidence of impacts to the MS4 stormwater drainage system from these issues.

July 2017 – June 2018	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There was a total of 25 corrective conditions required for three sites as listed in Appendix G-1. Inadequate signage, inadequate concrete wash-out facilities, inadequate sediment controls, and unstaked portable toilets were among the most common corrective conditions. There was no evidence of pollutant discharges from these sites as a result of these conditions, and no impacts to the MS4 drainage system.
July 2018 – June 2019	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There were a total of 28 corrective actions required for the eleven sites as listed in Appendix G-1. Inadequate signage, inadequate concrete wash-out facilities, and inadequate sediment controls were the most common corrective conditions. There was no evidence of pollutant discharges from these sites as a result of these conditions.
July 2019 – June 2020	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There were a total of 57 corrective actions required for the 12 sites as listed in Appendix G-1. Unstaked portable toilets, inadequate concrete wash-out facilities, compacted track out pads, trash left on ground, and inadequate sediment controls were the most common corrective conditions. There was no evidence of pollutant discharges from these sites as a result of these conditions.

July 2020 – June 2021	All construction sites one acre or more within the SNL MS4 boundary were inspected multiple times during the reporting period for compliance with the CGP. Inspection information for each construction project regulated under the CGP and within the SNL MS4 boundary is included in Appendix G-1. Corrective conditions that are identified during site inspections are tracked on corrective action reports that are certified and filed in the CGP SWPPPs. There were a total of 45 corrective actions required for the 10 sites as listed in Appendix G-1. Inadequate concrete wash-out facilities, compacted track out pads, solid waste storage issues, and inadequate sediment controls were the most common corrective conditions. There was no evidence of pollutant discharges from these sites as a result of these conditions.
Measurable Goal #4	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
July 2016 – June 2017	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
July 2017 – June 2018	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
July 2018 – June 2019	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
July 2019 – June 2020	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
July 2020 – June 2021	There were no events that necessitated an NPDES-related stop work order within the boundary of the SNL MS4 during this reporting period.
Measurable Goal #5	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	For projects requiring CGP coverage within the SNL MS4 boundary, consideration to stormwater impacts is given during the SWPPP planning phase, and where appropriate, stormwater GI/LID options are evaluated and implemented. See Appendix G-1 for more details.

July 2016 – June 2017	For projects requiring CGP coverage within the SNL MS4 boundary, consideration to stormwater impacts is given during the SWPPP planning phase, and where appropriate, stormwater GI/LID options are evaluated and implemented. Detention basins were included in the design for all sites to preserve pre-development hydrology. See Appendix G-1 for more details.
July 2017 – June 2018	GI/LID features were considered during the planning stage for all five active construction sites to preserve pre-development hydrology. GI/LID features for stormwater control will be implemented at two of the sites. For the three sites where GI/LID features for stormwater were not implemented, control measures were deemed not technically feasible at two sites, and runoff characteristics were not altered at the third site. See Appendix G-1 for more details.
July 2018 – June 2019	GI/LID features were considered during the planning stage for all eleven (11) active construction sites to preserve pre-development hydrology: • GI/LID features for stormwater control have been implemented at two (2) of the sites. • GI/LID basins are planned for four (4) of the sites. • An existing GI/LID basin will be utilized by one (1) of the sites. • Two (2) sites will not alter pre-development hydrology and no GI/LID features are planned. • GI/LID features at two (2) sites were deemed technically infeasible due to underground utilities and/or space limitations. See Appendix G-1 for more details.
July 2019 – June 2020	GI/LID features were considered during the planning stage for all 12 active construction sites to preserve pre-development hydrology: • GI/LID features for stormwater control have been implemented at six (6) of the sites. • GI/LID basins are planned for three (3) of the sites. • An existing GI/LID basin will be utilized by two (2) of the sites. • One (1) site will not alter pre-development hydrology and no GI/LID features are planned. See Appendix G-1 for more details.

July 2020 – June 2021	GI/LID features were considered during the planning stage for all 6 active construction sites to preserve pre-development hydrology: • GI/LID features for stormwater control have been implemented at six (6) of the sites. • GI/LID basins are planned for three (3) of the sites. • An existing GI/LID basin will be utilized by two (2) of the sites. • One (1) site will not alter pre-development hydrology and no GI/LID features are planned. See Appendix G-1 for more details.
Measurable Goal #6	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Thirty-five construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.
July 2016 – June 2017	Thirty-two construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.
July 2017 – June 2018	Thirty-three construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.
July 2018 – June 2019	Forty-five construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.
July 2019 – June 2020	Fifty-seven construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.
July 2010 – June 2021	Fifty-one construction projects less than one acre in size within the SNL MS4 boundary were required to implement stormwater controls and pollution prevention measures.

6. Post-construction Stormwater Management Program [MS4 Part I.D.5.b]

6.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale (i.e., eligible for CGP coverage), that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize stormwater quality impacts.

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all of the requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

6.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices) [MS4 Part I.D.5.b(ii)(a)]

The following sections discuss strategies that utilize a combination of structural and non-structural BMPs to control pollutants in stormwater runoff from new development and redevelopment projects within the SNL MS4. Strategies and procedures are continuously updated and will be incorporated into the SWMPP according to Permit timelines.

6.2.1 Development of Corporate Procedure [MS4 Part I.D.5.b(ii)(b)]

Corporate Procedure MN471022, *Surface and Stormwater Discharges* (Appendix E-1) includes requirements of the MS4 Permit, EISA Section 438, and 19.26.2 NMAC to address post-construction runoff from new development and redevelopment projects, as discussed in the following sections. AOP 16-01, *Stormwater Permitting for Construction Activities* and FOP 13-01, *Water Quality Compliance Inspections* are used to define work activities.

6.2.2 Implementation and Enforcement of Design Standards [MS4 Part I.D.5.b(ii)(b)]

The MS4 Permit requires permittees to incorporate a stormwater quality design standard that manages on-site the 90th percentile storm event discharge volume associated with new development sites and 80th percentile storm event discharge volume associated with redevelopment sites. The 90th and 80th percentile storm event discharge volumes are reported to be 0.615 and 0.53 inches, respectively (U.S. EPA, April 2014)

Management of stormwater at SNL is achieved through infiltration, evapotranspiration, irrigation reuse, and/or detention. Stormwater control features constructed at SNL comply with the MS4 Permit, EISA Section 438, and 19.26.2 NMAC.

As discussed in detail in Section 1.5.2 of this SWMPP, SNL is a federal facility and currently complies with the EISA Section 438 of the CWA for the purposes of preserving or restoring pre-development hydrology for all development and redevelopment projects with a footprint that exceeds 5,000 GSF. Post-construction runoff is managed at SNL by either detaining stormwater from a 95th percentile storm (1.0 inch) on-site (most common); or detaining the calculated volume of the difference between pre-development and post-development runoff. Compliance with the requirements of EISA Section 438 allows for compliance with the requirements of Parts I.D.5.b(ii)(b) and I.D.5.b(iii) of the MS4 Permit. EISA Section 438 and the MS4 Permit both provide an exception for limiting conditions such as limited area, underground utilities, or geotechnical concerns. At times, these limiting conditions do occur at SNL such that it is not possible to manage the required quantities of stormwater on-site. Where this occurs, the limitations are documented as a "technical infeasibility" during the planning process.

As discussed in detail in Section 1.5.3 of this SWMPP, detention basins are constructed at SNL for post-construction stormwater management (pursuant to EISA Section 438 and the MS4 Permit) and as sediment control BMPs. Stormwater management detention basins and sediment basins will be designed to allow for the release or infiltration of detained stormwater. Storm events that exceed the design volume of the basin will cause stormwater to discharge in a controlled manner from the basin.

The design standards are included in the FEMC *Design Standards Manual* and are referenced in Corporate Procedure MN471022 *Surface and Stormwater Discharges* (Appendix E-1). Enforcement is addressed through the protocol discussed in Section 1.6 of this SWMPP.

6.2.3 Implementation of Structural Controls [MS4 Parts I.D.5.b(ii)(c) and (d)]

The following actions are performed to ensure appropriate implementation of post-construction BMPs:

- Pre-construction reviews of BMP designs are conducted during development of construction SWPPPs, as described in Section 5.2.2 of this SWMPP;
- A checklist is maintained to demonstrate consideration of GI/LID/Sustainable Practices during design, as described in Section 5.2.2 of this SWMPP;
- Plans and specifications are developed and as-builts maintained for EISA Section 438 features that ensure the hydrology associated with new development and redevelopment sites mimics (to the extent practicable) the pre-development hydrology of the previously undeveloped site (as discussed in Section 1.5.2 of this SWMPP), as described in Section 5.2.2 of this SWMPP;
- Calculations or other documentation are maintained to demonstrate compliance with 19.26.2 NMAC issued by the OSE (as discussed in Section 1.5.3 of this SWMPP), as described in Section 5.2.2 of this SWMPP; and
- A post-construction inspection is performed to verify construction completion of stormwater management BMPs, and annually thereafter to verify proper maintenance.

Upon submittal of the NOT of CGP coverage, the CGP Lead and the MS4 Permit Lead conduct a joint inspection of post-construction BMPs. During the inspection, the Stormwater Control Structure Inspection Form is completed to document the type, size, and condition of the BMP. After the inspection, the MS4 Permit Lead assumes responsibility for conducting annual inspections of the BMPs to verify long term maintenance and proper function of the BMP.

Non-compliance with pre-construction BMP design, failure to construct BMPs in accordance with the design, and ineffective post-construction operation and maintenance of BMPs is addressed through the enforcement protocol discussed in Section 1.6 of this SWMPP.

Pursuant to MS4 Parts I.D.5.b(ii)(c) and (h), the post-construction program requirements are reviewed annually to ensure that stormwater controls and management practices for new development and redevelopment projects continue to meet the requirements and objectives of the Permit. The SWMPP is updated to incorporate improvements in control techniques and technologies, as appropriate.

6.2.4 Development of Procedures [MS4 Parts I.D.5.b(ii)(e) through (g)]

Corporate Training SW100, *Stormwater Pollution Prevention Training* is required for project developers and staff who review plans and designs. It does not, however, include detailed information regarding stormwater standards, site design techniques and controls, designs to control water quality effects from stormwater, or GI/LID practices. Specific trainings of this nature and continuing education and professional development credits related to stormwater quality design and management are obtained through professional organizations and companies such as the International Erosion Control Association and the American Institute for Architects. Personnel maintain licenses and certifications such as Professional Engineer (PE), Licensed Architect, CPESC and CISEC by registering and participating in these educational opportunities. SW100 serves to remind and encourage personnel with particular job duties to educate themselves on these topics.

Processes for complying with the following Permit provisions are discussed in more detail in Sections 5.2 and 5.3 of this SWMPP:

- Construction project designers and managers are required to complete a training program on stormwater standards, site design techniques, and controls, including GI/LID/Sustainable practices [I.D.5.b(ii)(e)].
- Stormwater Program personnel conduct site inspections to ensure proper long-term operation, maintenance, and repair of stormwater management practices implemented during construction [I.D.5.b(ii)(f)].
- The CGP SWPPP requires as-built plans, detailing controls for post-construction stormwater management, to be submitted within 90 days of construction completion to the Stormwater Program for inclusion into the official CGP SWPPP record [I.D.5.b(ii)(f)].

MS4 Permit Parts I.D.5.b(ii)(g) and I.D.5.c(ii)(n) of the Permit require:

- Procedures to control the discharge of pollutants as a result of the storage and commercial application of pesticides, herbicides, and fertilizers;
- Procedures to control use and application rates of pesticides, herbicides, and fertilizers, and encouragement to use the least toxic products; and
- Proper training and certification of persons using/applying pesticides, herbicides, and fertilizers (as applicable and required).

Pesticides at SNL are used in accordance with the guidelines of the FEMC *Integrated Pest Management Plan*, which provides procedures for selecting, storing, and applying pesticides, herbicides, insecticides, and fungicides. All pesticide related requirements of the Permit are addressed in this document. Fertilizer at SNL is used in accordance with the FEMC *Gardener Preventive Maintenance Manual*, which provides procedures on the selection and application of fertilizer. All fertilizer related requirements of the Permit are addressed in this document. The *Integrated Pest Management Plan* and *Gardener Preventive Maintenance Manual* are included as requirements of Corporate Procedure MN471022 *Surface and Stormwater Discharges* (Appendix E-1).

6.2.5 Coordination with Departments Involved in Construction Projects and Activities [MS4 Part I.D.5.b(iii)]

The MS4 Stormwater Team identified in Table 1-3 of this SWMPP has been expanded to include subject matter experts and points of contacts in multiple organizations within ES&H and FEMC. The Stormwater Program coordinates with all departments that have responsibilities associated with the planning, reviewing, permitting, or approving new development and redevelopment projects and activities within the SNL MS4. The MS4 Stormwater Team listed in Table 1-3 holds meetings quarterly to discuss and collaborate on construction and post-construction stormwater management projects; GI/LID/Sustainable practices opportunities; updates to stormwater-applicable corporate procedures; and any other stormwater-related topics.

As discussed in Section 5.2.2 of this SWMPP, meetings are held before, during and after project design to ensure that necessary elements are considered and documented in the CGP SWPPP in order to comply with the CGP and MS4 Permit. Elements included in the CGP SWPPP that extend beyond erosion and sediment controls and pollution prevention include, but are not limited to: (1) a checklist to demonstrate consideration of GI/LID/Sustainable practices during design; (2) plans and drawings for EISA Section 438 features that ensure the hydrology associated with new development and redevelopment sites mimics (to the extent practicable) the pre-development hydrology of the previously undeveloped site; (3) and calculations to demonstrate infiltration of stormwater onsite within the timeframe required by the OSE.

In March 2017, the Stormwater Program hosted a collaborative tour of the Santa Fe Botanical Gardens with personnel from other environmental programs as well as the Plans and Project Development Department. This was an ideal opportunity to see how small-scale, low-budget environmentally sensitive infrastructure can be installed and still meet SNL design requirements

(e.g., ADA compliance). This tour has since inspired a new workgroup for the purpose of brainstorming, vetting, and initiating GI/LID pilot projects at SNL.

During 2018, the Stormwater Program and the Facilities Management and Operations Program collaborated on two initiatives;

- reducing sediment that enters the stormwater drainage system in specific locations,
- developing procedures to report, identify, and minimize *allowable* non-stormwater discharges to the stormwater drainage system.

These efforts exceed MS4 Permit requirements, and reflect DOE/NNSA's and NTESS's commitment to protecting stormwater quality and ensuring appropriate use of the stormwater drainage system.

6.2.5.1 GI/LID Working Group

In 2018, the Stormwater Program spearheaded an effort to promote GI/LID awareness and use within the greater NTESS community by forming a GI/LID Working group (group). The working group consists of members from planning, construction, maintenance, and environmental departments. The working group meets monthly or quarterly (depending upon need) to develop guidance and promotional materials to increase the use of GI/LID construction methods and ethos within SNL. The group's charter states:

By designing and installing innovative stormwater management features, SNL can leverage stormwater as an asset as opposed to disposing of it as a waste. GI/LID achieves environmental permitting requirements, and presents opportunities to:

- *Conserve water by eliminating or offsetting potable irrigation.*
- *Increase resiliency to drought and other extreme weather events*
- *Improve stormwater quality, especially through sediment reduction.*
- *Improve campus aesthetics*
- *Connect people and nature in a way that promotes a healthy and safe work environment.*
- *Attracts and retain talented early-career employees.*
- *Expand on SNL's positive public perception and market SNL as a "model DOE facility" for its innovative GI/LID campus design.*
- *Create connected spaces and places to support LEED for Campus.*
- *Achieve above and beyond compliance with regulatory requirements and corporate policies.*

6.2.6 Assessment of Existing Policies and Procedures for Potential Impediments to GI/LID/Sustainable Practices [MS4 Part I.D.5.b(iv)]

Permittees are required to assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices and then develop a report of the assessment findings to be used to provide information to promote necessary changes and allow implementation of GI/LID/Sustainable practices.

SNL is a federal facility and therefore SFO and NTESS are required to comply with numerous executive orders (EOs), EISA Section 438, and other federal mandates regarding sustainability. These requirements include and exceed the requirements provided in the MS4 Permit. Physical limitations of some sites such as limited space in high density development area, shallow underground utilities, and security concerns may preclude the implementation of GI/LID practices.

The SNL Site Sustainability Plan (SSP) is prepared annually in support of DOE's Strategic Sustainability Performance Plan (SSPP). The following are a few examples of the federal requirements noted in the FY15 SSP that meet the intent of the GI/LID/Sustainable practices required by the MS4 Permit:

- "The SSPP requires that all new buildings, MRs [major remodel], and alterations of buildings greater than 5,000 GSF must comply with the *Guiding Principles for Federal Leadership in HPSB* [High-Performance and Sustainable Buildings] (Guiding Principles), and where the work exceeds $5 million, they must achieve the U.S. Green Building Council's certification of LEED Gold for New Construction.
- "The DOE SSPP stipulates that DOE will reduce potable water intensity by no less than 26 percent by FY 2020, relative to an FY 2007 baseline. In addition, the SSPP requires a 20 percent consumption reduction in ILA [industrial, landscaping and agricultural] water by FY 2020 from an FY 2010 baseline. These goals are consistent with the EO 13514 requirements for federal agencies." Irrigation with stormwater has been identified as one means to achieve this goal.
- "The SSPP and EISA Section 432 require that sites conduct water evaluations and identify measures to save water. The SSPP specifically commits DOE to developing site water management plans and conducting water audits with a particular focus on leaks and once-through cooling." Irrigation with stormwater has been identified as one means to achieve this goal.

6.2.7 Number of Impervious Area Acres and Directly Connected Impervious Area Acres [MS4 Part I.D.5.b(vi)]

The number of acres of impervious area (IA; including conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops) and directly connected impervious area (DCIA; the portion of IA with a direct hydraulic connection to the MS4 via continuous paved surfaces, gutters, pipes, and other impervious features) were estimated during the 2016/2017 reporting period using GIS mapping tools. The IA was estimated to comprise an area of approximately 348 acres, which is roughly 47 percent of the SNL MS4 jurisdiction (additional information in Appendix H-1). Approximately 279 of the 348 impervious acres are DCIA. Roads, parking lots, sidewalks, and rooftops were delineated as shown in Appendices H-2.

6.2.8 Inventory and Priority Ranking of Infrastructure for Potential GI/LID/Sustainable Practice Retrofits [MS4 Part I.D.5.b(vii)]

The Stormwater Program has conducted an inventory and developed a priority ranking of the property within the SNL MS4 that may have the potential to be retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges within

and from the MS4. The evaluation considered larger scale measures that could be implemented; control measures for individual buildings or smaller isolated areas were not included in this assessment. Those areas are addressed under EISA Section 438 during the development and redevelopment planning process. The evaluation was completed during the 2016/2017 reporting period.

Regarding the potential or feasibility for retrofitting, the following factors were considered:

- Complexity and cost of implementation
- Access for maintenance purposes
- Subsurface geology
- Proximity to subsurface infrastructure including sanitary sewers

Regarding priority ranking, the following factors were considered:

- Budget schedules and available capital
- Improvements to stormwater drainage system and sanitary sewer infrastructure
- Improvements to paving projects
- Existing stormwater drainage system service plan
- Control of discharges to impaired waters

A summary of findings is provided in Appendix H-3.

6.2.9 Incorporation of Watershed Protection Elements [MS4 Part I.D.5.b(viii)]

As discussed in Section 5.2.4 of this SWMPP, the MS4 Stormwater Team participates in quarterly meetings to discuss and collaborate on stormwater management. Table 6-1 includes Permit requirements, proposals, and implementation schedules associated with the incorporation of watershed protection elements into corporate, environmental programs, and facility planning documents.

Table 6-1: Incorporation of watershed protection elements into planning documents

Requirement	Document Addressing Requirements	Implementation Schedule
A description of master planning and project planning procedures to control the discharge of pollutants to and from the MS4. [I.D.5.b(viii)(a)]	*Materials Sustainability and Pollution Protection Program Plan* Corporate Procedure MN471022 *Surface and Stormwater Discharges* *Gardener Preventive Maintenance Guideline, GDL-128*. *Integrated Pest Management Plan, PLN-021*.	Implemented
Recommendations to minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within the SNL MS4 watershed, by controlling the unnecessary creation, extension and widening of impervious parking lots, roads and associated development. This may be evaluated on a case-by-case basis to identify alternatives that will meet the need without creating the impervious surface. [I.D.5.b(viii)(b)]	FEMC *Design Standards Manual* *Site Sustainability Plan*	Implemented
Identify environmentally and ecologically sensitive areas: (1) that serve critical watershed functions within the MS4 (as applicable) during the planning and design phases of a project; and (2) to preserve, protect, create and/or restore during and after construction [I.D.5.b(viii)(c)]	NEPA review process	Implemented
Recommendations for decreasing direct discharges to surface waters from impervious surfaces such as parking lots. [I.D.5.b(viii)(d)]	*Site Sustainability Plan*	Implemented

Requirement	Document Addressing Requirements	Implementation Schedule
Implementing stormwater management practices that protect groundwater quality. [I.D.5.b(viii)(e)]	FEMC *Design Standards Manual* *Site Sustainability Plan*	Implemented
Avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges [I.D.5.b(viii)(f)]	NEPA review process	Implemented
Recommendations to protect native soils, prevent topsoil stripping, and prevent compaction of soils [I.D.5.b(viii)(g)]	CGP SWPPPs *Site Sustainability Plan*	Implemented
Requirements to reduce water quality impacts and requirements to maintain pre-development runoff conditions (i.e., compliance with Section 438 of EISA as applicable) [I.D.5.b(viii)(h)]	CGP SWPPPs *Site Sustainability Plan*	Implemented

6.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures and training developed to communicate stormwater requirements for post-construction will be reviewed annually and updated, as necessary, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce. [I.D.5.b(ii)(h)]
2. For construction sites within the SNL MS4 equal to or greater than one acre in size (i.e., eligible for CGP coverage), one inspection will be performed *upon completion of a construction project* to verify the installation and completion (as designed) of post-construction stormwater management BMPs.
3. For construction sites within the SNL MS4 equal to or greater than one acre in size (i.e., eligible for CGP coverage), one inspection will be performed *annually to verify proper maintenance* of post-construction stormwater management BMPs.
4. A review will be conducted of construction projects completed within the reporting period to verify that as-built plans detailing controls for post-construction stormwater management were submitted within 90 days of construction completion. Non-compliance will result in enforcement and corrective action.
5. The initiatives of the final SSP for the year will be reviewed on an annual basis and the notable Permit-applicable GI/LID/Sustainable practices will be summarized in the Annual Report.

6. The SNL MS4 will be surveyed and sites identified as having potential for supporting future GI/LID retrofit projects will be added to a matrix that evaluates them based on the criteria listed in Section 6.2.8 of this SWMPP. Weighted scores will be developed to help identify projects with the greatest potential for successful implementation. The entire SNL MS4 will be surveyed by December 22, 2017, with 50 percent of the MS4 surveyed during 2016 and 50 percent surveyed during 2017.
7. The watershed protection initiatives discussed in Section 6.2.9 of this SWMPP will be summarized.

6.4 Anticipated Program Development and Implementation Schedule [MS4 Table 3]

Table 6-2: Post-construction stormwater management program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop strategies [I.D.5.b(ii)(a)]	12/22/2015	Completed
Develop procedure [I.D.5.b(ii)(b)]	12/22/2017	Completed
Implement site design standards [I.D.5.b(ii)(b)]	12/22/2018	Completed
Ensure implementation of structural controls [I.D.5.b(ii)(c) and (d)]	12/22/2016	Implemented; ongoing
Develop procedures [I.D.5.b(ii)(e) through (h)]	12/22/2015	Completed
Coordinate with other departments [I.D.5.b(iii)]	11/22/2015	Completed
Perform GI/LID/Sustainable practices assessment of procedures, plans and other documents [I.D.5.b(iv)]	06/22/2016	Completed
Develop and submit GI/LID impediments assessment report [I.D.5.b(iv)]	12/22/2016	Completed
Estimate IA and DCIA Acres [I.D.5.b(vi)]	12/22/2016	Completed
Develop GI/LID/Sustainable practice retrofit inventory and priority ranking [I.D.5.b(vii)]	12/22/2017	Completed
Incorporate watershed protection elements into procedure [I.D.5.b(viii)]	12/22/2016	See Table 6-1
Update the SWMPP and submit the Annual Report [I.D.5.b(ix) and (x)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2020
Enhance program to include elements of Parts I.D.5.b(xi) through (xiii).	update as necessary / applicable	In progress

6.5 Performance Assessment

Table 6-3: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate trainings SW100 and SW200 were revised to include requirements from the MS4 Permit and 2015 MSGP.
July 2016 – June 2017	Minor updates to SW100 and SW200 were made to improve information provided to Members of the Workforce. The latest revision was made May 4, 2017.
July 2017 – June 2018	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 training for ES&H Coordinators was developed and includes section on stormwater compliance. This increased the audience that receives stormwater training by approximately 55 members of the workforce.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020 – June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. Additional information was added to SW100 to describe "disturbed area" and "construction like activities" under the CGP.
Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	None of the construction projects initiated since MS4 Permit coverage was obtained have been completed; therefore, post-construction inspections of completed stormwater management BMPs have not yet commenced.
July 2016 – June 2017	Two of the construction projects initiated since MS4 permit inception (Eubank Contractor Gate and Building 756) were completed during the 2016/2017 reporting period. Annual post-construction inspections will commence during the 2017/2018 reporting period.
July 2017 – June 2018	Building 905 was completed during the reporting period. A post-construction stormwater control inspection was performed by the Stormwater Program. The project included two detention basins which were deemed to be in good operating condition. Inspection records are maintained by the Stormwater Program.

July 2018 – June 2019	The Building 725 Addition, Building 956 Track, and Battery Test Facility construction projects were completed during the reporting period. Two of these projects (Building 725 Addition and Battery Test facility) incorporated stormwater management BMPs. The third site (956 Track) did not alter pre-development hydrology and no post-construction stormwater control structures were installed.
July 2019 – June 2020	The TA-IV Temporary Structure, Natural Gas Pipeline, and 20th Street Parking projects were completed during the reporting period. Two of these projects (TA-IV Temporary Structure and 20th Street Parking) incorporated stormwater management BMPs (see Appendix G-1). The third site (Natural Gas Pipeline) did not alter pre-development hydrology and no post-construction stormwater control structures were installed.
July 2020 – June 2021	The Building 905 and Building 972 projects were completed during the reporting period. These projects both incorporated stormwater management BMPs (see Appendix G-1). Detention basins to enhance infiltration and to decrease and slow runoff were installed.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	None of the construction projects initiated since MS4 Permit coverage was obtained have been completed; therefore, annual post-construction inspections of stormwater management BMPs have not yet commenced.
July 2016 – June 2017	There are two new and redevelopment projects that have been initiated and completed since MS4 coverage was obtained; Eubank Contractor Gate and Building 756. Annual post construction inspections were conducted at the Eubank Contractor Gate. The other project did not include stormwater BMPs as described above in Measurable goal #2.
July 2017 – June 2018	There are three new and redevelopment projects that have been initiated and completed since MS4 coverage was obtained; Eubank Contractor Gate, Building 756, and Building 952. Annual post construction inspections were conducted at two sites; Eubank Contractor Gate, and Building 952. The other projects did not include stormwater BMPs as described above in Measurable goal #2.
July 2018 – June 2019	There are seven new and redevelopment projects that have been initiated and completed since MS4 coverage was obtained; Eubank Contractor Gate, Building 756, Building 952, Building 907 Drainage, Building 956 Track, Building 725, Contractor Laydown Yard, and 20th Street Parking. Annual post construction inspections were conducted at two sites; Eubank Contractor Gate and Building 952. The other projects did not include stormwater BMPs as described above in Measurable goal #2.

July 2019 – June 2020	There are ten new and redevelopment projects that have been initiated and completed since MS4 coverage was obtained; Eubank Contractor Gate, Building 756, Building 952, Building 907 Drainage, Building 956 Track, Building 725, Contractor Laydown Yard, 20th Street Parking, TA-IV Temporary Structure, Natural Gas Pipeline, Building 905, and Building 972. Annual post construction inspections were conducted at three sites; Eubank Contractor Gate, Building 952, and 20th Street Parking Lot. The other projects did not include stormwater BMPs as described above in Measurable goal #2.
July 2020 – June 2021	There are twelve new and redevelopment projects that have been initiated and completed since MS4 coverage was obtained; Eubank Contractor Gate, Building 756, Building 952, Building 907 Drainage, Building 956 Track, Building 725, Contractor Laydown Yard, 20th Street Parking, TA-IV Temporary Structure, Natural Gas Pipeline, Building 905, and Building 972. Annual post construction inspections were conducted at five sites; Eubank Contractor Gate, Building 952, 20th Street Parking Lot, Building 905, and Building 972. The other projects did not include stormwater BMPs as described above in Measurable goal #2.
Measurable Goal #4	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Project as-builts are obtained and maintained by facilities.
July 2016 – June 2017	Project as-builts are obtained and maintained by facilities.
July 2017 – June 2018	Project as-builts are obtained and maintained by facilities.
July 2018 – June 2019	Project as-builts are obtained and maintained by facilities.
July 2019 – June 2020	Project as-builts are obtained and maintained by facilities.
July 2020 – June 2021	Project as-builts are obtained and maintained by facilities.
Measurable Goal #5	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	During the reporting period, water conservation efforts have focused on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring the existing rainwater collection system.
July 2016 – June 2017	During the reporting period, water conservation efforts continued to focus on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring an existing rainwater collection system. Water conservation performance is discussed in the FY15 ASER available at http://www.sandia.gov/news/publications/environmental_reports/.

July 2017 – June 2018	During the reporting period, water conservation efforts continued to focus on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring an existing rainwater collection system. Water conservation performance is discussed in the FY16 ASER available at http://www.sandia.gov/news/publications/environmental_reports/.
July 2018 – June 2019	During the reporting period, water conservation efforts continued to focus on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring an existing rainwater collection system. Water conservation performance is discussed in the FY17 ASER available at http://www.sandia.gov/news/publications/environmental_reports/.
July 2019 – June 2020	During the reporting period, water conservation efforts continued to focus on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring an existing rainwater collection system. Water conservation performance is discussed in the FY18 ASER available at http://www.sandia.gov/news/publications/environmental_reports/
July 2020 – June 2021	During the reporting period, water conservation efforts continued to focus on improving irrigation metering, increasing reuse water in cooling towers, retrofitting restrooms with more efficient fixtures, and reconfiguring an existing rainwater collection system. Water conservation performance is discussed in the FY19 ASER available at http://www.sandia.gov/news/publications/environmental_reports/
Measurable Goal #6	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	The work performed to survey 50 percent of the SNL MS4 during 2016 will be conducted during the July 1, 2016 – June 30, 2017 reporting period and will be incorporated into the SWMPP. The update will be made available for public review and comment in September 2017, and is due to the EPA by December 1, 2017.
July 2016 – June 2017	Surveys of the MS4 to identify opportunities to implement GI/LID retrofits were completed during the reporting period. Results of the surveys and priority rankings are provided in Appendix H-3.
July 2017 – June 2018	This goal was met in 2017; results of the surveys and priority rankings are provided in Appendix H-3. Use of the survey to guide implementation of additional GI/LID retrofits is a continuous and ongoing effort.
July 2018 – June 2019	This goal was met in 2017; results of the surveys and priority rankings are provided in Appendix H-3. Use of the survey to guide implementation of additional GI/LID retrofits is a continuous and ongoing effort.

July 2019 – June 2020	This goal was met in 2017; results of the surveys and priority rankings are provided in Appendix H-3. Use of the survey to guide implementation of additional GI/LID retrofits is a continuous and ongoing effort.
July 2020 – June 2021	This goal was met in 2017; results of the surveys and priority rankings are provided in Appendix H-3. Use of the survey to guide implementation of additional GI/LID retrofits is a continuous and ongoing effort.
Measurable Goal #7	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Watershed protection elements will be assessed during the July 1, 2016 - June 30, 3017 reporting period, and will therefore be incorporated into the SWMPP update made available for public review and comment in September 2017, and is due to the EPA by December 1, 2017.
July 2016 – June 2017	This goal was met in 2017. Watershed protection elements included in Section 6.2.9 of this SWMPP are addressed in Table 6-1.
July 2017 – June 2018	This goal was met in 2017. Watershed protection elements included in Section 6.2.9 of this SWMPP are addressed in Table 6-1.
July 2018 – June 2019	This goal was met in 2017. Watershed protection elements included in Section 6.2.9 of this SWMPP are addressed in Table 6-1.
July 2019 – June 2020	This goal was met in 2017. Watershed protection elements included in Section 6.2.9 of this SWMPP are addressed in Table 6-1.
July 2020 – June 2021	This goal was met in 2017. Watershed protection elements included in Section 6.2.9 of this SWMPP are addressed in Table 6-1.

7. Pollution Prevention and Good Housekeeping Program [MS4 Part I.D.5.c]

7.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, and implement an operation and maintenance program that includes a training component with the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

7.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

7.2.1 Development of Pollution Prevention and Good Housekeeping Program [MS4 Parts I.D.5.c(i) and (ii)]

SNL possess a well-developed, rigorous Pollution Prevention/Good Housekeeping (P2/GH) Program. A description of activities and programs implemented at SNL and additional planned measures planned is provided below.

7.2.1.1 Employee Training Program [MS4 Part I.D.5.c(i)(a)]

As discussed in Section 5.2.2.2 of this SWMPP, Members of the Workforce with job duties that have the potential to impact stormwater quality are required to complete Corporate Training SW100, *Stormwater Pollution Prevention Training*. While SW100 is most commonly administered to people with construction-related jobs, the curriculum is comprehensive and addresses stormwater protection; allowable non-stormwater discharges; prohibited discharges; training requirements; spill prevention and response; good housekeeping; pollution prevention measures; and a summary of the requirements of the CGP and MS4 Permit. SW100 is required annually for Members of the Workforce and DOE/NNSA/SFO personnel, with any of the following specific job duties:

- Design, install, maintain, or repair stormwater controls, conduct inspections, or implement corrective actions at construction sites;
- Plan, review, permit or approve construction site plans, inspections and corrective actions;
- Construction site operators, subcontractors, or others who provide support;
- Work in permitted areas where industrial materials or activities are exposed to stormwater, or are responsible for implementing stormwater pollution prevention controls and activities necessary to meet the conditions of the MSGP;
- Operate or maintain SNL/NM grounds or landscaping, fleet, buildings (outside), roads, stormwater inlets or drainage system, or work on projects with any ground disturbance;

- Design projects that control the effects of water quality from stormwater runoff; or
- Plan or review projects with regard to WQSs and pollution prevention controls.

MSGP requirements are summarized in SW200, *Stormwater Discharges from Industrial Sites.* SW200 is required annually for Members of the Workforce and DOE/NNSA/SFO personnel who work in permitted areas or are responsible for implementing stormwater pollution prevention controls and/or activities necessary to meet the requirements of the MSGP.

7.2.1.2 Maintenance and Inspections [MS4 Part I.D.5.c(i)(b)]

Permittees are required to include maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural stormwater controls to reduce floatables, trash, and other pollutants discharged from the MS4 in the P2/GH Program.

7.2.1.2.1 Stormwater Drainage System Inspection and Maintenance [MS4 Part I.D.5.c(ii)(g)]

The stormwater drainage system (structures and pipes) is inspected with a graded approach method using a tool developed by NTESS personnel called Graded Approach STORM (GA STORM). Using this tool, drainage structures are inspected for condition and obstructions on a graded approach depending on various factors including the critical nature of the structure, the fill rate, and condition. The inspections are scheduled through the SNL maintenance request system (Maximo), and ISC/FEMC maintenance personnel conduct the inspections. Approximately 700-900 stormwater drainage system inspections are conducted each year. The results of these inspections are maintained in GA STORM and trigger structural repairs or cleanings. When a cleaning is triggered, ISC/FEMC maintenance personnel are notified through Maximo. The completed cleaning is recorded with the associated inspection. ISC/ FEMC maintenance personnel clean approximately 300-400 structures per year.

In addition, using pipeline video inspection techniques, storm drain pipes are inspected on a graded approach based on GA STORM. The graded approach uses fill rate and condition to determine the video inspection scheduling. The video inspections are done through specialized subcontractors and are coordinated through NTESS's Stormwater Drainage System Engineer. The number of video inspections completed each year is dependent on the graded approach and the funding available. The results of the video inspections are logged into GA STORM along with a link to the video for quick future reference. Inspections trigger pipeline repairs or cleanings, performed by ISC/FEMC maintenance personnel after the engineer submits a request through Maximo. The completed cleaning is recorded with the associated inspection. To date, over 53,000 linear feet of storm drain pipe has been inspected.

7.2.1.2.2 Stormwater Inspections of NPDES Permitted Areas

FOP 13-01, *Stormwater Inspections* incorporates procedures (including frequency) for inspecting structural and non-structural stormwater controls within the MS4, as well as any other elements required by the CGP, MSGP and MS4 Permit. The FOP also requires Members of the Workforce who conduct inspections to have a minimum credential as a "qualified inspector." A "qualified inspector" is considered to be an individual who is knowledgeable in the principles

and practices of erosion and sediment controls and pollution prevention, and who possesses the skills to assess: conditions within the MS4 that could impact stormwater quality; and the effectiveness of any stormwater controls selected and installed to meet the requirements of the Permit. Members of the MS4 stormwater team (see Table 1-3 of this SWMPP) who conduct inspections are qualified inspectors. Types of licenses and certifications held by qualified inspectors include PE, CPESC, and CISEC. MS4 stormwater team training documentation and certificates are included as Appendix O-1 of this SWMPP.

7.2.1.2.3 Sanitary Sewer System Inspections and Maintenance

Similar to practices for stormwater drainage system inspections and maintenance procedures (Section 7.2.1.2.1), the ISC/FEMC maintains software to schedule regular inspections and maintenance of the sanitary sewer system. Sanitary sewer lines are inspected using video pipeline inspection tools. The lines are typically cleaned at the time of inspection. The inspections are logged and the results are used to identify additional or future preventive maintenance needs, repairs, cleanings, and re-inspections. Re-inspections are done on a graded approach considering importance, location, condition, and obstruction tendency.

7.2.1.3 Controls for Reducing Pollutants from Roads, Parking Lots, and Storage Areas [MS4 Part I.D.5.c(i)(c)]

The SNL MS4 uses diversion ditches and detention basins to collect runoff from roads and parking lots. By increasing the time of concentration, floatables and sediment can be captured as opposed to being transported directly into the stormwater drainage system.

Salt or deicing products are used sparingly on roadways and sidewalks when necessary. Salt and other deicers are stored in a maintenance yard (Building 953J) in a covered area to minimize exposure to precipitation. Additional stormwater controls implemented include good housekeeping, and adhering to manufacturer-recommended application rates. Due to the arid nature of SNL/NM, there are no dedicated snow disposal areas at SNL.

Maintenance and fleet yards, including those with outside vehicle or materials storage include the following stormwater controls to the extent possible: maintenance areas are covered; liquids are stored on secondary containment, solid building products are stored on lifts (e.g., pallets above the ground surface) such that they will not come into contact with stormwater, and spills or equipment leaks are reported and cleaned up immediately.

SNL's waste transfer station is referred to as the Solid Waste Collection and Recycling Center (SWCRC). The SWCRC is a 2-acre area designed to manage solid waste and recyclable materials generated by SNL. It is covered under the MSGP and is located within the boundary of the SNL MS4. Wastes managed in the SWCRC are inspected for Resource Conservation and Recovery Act (RCRA) and prohibited waste components. After waste inspection is complete, the waste is baled (or managed in roll-off containers) and shipped off-site for disposal to an approved solid waste landfill. Wastes entering the SWCRC that do not meet the facility waste acceptance criteria are segregated and managed appropriately. Typical solid wastes accepted into SWCRC facility are listed below:

- Dumpster waste consisting of paper, cardboard, plastic, and other waste generated from office activities
- Roll-off waste consisting of weed control debris, yard clean-up debris, light construction wastes, broken pallets, etc.
- Recyclable material consisting of paper, cardboard, construction debris, and other appropriate recyclable materials
- Other solid wastes as appropriate

Stormwater from the SWCRC flows to two shallow detention basins where it infiltrates. While it would not be impossible to have stormwater discharge from the site, typical monsoon rain events do not cause a discharge from the site. Waste and recycling handling practices and bailing helps to prevent the discharge of stormwater pollutants and floatables from this facility. Additionally, this facility adheres to the stormwater control requirements of the MSGP and is inspected at least quarterly for compliance. Inspectors review the history of spills and leaks, any exceedances of benchmarks, results of visual inspections, and corrective actions prior to conducting the inspection. While on-site, inspectors look for evidence of the following: clean orderly site operations and maintenance; spills or equipment leaks; industrial material, residues, or trash that could be exposed to stormwater; soil disturbance; ponds in good condition and free of debris; offsite tracking of industrial waste materials; and storm clean drain inlets and grates.

7.2.1.4 Cleaning and Disposing of Waste from the Stormwater Drainage System [MS4 Part I.D.5.c(i)(d)]

Debris, floatables, and sediment is removed as needed from basins, ditches, and other conveyance infrastructure. When inspections identify debris in the stormwater drainage system, a maintenance request is submitted through the SNL service request system; qualified operators conduct the work and maintain equipment.

7.2.1.5 Flood Management [MS4 Parts I.D.5.c(i)(e) and I.D.5.c(ii)(m)]

Existing planning, operation, and maintenance procedures have been reviewed to ensure that future flood management projects assess their impacts on water quality and that incorporating additional water quality protection devices or practices in considered for existing flood control projects. Additionally, an assessment of the flood control program and technical guidance documents was performed to ensure they contain requirements and methods for determining water quality impacts and the potential for incorporation of water quality controls into future flood control projects.

Currently, there are no future flood control or large-scale drainage projects planned or being contemplated at SNL. The stormwater facilities at SNL are drainage facilities rather than flood control facilities; SNL is not located within a floodplain, and there are no dams, levees, or other large-scale diversion/retention projects.

Several structures/facilities at SNL convey the majority of the water generated from TAI, TAII, and TAIV and are the largest stormwater infrastructure projects at SNL:

- 9th Street Channel,
- Dragon's Teeth energy dissipater,
- Building 701 detention basin, and
- Building 887 parking lot detention basin.

While the building 701 detention basin and the Building 887 detention basins were designed primarily to decrease peak runoff volumes, they both improve water quality by allowing sediment and other pollutants to drop out of suspension before stormwater is discharged to the stormwater drainage system.

The 9th Street channel and Dragon's Teeth energy dissipater are strictly conveyance infrastructure, and are not intended to deal with water quality. Water quality is addressed through administrative controls, and by the numerous small-scale detention basins and sediment control structures described in Sections 5 and 6, which treat stormwater before it enters the 9th Street Channel. The planning, operation, and maintenance of these water quality facilities are described in the following documents:

- Sediment Control Plan
- EISA Section 438 Requirements
- FEMC Design Manual

7.2.1.6 Enhanced Pollution Prevention/Good Housekeeping Measures [MS4 Part I.D.5.c(ii)]

In addition to the primary P2/GH elements described previously and the construction pollution prevention measures discussed in Section 5.2.2 of this SWMPP, the following enhanced measures have been implemented as a result of the other MS4 Permit requirements or NPDES permits:

- A list and map of stormwater quality features (required by MS4 Part I.D.5.c(ii)(a)) has been prepared. At SNL, these features include B&G inlet structures and small detention basins. Lists and location maps of stormwater quality features are provided in Appendices I-1 through I-4.
- Fleet Services is located within the boundary of the SNL MS4 boundary and is covered under Sector P of the MSGP. SNL's MSGP SWPPP satisfies the requirement of MS4 Part I.D.5.c(ii)(c) to control stormwater quality associated with vehicle-related pollutants from storage and maintenance yards. A copy of the most recent MSGP SWPPP is available at http://digitalrepository.unm.edu/snl_msgp/.
- MS4 Part I.D.5.c(ii)(e) requires development of procedures to specifically target roadway areas most likely to contribute pollutants "to and from" the MS4. The property (including roadways) within the SNL MS4 is owned by DOE/NNSA and operated by NTESS. SFO and NTESS do not have control of roadways entering or existing the SNL MS4. P2/GH initiatives for the SNL MS4 are applicable to SNL roadways, and address deicing, litter and vehicle fluids in Sections 7.2.1 and 8.2.9 of this SWMPP.

- Processes and procedures associated with the collection of used motor vehicle fluids, toxics, and hazardous materials as required by MS4 Part I.D.5.c(ii)(f) is addressed in Section 8.2.9 of this SWMPP and the MSGP SWPPP.
- MS4 Part I.D.5.c(ii)(g) which requires procedures and a schedule for cleaning debris and sediment from the stormwater drainage system is discussed in Section 7.2.1.2.1 of this SWMPP.
- The existing litter control program and awareness campaigns for Members of the Workforce and DOE/NNSA/SFO personnel (MS4 Part I.D.5.c(ii)(h)) is implemented by the Life Cycle Material Management Program as described in Section 8.2.9 of this SWMPP.
- FOP 13-01, *Stormwater Inspections* is the inspection procedure for stormwater drainage structures required by MS4 Part I.D.5.c(ii)(j). The procedure will be reviewed annually and updated as necessary.
- MS4 Part I.D.5.c(ii)(k) which requires control of floatables and trash discharged from the MS4 for industrial and commercial areas, is addressed in Section 9 of this SWMPP.
- MS4 Part I.D.5.c(ii)(m) which requires review of flood control projects for impacts or benefits to water quality, is addressed in Section 7.2.1.5 of this SWMPP (above).
- MS4 Part I.D.5.c(ii)(n) which requires procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by the Permittee or subcontractors, is addressed in Section 6.2.4 of this SWMPP.

In addition to maintaining the primary P2/GH elements (above) and the construction pollution prevention measures (Section 5.2.2 of this SWMPP), the success of the program has been evaluated and updates are provided below.

- Pursuant to MS4 Part I.D.5.c(ii)(b), a review of the chemicals and application methods associated with deicing operations and chemical storage at SNL was performed in 2016. For the purpose of reducing potential impacts to stormwater quality, the *Snow Removal Procedure*, PCD-106, has been revised to include de-icing agent best management practices with emphasis on:
    - application (even, targeted, and in quantities consistent with manufacturer specifications)
    - personnel training
    - mechanical spreader equipment operations (proper maintenance and calibration to ensure even distribution)
    - storage conditions (indoors or under a waterproof structure, and elevated above the ground surface) and proper labeling
    - periodic removal and proper disposal of residual from roads using street sweeping equipment
- A review of the existing street sweeping program was performed in November 2016. An Elgin Pelican Street Sweeper is used quarterly under a preventative maintenance plan (PMP). A formal operating procedure was developed by FEMC in 2017, which includes a schedule and map of roadways that are cleaned. [I.D.5.c(ii)(d)]
- A review of procedures to evaluate existing flood control devices, structures and drainage for retrofitting to improve pollutant removal was conducted during 2017 [I.D.5.c(ii)(i)].

As discussed in Section 7.2.1.5, there are no true flood control structures at SNL. The stormwater facilities at SNL are drainage facilities rather than flood control facilities; SNL is not located within a floodplain, and there are no dams, levees, or other large-scale diversion/retention projects. There are no future flood control or large-scale drainage projects planned or being contemplated at SNL.

- only two stormwater drainage facilities at SNL are considered to be flood control structures; the rest of the stormwater drainage system is best characterized as drainage facilities.

7.2.1.7 Compliance with EPA MSGP to Control Runoff from Industrial Facilities [MS4 Part I.D.5.c(iii)]

SFO and NTESS discharge industrial stormwater at SNL in accordance with the provisions of the MSGP as authorized by NMR053114 (SFO) and NMR053122 (NTESS), as discussed in Sections 1.2.4 and 1.4.6 of this SWMPP. Any measures required by the MS4 Permit will be applied to MSGP sites located within boundaries of the SNL MS4 to augment measures already in place under the MSGP.

Table 1-2 of this SWMPP includes a list of sites within the SNL MS4 boundary that are currently covered under the MSGP, and their associated drainage area. Maps of these sites are included as Appendices B-8 and B-9 of this SWMPP.

7.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures and training developed to communicate stormwater requirements will be reviewed annually and updated, as necessary, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
2. The SNL MS4 will be divided into areas and inspected for compliance with the P2/GH Program such that each area is inspected a minimum of two times within the Permit term, starting in 2017. Areas identified for improvement will be targeted for additional education and corrective actions. Successful implementation of practices will also be documented.
3. A cumulative summary will be prepared to describe retrofit evaluations conducted during the Permit term on existing flood control devices, structures and drainage ways to benefit water quality. The SWMPP will be updated to include a schedule (with priorities) for identified retrofit projects [I.D.5.c(ii)(l)].

7.4 Anticipated Program Development and Implementation Schedule [MS4 Table 4]

Table 7-1: Pollution Prevention/Good Housekeeping Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop pollution prevention program [I.D.5.c.(i)]	02/22/2016	Complete
Enhance P2/GH Program [I.D.5.c.(ii)]	12/22/2016	Complete; ongoing
Produce map of industrial facilities [I.D.5.c.(iii)]	12/22/2015	Complete
Update the SWMPP and Annual Report [I.D.5.c.(iv) and (v)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2021

7.5 Performance Assessment

Table 7-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate trainings SW100 and SW200 were revised to include requirements from the MS4 Permit and 2015 MSGP.
July 2016 – June 2017	Minor updates to SW100 and SW200 were made to improve information provided to Members of the Workforce and DOE/NNSA/SFO personnel. The latest revision was made May 4, 2017.
July 2017 – June 2018	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 training was developed during the reporting period. It has a stormwater component, which has exposed approximately 55 additional ES&H professionals to stormwater compliance training.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020 – June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to members of the workforce.

Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Inspection of the SNL MS4 for compliance with P2/GH Program initiatives will be conducted during the July 1, 2016 – June 30, 2017 reporting period and will be incorporated into the SWMPP update, which will be made available for public review and comment in September 2017, and is due to the EPA by December 1, 2017.
July 2016 – June 2017	Inspections related to P2/GH are currently carried out by a number of departments at SNL. The Stormwater Program is developing a process with FEMC to document compliance with the P2/GH program. A comprehensive summary will be provided in the SWMPP Update due by December 1, 2018.
July 2017 – June 2018	Section 7.2.1.2 describes the many mechanisms used to maintain and inspect the MS4 to ensure compliance with the P2/GH program. Numerous inspections of MS4 outfalls, MSGP sites, construction sites, the sanitary sewer system, storm drains, and general facilities conditions are conducted annually.
July 2018 – June 2019	Section 7.2.1.2 describes the many mechanisms used to maintain and inspect the MS4 to ensure compliance with the P2/GH program. Numerous inspections of MS4 outfalls, MSGP sites, construction sites, the sanitary sewer system, storm drains, and general facilities conditions are conducted annually.
July 2019 – June 2020	Section 7.2.1.2 describes the many mechanisms used to maintain and inspect the MS4 to ensure compliance with the P2/GH program. Numerous inspections of MS4 outfalls, MSGP sites, construction sites, the sanitary sewer system, storm drains, and general facilities conditions are conducted annually.
July 2020 – June 2021	Section 7.2.1.2 describes the many mechanisms used to maintain and inspect the MS4 to ensure compliance with the P2/GH program. Numerous inspections of MS4 outfalls, MSGP sites, construction sites, the sanitary sewer system, storm drains, and general facilities conditions are conducted annually.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Evaluation of existing flood control devices at SNL MS4 will be conducted during the July 1, 2016 – June 30, 2017 reporting period. A summary of possible retrofit evaluations will be incorporated into the SWMPP update, which will be made available for public review and comment in September 2017, and due to the EPA by December 1, 2017.
July 2016 – June 2017	Potential GI/LID retrofit projects are listed and ranked in Appendix H-3. Additional evaluations are conducted on an ongoing basis during the planning phase of new and reconstruction projects.

July 2017 – June 2018	Potential GI/LID retrofit projects are listed and ranked in Appendix H-3. Additional evaluations are conducted on an ongoing basis during the planning phase of new and reconstruction projects.
July 2018 – June 2019	Potential GI/LID retrofit projects are listed and ranked in Appendix H-3. Additional evaluations are conducted on an ongoing basis during the planning phase of new and reconstruction projects.
July 2019 – June 2020	Potential GI/LID retrofit projects are listed and ranked in Appendix H-3. Additional evaluations are conducted on an ongoing basis during the planning phase of new and reconstruction projects.
July 2020 – June 2021	Potential GI/LID retrofit projects are listed and ranked in Appendix H-3. Additional evaluations are conducted on an ongoing basis during the planning phase of new and reconstruction projects.

8. Illicit Discharge Detection and Elimination Program [MS4 Part I.D.5.e]

8.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, implement, and enforce a program to detect and eliminate illicit discharges entering the MS4.

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

8.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

8.2.1 Development of a Stormwater Drainage System Map [MS4 Part I.D.5.e(i)(a)]

Maps of the SNL MS4 stormwater drainage system indicating all outfalls and the names and locations of all WOTUS that receive discharges from those outfalls are provided in Appendix B-3 of this SWMPP.

8.2.2 Development of Corporate Procedure and Training [MS4 Part I.D.5.e(i)(b)]

Corporate Procedure MN471022, *Surface and Stormwater Discharges* (Appendix E-1) prohibits discharges to the ground surface or the stormwater drainage system without prior approval from the Environmental Compliance and Monitoring Department. It also requires compliance with NPDES permits, stormwater management design, and training. MN471022 is presented to Members of the Workforce as a component of annual mandatory Corporate Training ESH100, *Environment, Safety and Health Awareness*. For Members of the Workforce who have a potential to impact stormwater quality in their job duties, the procedure is reiterated in Corporate Trainings SW100, *Stormwater Pollution Prevention Training* and SW200, *Stormwater Discharges from Industrial Sites*. Corporate procedures are also cross-referenced in the trainings. The Stormwater Program will revise Corporate Procedure MN471022, *Surface and Stormwater Discharges* and Corporate Training SW100, *Stormwater Pollution Prevention Training* as needed to maintain compliance with the requirements of the MS4 Permit.

The following corporate procedures and an Emergency Plan are also maintained to address spill prevention, response and remediation:

- MN471022, *Surface and Stormwater Discharges*
- MN471022, *Oil and Fuel Storage*
- MN471022, *Report Environmental Releases*

- MN471022, *Hazardous Waste Operations and Emergency Response*
- EPIP100, *Emergency Operations Center Operations*
- EPIP300, *Declaration of Operational Emergencies and Protective Actions*
- EPIP400, *Executive Management Notifications*
- EPIP800, *Emergency Termination/Recovery*

8.2.3 Development of a Plan to Detect and Address Illicit Discharges [MS4 Part I.D.5.e(i)(c)]

The MS4 Permit requires development of an IDDEP to detect and address illicit discharges to the MS4, including the elements discussed in the following subsections.

8.2.3.1 Procedures for Locating Priority Areas [MS4 Part I.D.5.e(i)(c)A]

In the arid climate of Albuquerque, NM, illicit discharges are relatively easy to detect visually. Essentially all flow within the SNL MS4 that occurs during dry periods is likely to be an illicit discharge, and is likely to be observed and reported. Members of the Workforce and DOE/NNSA/SFO personnel are trained to prevent and required to report activities or events with the potential to cause environmental harm. Additionally, NTESS has a team of more than 10 full-time field personnel who are conducting a variety of environmental sampling, monitoring, and other field work during regular business hours. Any observed surface flows not obviously related to precipitation are required to be reported (Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies*; and MN471022, *Report Environmental Releases*). The Emergency Operations Center (EOC) and the Environmental Compliance and Monitoring Department receive the incident reports and follow-up with a response team and investigation.

If an illicit discharge is observed, the Environmental Release Response and Reporting Team and the Stormwater Program will perform or coordinate the following activities to identify possible sources:

- Visually screen (track flow upstream to source) the area;
- Interview employees with corporate knowledge of operations within the area;
- Collect samples (contingent upon adequate volume) for screening:
    - Record visual observations for color, odor, clarity, solids, oil sheen, foam, and any other obvious indicators of stormwater pollution.
    - Measure conductivity, pH and DO in the field, as soon as possible following sample collection.
    - Based on the limited types of potential discharges at SNL (i.e., commercial or industrial, as opposed to municipal), and depending on the findings of the visual observations and field measurements, send samples to the laboratory for further analysis for one or more of the following constituents (in order of priority): chlorine, fluoride, potassium, hardness, ammonia, *E. coli*, boron, detergents, and surfactants. Appropriate analytical methods and hold times will be followed.

8.2.3.2 Procedures for Enforcement [MS4 Part I.D.5.e(i)(c)B]

Enforcement of the IDDEP will be addressed through the protocol discussed in Section 1.6 of this SWMPP.

8.2.3.3 Procedures for Removing the Source of the Discharge [MS4 Part I.D.5.e(i)(c)C]

Procedures are discussed in Section 8.2.6 of this SWMPP.

8.2.3.4 Procedures for Program Evaluation and Assessment [MS4 Part I.D.5.e(i)(c)D]

The effectiveness of the SNL MS4 IDDEP will be evaluated annually, and the SWMPP updated accordingly for submission with the Annual Report due by December 1 each year.

8.2.3.5 Procedures for Coordination with Adjacent Permitted Jurisdictions [MS4 Part I.D.5.e(i)(c)E]

The KAFB MS4 is the only upstream MS4 with the potential to contribute illicit discharges to the SNL MS4. There is a relatively small amount of stormwater discharge from the KAFB residential housing area into the SNL MS4. Discharges into the SNL MS4 that will eventually discharge to Tijeras Arroyo are monitored at SWSP-02. In the event an illicit discharge is observed as an inflow to the SNL MS4, SFO will notify points of contact for the KAFB MS4. SFO and NTESS will work with KAFB (as appropriate) to identify the source of the illicit discharge.

Downstream MS4s with the potential to receive illicit discharges from the SNL MS4 include KAFB, and AMAFCA via the KAFB MS4. In the event an illicit discharge originating within the SNL MS4 jurisdiction flows into the Tijeras Arroyo or KAFB MS4, SFO will immediately notify the affected MS4s and work with them to remedy any impacts. SFO will update the affected MS4s as investigations into the source and cause of the discharge develop, and then plan or take corrective action to prevent future discharges.

While the Tijeras Arroyo does not exist within the SNL MS4 jurisdiction, the COA discharges to the Tijeras Arroyo upstream of the SNL MS4 outfall (SWSP-05) and KAFB jurisdiction exists upstream and downstream of the SNL MS4 outfall. In the event an illicit discharge is observed within the Tijeras Arroyo (not originating from the SNL MS4), SFO will notify KAFB and the COA. SFO and NTESS will work with MS4 entities to identify the source of the illicit discharge.

8.2.4 Development of an Illicit Discharge Detection and Elimination Program Education Plan [MS4 Part I.D.5.e(i)(d)]

Corporate policy and training systems and rigorous operational work planning and control processes drive the workforce culture at SNL such that intentional or knowing illicit discharges are highly unlikely to occur in the SNL MS4. If illicit discharges occur, they are most likely to occur as the result of a failure in established administrative or engineering controls.

Corporate Training SW100, *Stormwater Pollution Prevention Training* is offered to Members of the Workforce and DOE/NNSA/SFO personnel online at any time and is also given in a live presentation to key groups of employees that have the greatest potential to impact stormwater quality (e.g., construction, grounds crew, or maintenance personnel).

A stormwater awareness campaign was implemented in 2015, "*Stormwater - Keep it Clean*", which includes educational brochures, posters and a publication in *The Porcelain Press* (discussed in more detail in Section 10 of this SWMPP). The campaign targets Members of the Workforce and SFO personnel to raise stormwater quality awareness and advertise training, and will occur annually during each wet season (July 1 through October 31). In 2018, an ES&H promotion initiative was established to include topics at weekly organizational "Tier Board" meetings. These meetings are attended by almost all members of the workforce at the labs. During 2019, the topics of flood safety and stormwater quality were covered. These educational materials and reminders will continue to be published and improved, as needed. Copies of the most recent editions of these materials are included in Appendix L of this SWMPP.

8.2.5 Establishment of a Hotline [MS4 Parts I.D.5.e(i)(e) and I.D.5.g(iii)]

The MS4 Permit requires establishment of a hotline to address complaints from "the public" and a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality concerns associated with discharges from municipal separate stormwater drainage systems.

"The public" at SNL, as it relates to compliance with the MS4 Permit, means "Members of the Workforce" and SFO personnel. Members of the Workforce and SFO personnel are required to report spills[5] in accordance with Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies*; and MN471022, *Report Environmental Releases*.

SNL has a hotline for the reporting of both emergencies and non-emergencies. Using an SNL landline, emergencies can be reported by dialing 911, and non-emergencies can be reported by dialing 311. Using any phone, emergencies can be reported by dialing (505) 844-0911 and non-emergencies by dialing (505) 844-0311. The EOC is available at 844-6515 for spill response and cleanup. NTESS personnel are the primary recipient of calls from these numbers. SFO and various departments within NTESS are in the chain of notification, response and reporting. Typically, DOE/NNSA/SFO (as the owner of SNL) transmits verbal and written notifications and reports to the EPA, NMED, and other outside entities.

8.2.6 Investigation of Suspected Significant Illicit Discharges [MS4 Part I.D.5.e(i)(f)]

While the MS4 Permit requires illicit discharges to be investigated within 48 hours, discharges at SNL will be investigated immediately, and the sources identified as soon as possible. Following any initial response by the EOC, Environmental Compliance and Monitoring Department personnel will participate in an investigation. The MS4 Stormwater Team (see Table 1-3 of the SWMPP) and FEMC will assist, as appropriate, in the investigation of any illicit discharges within the jurisdiction of the SNL MS4.

There is limited risk of impacts to the stormwater drainage system from storm sewer overflows (SSOs) at SNL (i.e., in the past five years no SSOs have discharged to the stormwater drainage

[5] "Spills" include leaks, releases and discharges that may cause adverse effects to human health or the environment.

system). In addition to the preventative maintenance procedures described in Section 7.2.1.2.3 of the SWMPP, SSOs at SNL are handled the same as any other illicit discharge. Any non-stormwater release to the environment is reported as a spill to the EOC and to the Environmental Release Response and Reporting Team. All illicit discharges are taken seriously; investigations are conducted to understand the source/reason for the release; and corrective actions are implemented to mitigate the issue and prevent recurrence.

Upon identification of illicit discharge sources or source areas, all responsible parties will be notified. Investigations into the exact cause of the illicit discharge will be conducted to determine how operations or controls can be modified to prevent future illicit discharges. Any additional controls (administrative and/or engineered) necessary to prevent future discharges will be implemented as soon as practicable.

8.2.7 Addressing Specific Sources of Non-Stormwater Discharges [MS4 Part I.D.5.e(ii)]

The Permit requires that the authorized non-stormwater discharges listed in Table1-1 of this SWMPP be addressed if they have been determined to be a significant source of pollutants to the MS4. This requirement is included in Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* (Appendix E-1). Illicit discharges within these categories (or any other category) have not been identified as contributors of pollutants to the SNL MS4. Any illicit discharges detected will be investigated in accordance with Section 8 of this SWMPP. If sources of illicit discharges containing significant pollutants are identified in the future, the SWMPP will be updated to include specific measures to address those discharges.

Members of the Workforce and DOE/NNSA/SFO personnel are trained to ensure that no chemicals or other additives are released to the stormwater drainage system to the MEP. The primary allowable non-stormwater discharges that occur within the SNL MS4 are derived from the following activities.

- Draining and flushing dechlorinated potable water lines associated with construction, servicing or maintenance.
- Testing and flushing outdoor fire hydrants that discharge potable water.
- Draining and flushing indoor fire suppression systems that contain potable water for regular maintenance.

Dechlorination of potable water discharged to ground surface or the stormwater drainage system is conducted when a line or tank has been super-chlorinated during construction or maintenance. Chlorine is under 1 ppm under typical potable system operating conditions and dechlorination does not occur prior to discharges from these systems under normal operating conditions.

SSOs, although rare at SNL, are considered illicit discharges and are managed under the IDDEP.

8.2.8 System Screening Plan [MS4 Part I.D.5.e(iii)]

The MS4 Permit requires the entire MS4 jurisdiction to be screened at least once every five years, and high priority areas at least once every year. High priority areas include those areas

where known illicit discharges are occurring, or where there have been five or more complaints from the public in the past year.

The SNL MS4 has no high priority areas (areas of known illicit discharges or areas with five or more complaints in the last year) at this time. Outfall screening is conducted at least twice per week per outfall. Automatic samplers are operational year-round to collect potential non-stormwater samples, which would allow for water quality assessments to help identify the source of any illicit discharge. Informal scans of the SNL MS4 are conducted as frequently as daily by field personnel and other environmental staff trained to monitor for leaks, spills, and other discharges. Formal screening will be conducted and documented at least once every five years which will include the inspection of all known outfalls and MS4 conveyance structures for the presence of non-stormwater discharges. Illicit discharges that are discovered will be sampled (as practicable, necessary, and appropriate), tracked to a source, and corrected through administrative or engineered control measures. A log will be maintained for the duration of the Permit term to document non-stormwater and illicit discharges.

8.2.9 Development of a Waste Collection Program [MS4 Part I.D.5.e(iv)]

The waste management mission statement is to "Develop, maintain, and support the implementation of a corporate waste management system in which all employees recognize and fulfill their responsibilities to manage all waste products properly and in full compliance with the regulations, including the waste management hierarchy of reduce, reuse, recycle before disposal. The Life Cycle Material Management Program will provide guidance and assistance in waste reduction and diversion and exemplary service in collection, storage, treatment, packaging, shipping, disposal, policy communication, and training. The goal is to support SNL's programs in proactively meeting the waste management hierarchy through close collaboration and regular communication."

The corporate procedure regarding waste management is GN470110, *Managing Waste at Sandia National Laboratories*

8.2.9.1 Solid Waste Collection and Recycling

The SNL SWCRC has three purposes:

1. Screen SNL's collected solid waste and recyclables for prohibited materials.
2. Bale, store, and ship solid waste to an approved landfill.
3. Serve as a recycling center for SNL, which entails baling, storing recyclables and/or delivering recyclables to recycling facilities.

The SWCRC is currently processing approximately 1.5 million lbs of waste and 1.3 million lbs of recyclable materials annually. As the amount of waste is reduced and/or has been diverted to recycling, the amount of recyclables is climbing and now commands an equal share of attention.

The SWCRC recycles cardboard, white paper, mixed paper, aluminum cans, foam packaging, plastics (mixed #1-7 rigids), toner and ink cartridges, wood, plywood, green waste and

construction and demolition scrap metals. Baling waste and most recyclables reduces volume, thus reducing transportation fees and commanding a better price from recycling vendors.

Screening over the years has shown a steady decrease in the amount of prohibited materials found in the solid waste loads received at the SWCRC. Prohibited materials include:

- Construction and demolition debris
- Radioactive materials and contaminated waste
- Explosives (including ammunition)
- Hazardous waste as defined in 40 CFR 261 (RCRA)
- Special waste as defined in 20.9.2.S.13.7 NMAC
- Liquids and sludges
- Pressurized containers
- Empty containers >5 gallons
- Household waste

8.2.9.2 Used Motor Vehicle Fluids

Used oil is recycled whenever possible. Management of used oil is regulated under 40 CFR Part 279 of the federal hazardous waste regulations. Oil is recycled if it meets the following conditions:

- Is free of radioactive contamination.
- Contains less than 2 ppm PCBs.
- Is not mixed with a hazardous waste or hazardous constituent (e.g., antifreeze, brake fluid, kerosene, petroleum distillates, or solvents).
- Does not exceed 1,000 ppm total halogens unless the generator has acceptable knowledge indicating that the halogens are not due to solvents or other hazardous waste.
- Meets all acceptance criteria imposed by the SNL Hazardous Waste Management Facility.

If the used oil fails to meet any of the above criteria or if the history or the process that generated the used oil is uncertain, then the oil is managed as hazardous waste.

8.2.9.3 Hazardous Waste

Hazardous wastes are generated during ongoing activities at SNL; these wastes are stored and/or treated on site before shipment to off-site permitted treatment, storage, and disposal facilities for further management, including disposal. Disposal of hazardous waste does not occur at SNL/NM.

Treatment, storage or disposal facilities (TSDFs) at SNL consist of Hazardous Waste Management Units (HWMUs) and Solid Waste Management Units (SWMUs). HWMUs and SWMUs at SNL are regulated under the SNL/NM RCRA Permit (DOE/Sandia 2015). Those SWMUs operating under subtitle C of RCRA, where clean-up is not yet approved under state and federal requirements are regulated under the MSGP as Sector K sites. Each HWMU is designed and built with perimeter controls designed to eliminate stormwater run-on and runoff. Specific stormwater controls at each unit are described in the SNL MSGP SWPPP.

Hazardous waste generated at SNL is handled pursuant to Corporate Procedure ESH100.2.ENV.22, *Manage Hazardous Waste at SNL/NM* which provides detailed instructions for using, labeling, storing, accumulating, managing, and ultimately disposing of hazardous waste. Common examples of hazardous waste include, but are not limited to: solvents, acids, bases, oxidizers, flammable or combustible substances, commercial cleaning products, paints, explosives, propellants, pyrotechnics, and any liquid not specifically allowed in stormwater drainage systems or sanitary sewers. Hazardous waste is collected by the Waste Management and Pollution Prevention Department and delivered to the SNL Hazardous Waste Management Facility for processing and transport to off-site recycling, treatment, and/or disposal facilities.

8.2.9.4 Waste Compliance Program

Environmental Safety & Health (ES&H) Coordinators help ensure compliance with corporate pollution prevention policies and procedures by conducting audits and performing periodic walk-throughs of individual facilities and organizations at SNL.

8.2.10 Development of a Spill Prevention and Response Plan [MS4 Part I.D.5.e(v)]

Permittees are required to develop, update and implement a program to prevent, contain, and respond to spills that may discharge into the MS4, while taking all reasonable steps to control or prevent any adverse effects to human health or the environment.

Spill prevention is stressed in Corporate Training SW100, *Stormwater Pollution Prevention Training*. CGP SWPPPs require Members of the Workforce to be familiar with Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies,* MN471022, *Report Environmental Releases,* and ESH100.2.ENV.4, *Manage Oil and Fuel Storage*, and with the SPCC Plan. Spill kits are required to be kept on all construction and applicable industrial sites, and are equipped for responses to spills of the types and quantities of chemicals stored on-site. Personnel are required to be familiar with a spill kit's location.

Members of the Workforce and SFO personnel are required to report spills (regardless of size) in accordance with the Corporate Procedures discussed previously. In the event a spill is reported to the EOC, the Environmental Release Response and Reporting Team and SFO will be contacted to respond to the incident. Information such as the location, date, time, duration, source, cause, quality and volume, description and corrective action is recorded, and immediate verbal notifications (federal and state, as applicable) are initiated. Coordination with various applicable subject matter experts (e.g., stormwater, wastewater, groundwater, etc.) occurs to ensure compliance with all laws and regulations. Typically, DOE/NNSA/SFO (as owner of SNL) transmits verbal and written notifications and reports to the EPA, NMED, and other outside entities.

SNL has a SPCC Plan that describes in detail the oil facilities and the mitigation controls and procedures used to reduce the potential for any inadvertent discharge of oil from reaching any WOTUS. The SPCC Plan includes measures to prevent oil discharges and to mitigate the

impacts of a discharge in a safe, effective, and timely manner. In the event of a release, a sophisticated system of containment facilities, trained response staff, and emergency equipment is maintained to prevent pollutants from entering the stormwater drainage system. The SPCC Plan is accompanied by Corporate Procedure ESH100.2.ENV.4, *Manage Oil and Fuel Storage*.

8.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures and training developed to communicate stormwater requirements will be reviewed annually and updated, as necessary, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce and SFO personnel.
2. A log will be maintained of illicit discharges reported within the SNL MS4 boundary. The log will include the method of reporting, pertinent details about the illicit discharge, and a summary of the findings and corrective actions.
3. The entire SNL MS4 jurisdiction will be screened for illicit discharges at least once every five years, and recorded. High priority areas within the SNL MS4 jurisdiction (to be identified) will be screened for illicit discharges at least once every year, and recorded.
4. The Stormwater Program will coordinate to review and propose necessary revisions to the SPCC Plan (managed by personnel in the Oil Storage Tank Program) such that it can be included as an appendix of the SWMPP update required to be submitted with the fourth Annual Report, which is due December 1, 2019.
5. Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL available at http://www.sandia.gov/news/publications/environmental_reports/index.html and will be included with each Annual Report.
6. Measurable goals associated with the education plan are discussed in Section 10.3 of this SWMPP.

8.4 Anticipated Program Development and Implementation Schedule [MS4 Table 6]

Table 8-1: Illicit Discharge Detection and Elimination Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop stormwater drainage system map [I.D.5.e(i)(a)]	11/22/2015	Completed
Develop procedure [I.D.5.e(i)(b)]	12/22/2016	Completed
Develop IDDEP plan [I.D.5.e(i)(c)]	12/22/2016	Completed
Develop education plan [I.D.5.e(i)(d)]	12/22/2015	Completed
Establish hotline [I.D.5.e(i)(e)]	12/22/2015	Completed

Activity	Required Implementation Date	Implementation Status
Investigate IDDE [I.D.5.e(i)(f)]	12/22/2015	Completed
Screen high priority areas [I.D.5.e(iii)]	12/22/2015	Completed
Screen entire system [I.D.5.e(iii)]	12/22/2019	In progress, ongoing
Develop waste collection program [I.D.5.e(iv)]	12/22/2016	Completed
Develop spill prevention program [I.D.5.e(v)]	12/22/2015	Completed
Update SWMPP and Annual Report [I.D.5.e(vi-vii)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2021
Enhance program to include elements of Part I.D.5.e(ix)(f).	Update as necessary and applicable	In progress, ongoing

8.5 Performance Assessment

Table 8-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate trainings SW100 and SW200 were revised to include requirements from the MS4 Permit and 2015 MSGP. Additional coordination with FEMC was implemented to help minimize discharges of allowable non-stormwater discharges, and to increase overall awareness of MS4 Permit requirements and potential impacts of discharges to the stormwater drainage system.
July 2016 – June 2017	Minor updates to SW100 and SW200 were made to improve information provided to Members of the Workforce and DOE/NNSA/SFO personnel. The latest revision was made May 4, 2017.
July 2017 – June 2018	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 training was developed during the reporting period. It has a stormwater component, which has exposed approximately 55 additional members of the workforce to stormwater compliance training.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020 – June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to members of the workforce.

Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Two allowable non-stormwater flows were detected in the SNL MS4; one at SWSP-35 and one at SWSP-36. The flow at SWSP-35 was determined to be derived from the flushing of an indoor fire suppression system with potable water during regular testing and maintenance. The flow at SWSP-36 was related to street washing activities conducted prior to application of a pavement sealant by construction crews. The street washing was more vigorous than typical street cleaning activities; normal street cleaning procedures at SNL do not result in water flowing to the SNL MS4. One illicit discharge occurred to the SNL MS4 that originated from a cooling tower at Building 810. This release was reported to the EPA and NMED.
July 2016 – June 2017	Numerous allowable non-stormwater flows occurred in the stormwater drainage system over the course of the reporting period. Typically, these potable releases resulted from irrigation systems, either from over spray or broken water lines. These releases are typically less than 1,000 gallons, and are detected and repaired within a day. There were also a number of allowable releases of water from fire suppression systems that occurred during routine testing and maintenance activities. Three illicit discharges occurred to the SNL MS4, all of which originated from cooling towers. All three releases were reported to the EPA and NMED at the time they occurred.
July 2017 – June 2018	Numerous allowable non-stormwater flows occurred in the stormwater drainage system over the course of the reporting period. Most of these releases originated from irrigation systems, either from over-spray or broken sprinklers. They are typically less than 1,000 gallons, and are detected and repaired within a day. Additionally, potable water releases occur during maintenance, repair and testing of water mains, water hydrants, and fire suppression systems. These releases vary in size but are kept to the minimum possible volume. Two illicit discharges occurred to the SNL MS4 both of which originated from cooling towers. The volume of one discharge was estimated to be 200 gallons, and the other discharge was estimated to be 50 gallons. Both releases were reported to the EPA and NMED at the time they occurred.

July 2018 – June 2019	One illicit discharge to the SNL MS4 was detected. The discharge originated from a large evaporative cooling tower, and contained potable water with relatively low concentrations of disinfectant (bromine). The volume was estimated to be 50 gallons. The release were reported to the EPA and NMED at the time it occurred.
July 2019 – June 2020	One illicit discharge to the SNL MS4 was detected. The discharge originated from a process storage tank and contained deionized water. The volume was estimated to be 500 gallons.
July 2020 – June 2021	There were no illicit discharges to the SNL MS4 during the reporting period.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	MS4 stormwater team field personnel inspect each monitoring location at least twice per week. No illicit discharges were identified during this reporting period.
July 2016 – June 2017	MS4 stormwater team field personnel inspect each monitoring location at least twice per week. Three illicit discharges were identified during this reporting period. The illicit discharges were not detected during site inspections; they were reported by other Members of the Workforce who observed the discharges before stormwater program personnel.
July 2017 – June 2018	Stormwater team field personnel inspect each MS4 monitoring location at least twice per week. Two illicit discharges occurred during this reporting period; they were immediately reported by Members of the Workforce who observed the discharges prior to inspection of the monitoring station.
July 2018 – June 2019	Stormwater field personnel inspect each MS4 monitoring location at least twice per week. One illicit discharge occurred during this reporting period; it was immediately reported by members of the workforce who observed the discharge prior to inspection of the monitoring station.
July 2019 – June 2020	Stormwater field personnel inspect each MS4 monitoring location at least twice per week. One illicit discharge occurred during this reporting period; it was immediately reported by members of the workforce who observed the discharge prior to inspection of the monitoring station.
July 2020 – June 2021	Stormwater field personnel inspect each MS4 monitoring location at least twice per week. No illicit discharges occurred during this reporting period.

Measurable Goal #4	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	The Stormwater Program initiated coordination with the Oil Storage Program to implement requirements and documentation required by the MS4 Permit. These requirements will be incorporated into the SPCC Plan and provided as an appendix to the updated SWMPP, which is due December 1, 2019.
July 2016 – June 2017	The SPCC Plan was updated by the Oil Storage Program on August 30, 2016.
July 2017 – June 2018	The Oil Storage Program conducted/implemented the following evaluations and administrative control measures during this reporting period: • Conducted Secondary Containment Capacity Compliance evaluation. • Initiated annual inspection process for stationary, shop-built oil storage tanks in accordance with the Steel Tank Institute Standard SP001, Standard for the Inspection of Aboveground Storage Tanks, 5th Edition. • Updated Corporate training courses for Oil-Handling personnel.
July 2018 – June 2019	The Oil Storage Program continually strives to reduce the number of unused and/or unneeded oil storage tanks located at SNL/NM. During the monitoring period the following was accomplished: • Permanently closed and removed four less than 250-gallon ASTs • Permanently closed and removed one 10,000-gallon UST
July 2019 – June 2020	The Oil Storage Program continually strives to reduce the number of unused and/or unneeded oil storage tanks located at SNL/NM. During the monitoring period the following was accomplished: • Removed diesel fuel contents and permanently closed three tanks (200-gal, 275-gal, and 560-gal) • Decommissioned underground pipeline, including removal of ~ 750 gallons of oil.
July 2020 – June 2021	The Oil Storage Program continually strives to reduce the number of unused and/or unneeded oil storage tanks located at SNL/NM.

9. Control of Floatable Discharges Program [MS4 Parts I.D.5.f and III.A.3]

9.1 Requirement Descriptions and Cooperative Status

The MS4 Permit requires permittees to develop, revise and implement a program to control floatables in discharges into the MS4. The Control of Floatable Discharges Program is required to include source controls and structural controls, where needed. This Section of the SWMPP also satisfies that requirements of MS4 Permit Part III.A.3 regarding floatables monitoring.

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

9.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

9.2.1 Development of a Program Implementation Plan [MS4 Part I.D.5.f(i)(a)]

Floatables are managed at SNL through administrative and source controls, and through robust waste management and pollution prevention programs. These programs are described in detail in Section 8.2.9 of this SWMPP. SNL's smoke-free campus and the culture of the workforce foster an environment such that solid waste dumping (i.e., littering) is uncommon.

Collection and monitoring of floatables at SNL has not been conducted previously, and therefore, the amount of floatables discharged into the SNL MS4 is not well documented. For the reasons stated here, it is not anticipated that there will be a significant amount of floatables discharged within the SNL MS4.

9.2.2 Plan for Source or Structural Controls to Control Floatable Discharges [MS4 Part I.D.5.f(i)(b)]

NTESS operates waste management and pollution prevention programs that include education and a recycling facility. During a typical year, approximately 70 percent of the solid waste generated at SNL is recycled. There is an insignificant litter or refuse presence within the SNL MS4; therefore, SFO and NTESS propose to implement additional source control measures to reduce trash that might otherwise end up in stormwater, rather than implement costly and unnecessary structural controls (e.g., trash racks). Structural controls may be installed in the future should they prove to be necessary.

9.2.3 Program Enhancement [MS4 Part I.D.5.c(ii)(k)]

The Control of Floatable Discharges Program established in compliance with the MS4 Permit will be enhanced to control the discharge of floatables and trash from the SNL MS4 by implementing source control of floatables specifically in industrial and commercial areas.

Numerous B&G storm drain inlet protection structures (see picture in Appendix K-1) have been installed in areas with high potential for sediment to enter the SNL MS4. Additional B&G structures will be installed during the Permit term, accompanied by an inspection and maintenance program to ensure proper long-term function. These structural controls also help to address the requirements of the *Sediment Pollutant Load Reduction Strategy* (MS4 Part I.C.3.b) discussed in Section 3.2 of this SWMPP, and attached as Appendix Q-3.

9.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures and training developed to communicate stormwater requirements will be reviewed annually and updated, as necessary, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce and SFO personnel.
2. SNL MS4 sampling locations are inspected during site checks for the presence of non-biological debris. If debris is found, a cleaning request is sent to the FEMC maintenance department. Site check forms are used to document findings and will be maintained with the SWMPP.
3. An annual assessment of the Control of Floatable Discharges Program will be conducted to evaluate the need for structural controls. The assessment will include a review of all documents and procedures associated with waste management and stormwater, a review of the findings of site check inspection reports, and a recommendation to propose structural controls as a corrective action if necessary.
4. Annual accomplishments of the NTESS waste management and pollution prevention programs included in the SNL ASER can be found at http://www.sandia.gov/news/publications/environmental_reports/index.html and will be summarized in the SWMPP.

9.4 Anticipated Program Development and Implementation Schedule [MS4 Table 7]

Table 9-1: Control of Floatable Discharges Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop implementation schedule [I.D.5.f(i)(a)]	12/22/2015	Completed

Activity	Required Implementation Date	Implementation Status
Estimate annual floatables volume [I.D.5.f(i)(b)]	12/22/2016	Complete; source control measures are utilized in lieu of structural controls and sampling devices.
Update the SWMPP and submit Annual Report [I.D.5.f(ii-iii)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2021

9.5 Performance Assessment

Table 9-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate trainings SW100 and SW200 were revised to include requirements from the MS4 Permit and 2015 MSGP.
July 2016 – June 2017	Minor updates to SW100 and SW200 were made to improve information provided to Members of the Workforce and DOE/NNSA/SFO personnel. The latest revision was made May 4, 2017.
July 2017 – June 2018	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 training was developed during the reporting period. It has a stormwater component, which has exposed approximately 55 additional members of the workforce to stormwater compliance training.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020 – June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to members of the workforce.
Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Beginning February 24, 2016, the four SNL MS4 outfalls discharge locations were inspected weekly (often twice per week) to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period.

July 2016 – June 2017	The four SNL MS4 outfalls discharge locations were inspected weekly (often twice per week) during the reporting period to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period. A large amount of tumbleweeds was removed from the storm channel immediately downstream of SWSP-05. The channel immediately upgradient of SWSP-02 was cleared of sediment, tumbleweeds, and associated debris that had collected from outside of the SNL MS4 jurisdiction, but which was believed to pose a potential negative impact to water quality within the SNL MS4.
July 2017 – June 2018	The four SNL MS4 outfalls were inspected at least twice weekly during the reporting period to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period. Regular maintenance and cleaning of the channel immediately upgradient of SWSP-02 was conducted to remove sediment, tumbleweeds, and associated debris that had collected from upgradient of the SNL MS4 jurisdiction, but which was believed to pose a potential negative impact to water quality within the SNL MS4.
July 2018 – June 2019	The four SNL MS4 outfalls were inspected at least twice weekly during the reporting period to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period. A sediment control structure was installed upstream of SWSP-02, at the down-gradient extent of a sediment laden area. Regular maintenance and cleaning of the channel immediately upgradient of SWSP-02 was conducted to remove sediment and debris; the area contains substantially less sediment that in previous years.
July 2019 – June 2020	The four SNL MS4 outfalls were inspected at least twice weekly during the reporting period to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period. Regular maintenance and cleaning of the channel immediately upgradient of SWSP-02 was conducted to remove sediment and debris; the area contains substantially less sediment that in previous years.

July 2020 – June 2021	The four SNL MS4 outfalls were inspected at least twice weekly during the reporting period to ensure proper working condition. There were no instances of substantial non-biological debris noted during this reporting period. Regular maintenance and cleaning of the channel immediately upgradient of SWSP-02 was conducted to remove sediment and debris. In early 2021, facilities has developed designs to decrease ponding in the area and improve drainage which should prevent sediment from accumulating in the channel.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	The SNL *Sediment Pollutant Load Reduction Plan* (Section 3.2, Appendix Q-3) identified the widespread use of B&G inlet protection structures intended to prevent excess sediment and debris from entering the stormwater drainage system, and includes plans to install more of these structures during the term of the Permit.
July 2016 – June 2017	Based on weekly outfall inspections, the current plans to control floatable discharges is successful. As funding becomes available more inlet protection structures will be installed to further reduce any trash or sediment that may enter the stormwater drainage system (Appendix Q-3).
July 2017 – June 2018	Efforts in the immediate vicinity of SWSP-02 were undertaken to remove sediment from the stormwater drainage system, and to prevent additional sediment from entering. There are significant areas of unstabilized sediment upgradient of the storm drain in this area. Efforts to reduce sediment entering the storm drain in this area included the design of a sediment dam in one of the main drainages, and the design of a master drainage project for much of the area. The sediment dam will be installed during the 2018/2019 reporting period. The master drainage project will be completed as funding allows, but it not currently scheduled.
July 2018 – June 2019	A sediment control structure was installed upstream of SWSP-02. To date, substantially less sediment appears to be entering the stormdrain system in that area.
July 2019 – June 2020	Based on weekly outfall inspections, the current plans to control floatable discharges is successful. As funding becomes available more inlet protection structures will be installed to further reduce any trash or sediment that may enter the stormwater drainage system (see Appendices Q-3 and Q-4).
July 2020 – June 2021	Based on weekly outfall inspections, the current plans to control floatable discharges is successful. As funding becomes available more inlet protection structures will be installed to further reduce any trash or sediment that may enter the stormwater drainage system (see Appendices Q-3 and Q-4).

Measurable Goal #4	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.
July 2016 – June 2017	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.
July 2017 – June 2018	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.
July 2018 – June 2019	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.
July 2019 – June 2020	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.
July 2020 – June 2021	Annual accomplishments of the waste management and pollution prevention programs are compiled in the SNL ASER available at: http://www.sandia.gov/news/publications/environmental_reports/index.html.

10. Public Education and Outreach Program [MS4 Part I.D.5.g]

10.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, implement, and maintain a comprehensive stormwater program to educate the community, employees, businesses, and the general public about: the hazards associated with the illegal discharges and improper disposal of waste; the impact that stormwater discharges have on local waterways; and the actions the public can take to reduce pollutants in stormwater.

SFO and NTESS share responsibility for the SNL MS4. SFO and NTESS together comply with all requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

10.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

10.2.1 Development of an Education and Outreach Program [MS4 Parts I.D.5.g(i) and (ii)]

SFO and NTESS have developed and implemented an education and training program with the following objectives [I.D.5.g(i)(a)]:

- To teach Members of the Workforce and DOE/NNSA/SFO personnel about the impacts of stormwater discharges on surface water bodies and train them on ways to reduce pollutants in stormwater runoff at work and at home.
- To educate school-age children about the impacts of stormwater discharges on surface water bodies and teach them ways to reduce pollutants in stormwater runoff at home.

Parts I.D.5.g(i)(b), I.D.5.g(i)(e), I.D.5.g(i)(f), and I.D.5.g(viii)(a) of the MS4 Permit require development of educational materials. The following materials are used to train Members of the Workforce, DOE/NNSA/SFO personnel, and the general public as appropriate:

- The Stormwater Quality Program has a website that is available to Members of the Workforce, and presents basic regulatory requirements pertaining to the protection of stormwater quality, training information, and contacts for the Stormwater Program.
- Corporate Training SW100, *Stormwater Pollution Prevention Training* is available online to Members of the Workforce and DOE/NNSA/SFO personnel. Live presentations are conducted upon request. The annual training is required for Members of the Workforce having job duties that could impact stormwater quality. This initiative also fulfills the requirement of Part I.D.5.g(viii)(e) of the Permit.
- Corporate Training SW200, *Stormwater Discharges from Industrial Sites* is available online to Members of the Workforce and DOE/NNSA/SFO personnel. Live presentations

are conducted upon request. The training is required for Members of the Workforce having job duties that could impact stormwater quality from industrial sites.

- Corporate Training ESH350, *ES&H Coordinator* training was created during the monitoring period. The training contains a stormwater section that provides an overview of stormwater compliance at SNL/NM. Live presentations by Stormwater Program personnel are given.
- A stormwater pollution prevention informational brochure is distributed during environmental events such as Earth Day (Bring Your Daughters and Sons to Work Day) and Family Day.
- *The Porcelain Press* is published bi-monthly and posted in restrooms at SNL to inform Members of the Workforce of ES&H events, policies, and trainings. One issue during stormwater season (July 1 - Oct 31) is dedicated to stormwater pollution prevention awareness and to advertise SW100 and SW200 trainings. Copies of past publications are maintained in Appendix L-2.
- EnviroScape® models for stormwater and watersheds, groundwater, and drinking water and wastewater, are used to perform demonstrations to students in the classroom, during Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day. This initiative fulfills the requirement of Part I.D.5.g(viii)(a). Information regarding EnviroScape® models is provided in Appendix L-3.
- In August 2015, the "Stormwater - *Keep It Clean*" campaign made its debut. A poster was developed and distributed in relevant work areas around SNL during the stormwater season (July 1 - Oct 31) to raise stormwater pollution prevention awareness and advertise stormwater training. This campaign is intended to grow in scope in the coming years as the educational program evolves.
- Corporate Procedure MN471022 *Surface and Stormwater Discharges* (Appendix E-1) includes requirements for Members of the Workforce to participate in stormwater pollution prevention training.
- One-page BMP and pollution prevention fact sheets are available to be distributed to construction subcontractors requiring additional assistance in complying with CGP and SWPPP requirements.

The following educational elements, as they are applicable to SNL, have been incorporated into the Public Education and Outreach Program through written materials or oral presentations of the EnviroScape® model:

- Information about proper septic system maintenance, proper use and disposal of fertilizers and pesticides, and proper disposal of motor oil and household hazardous wastes [I.D.5.g(i)(c) and I.D.5.g(viii)(i)].
- Recommendations to become involved in local stream restoration and watershed clean-up activities [I.D.5.g(i)(d)].
- Information about litter reduction, recycling, reduction of pesticide and herbicide use, xeriscaping and reduced water consumption [I.D.5.g(v)(b)].
- Information about pet waste and solid waste management [I.D.5.g(viii)(h) and I.D.5.g(viii)(k)].

10.2.2 Materials Sustainability and Pollution Prevention Program Outreach

The Materials Sustainability and Pollution Prevention (MSP2) Program conducts additional awareness and public education that supports the objectives of the Stormwater Program. MSP2 Program personnel host awareness programs and outreach activities that promote and teach MSP2 strategies and technologies to reduce waste generation. MSP2 Program personnel give presentations at conferences, professional society meetings, and other organized events to share SNL-specific MSP2 knowledge and experiences.

The MSP2 Program supports numerous environmental awareness events every year; most notably by hosting Zero Waste events. The events teach participants that it is possible to eliminate waste through planning the use of recyclable and compostable materials. MSP2 Program personnel promote the goal of "Zero Waste by 2025 at SNL" and have enabled SNL to make steady progress in diverting an increased percentage of waste from the local landfill each year.

10.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Corporate procedures, training, informational brochures, campaign posters, and the Stormwater Program's website will be reviewed annually and updated, as necessary, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce and SFO personnel.
2. The corporate online training system that disseminates Stormwater Pollution Prevention Training (SW100) is equipped to track completion. Training completions will be reported annually.
3. One article will be published in *The Porcelain Press* annually during the stormwater season (July 1 - October 31).
4. The MS4 stormwater team will participate in a minimum of three educational events in a reporting period (July 1 - June 30). The events will occur in a school classroom or at SNL (e.g., an Earth Day, a Family Day or a cafeteria event) and include demonstrations of educational EnviroScape® models (watershed, wastewater, drinking water, groundwater, etc.) to grade-school children and/or Members of the Workforce.

10.4 Anticipated Program Development and Implementation Schedule [MS4 Table 8]

Table 10-1: Public Education and Outreach Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop program [I.D.5.g(i) and (ii)]	12/22/2015	Completed

Activity	Required Implementation Date	Implementation Status
Update the SWMPP and submit Annual Report [I.D.5.g(iii) and (iv)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2019
Enhance program to include applicable elements of Parts I.D.5.g(v) and (viii); ((vi) and (vii) do not apply).	Update as necessary and applicable	IMplemented, ongoing

10.5 Performance Assessment

Table 10-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Corporate trainings SW100 and SW200 were revised to include requirements of the MS4 Permit and 2015 MSGP. The "Stormwater - Keep It Clean" poster was distributed throughout SNL during July 2015 and was updated in spring 2015 in preparation for summer 2016 distribution.
July 2016 – June 2017	The "Stormwater - Keep It Clean" poster (Appendix L-1) was distributed throughout SNL during July 2016. An article about monsoon rains, stormwater safety, and pollution prevention was published in the Lab News on September 2, 2016.
July 2017 – June 2018	The "Stormwater - Keep It Clean" poster (Appendix L-1) was distributed throughout SNL during July 2017. SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions.
July 2018 – June 2019	ESH350 training was developed during the reporting period. It has a stormwater component, which has exposed approximately 55 additional members of the workforce to stormwater compliance training.
July 2019 – June 2020	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to approximately 22 members of the workforce.
July 2020 – June 2021	SW100 and SW200 training materials were revised to reflect current permitting requirements and conditions. ESH 350 training was provided to members of the workforce.

Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	SW100 was completed by 181 Members of the Workforce and SFO personnel in this reporting period; this is a significant increase from the 86 who completed SW100 between July 1, 2014 and June 30, 2015.
July 2016 – June 2017	SW100 was completed by 341 Members of the Workforce and SFO personnel in this reporting period; this is an increase from the 181 who completed SW100 during the prior reporting period.
July 2017 – June 2018	SW100 was completed by 242 Members of the Workforce and SFO personnel in this reporting period.
July 2018 – June 2019	SW100 was completed by 270 Members of the Workforce and SFO personnel in this reporting period.
July 2019 – June 2020	SW100 was completed by 290 Members of the Workforce and SFO personnel in this reporting period.
July 2020 – June 2021	SW100 was completed by 250 Members of the Workforce and SFO personnel in this reporting period.
Measurable Goal #3	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	Stormwater pollution prevention was highlighted in the August 2015 publication of the *Porcelain Press* (Appendix L-2).
July 2016 – June 2017	Stormwater pollution prevention was highlighted in the August 2016 publication of the *Porcelain Press* (Appendix L-2).
July 2017 – June 2018	Stormwater pollution prevention was highlighted in the August 2017 publication of the *Porcelain Press* (Appendix L-2).
July 2018 – June 2019	Stormwater pollution was highlighted in the labs-wide June Tier Board "Safety Minute" (Appendix L-2).
July 2019 – June 2020	Green Stormwater Infrastructure was highlighted in the June Level V Tier Board "Environmental Minute" (Appendix L-2).
July 2020 – June 2021	Green Stormwater Infrastructure was highlighted in the June Level V Tier Board "Environmental Minute" (Appendix L-2).
Measurable Goal #4	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	The Stormwater Program participated in several educational events using the EnviroScape® watershed model (Appendix L-3) to illustrate how pollutants enter stormwater and how to prevent stormwater pollution. The events included Zia Elementary School 5th Grade on October 7, 2015; SNL Earth Day on April 27, 2016; and Albuquerque Science, Technology, Engineering and Math (STEM) Fiesta on May 13, 2016.

July 2016 – June 2017	The Stormwater Program participated in several educational events using the EnviroScape® watershed model (Appendix L-3) to illustrate how pollutants enter stormwater and how to prevent stormwater pollution. The events included the Rio Rancho Water Fair on October 24, 2016; SNL Science, Technology, Engineering and Math (STEM) Fiesta on February 28, 2017; SNL Earth Day on April 27, 2017; and the New Mexico Science Fair on May 20, 2017.
July 2017 – June 2018	The Stormwater Program participated in several educational events using the EnviroScape® watershed model (Appendix L-3) to illustrate how pollutants enter stormwater and how to prevent stormwater pollution. The events included the Explora Adult Night on November 17, the SNL Science, Technology, Engineering, Arts, and Math (STEAM) Extravaganza on February 27, 2018; and the SNL Earth Day on April 26, 2018.
July 2018 – June 2019	The Stormwater Program participated in several educational events using the EnviroScape® watershed model (Appendix L-3) to illustrate how pollutants enter stormwater and how to prevent stormwater pollution. The events included the Rio Rancho Water Festival on October 22-23, 2018, the SNL Earth Day on April 25, 2019, and presentations to a total of 11 classrooms at four different APS middle schools between November 2018 and March, 2019.
July 2019 – June 2020	The Stormwater Program participated in several educational events using the EnviroScape® watershed model (Appendix L-3) to illustrate how pollutants enter stormwater and how to prevent stormwater pollution. The events included the Rio Rancho Water Festival on October 21-22, 2019, and presentations to a total of 23 classrooms at 7 different APS middle schools Between November 2019 and January, 2020.
July 2020 – June 2021	Due to COVID-19 restrictions, in-person presentations of the watershed model were not conducted during the reporting period. However, SNL recorded an Enviroscape watershed model presentation and made it available via YouTube for Albuquerque and Rio Rancho schools at https://www.youtube.com/watch?v=u8z5yPtNj-o. The presentation has been viewed 216 times; 27 school classes used this as part of their curriculum.

11. Public Involvement and Participation Program [MS4 Part I.D.5.h]

11.1 Requirement Descriptions and Cooperative Status

Permittees are required to develop, revise, implement and maintain a program to encourage public involvement and provide opportunities for participation in the review, modification and implementation of the SWMPP. Permittees are required to make the SWMPP available to the public and to other MS4 operators or tribal authorities receiving discharges from the MS4, and develop and implement a process by which public comments are received and reviewed by the entities responsible for the SWMPP.

DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all the requirements of the MS4 Permit, but do so independently of participation in a cooperative group.

11.2 Mechanisms Used to Comply with Permit Requirements (Best Management Practices)

11.2.1 Development of a Public Involvement and Participation Program [MS4 Parts I.D.5.h(ii), (iii) and (viii)]

The Public Involvement and Participation Program includes a comprehensive planning process which involves public participation and intergovernmental coordination, to reduce the discharge of pollutants to the MEP using management practices, control techniques and system, design and engineering methods, and other such provisions as appropriate.

In accordance with Part I.D.5.h(viii), a copy of each public notice, a copy of the MS4 Permit and the applicable documents (i.e., NOIs, Annual Report, and the SWMPP) are maintained up-to-date at http://digitalrepository.unm.edu/snl_ms4/ through the UNM Digital Repository online database. Current documents associated with SNL's MS4 Permit coverage will be maintained on this website throughout the Permit term.

A 30-day public notice period will be provided for each Annual Report (and associated SWMPP update and DMRs). Comments received by SFO in response to any public comment period will be reviewed and considered for incorporation into the applicable document. The comments and a summary of SFO's and NTESS's responses will be submitted to the EPA.

As appropriate, pursuant to Part I.D.5.h(iii)(c) of the Permit, SFO and NTESS will solicit involvement from the Technical Advisory Group (TAG) for the MRG Watershed MS4 Permit. The TAG is comprised of MS4 Permittees and meets on a routine basis to discuss technical and regulatory aspects of compliance with the MS4 Permit (see Memorandum of Agreement

included as Appendix P-1 of this SWMPP). SFO and NTESS (formerly Sandia Corporation) have participated in the TAG monthly since the Permit was issued in December 2014.

SFO and NTESS also participate in the Water Assistance Group for the purpose of technical and regulatory collaboration among DOE sites nationwide.

Due to the nature of the work performed at SNL and associated security requirements, SFO and NTESS cannot retain volunteers for stormwater pollution prevention activities and awareness throughout the area, as required by Part I.D.5.h(iii)(d). NTESS has a sufficient number of employees in the Stormwater Program and associated water quality programs to support the activities and awareness required by the MS4 Permit.

11.2.2 Plan to Comply with State, Tribal and Local Notice Requirements [MS4 Part I.D.5.h(iv)]

SFO and NTESS will comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program.

11.2.3 Open Public Process [I.D.5.h(v)]

The Public Involvement and Participation Program is not limited to any specific economic or ethnic groups. Public notices are and will continue to be printed in a newspaper of general circulation in the Albuquerque area (e.g., *The Albuquerque Journal*) and be available online.

SFO/U.S. Department of Defense (DoD) semi-annual public meetings are held in approximately April and October each year. The meetings are open to all citizens and the public is encouraged to attend. These meetings cover a wide range of environmental issues and are not limited to stormwater. When stormwater is on the agenda for discussion, Stormwater Program staff are in attendance and prepared present information to public and answer relevant questions. Agendas from public meetings where stormwater is discussed are provided in Appendix M.

11.3 Measurable Goals

The following measurable goals have been developed to correspond with the existing and/or proposed BMPs discussed previously. A performance assessment associated with these goals will be provided annually in each SWMPP update.

1. Comments received by the public in response to public notices will be considered, and then maintained with the SWMPP for the duration of the Permit term.
2. One functional behavioral assessment will be performed during the Permit term at a SFO/DoD semi-annual public meeting, before, during, and after the topic of "stormwater" is presented.

11.4 Anticipated Program Development and Implementation Schedule [MS4 Table 9]

Table 11-1: Public Involvement and Participation Program implementation schedule

Activity	Required Implementation Date	Implementation Status
Develop program [I.D.5.h(ii) and (iii)]	11/22/2015	Completed
Comply with state, tribal, and local public notice requirements [I.D.5.h(iv)]	12/22/2015	Completed
Include elements of Part I.D.5.h(v).	12/22/2015	Completed
Update the SWMPP and submit Annual Report [I.D.5.h(vi), (vii) and (viii)]	December 1 each year (first due 12/01/2016)	Complete for December 1, 2020
Enhance the program to include elements of Part I.D.5.h(ix).	Update as necessary and applicable	In progress

11.5 Performance Assessment

Table 11-2: Measurable performance for each annual reporting period

Measurable Goal #1	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2016. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online and in hard copy at the UNM library. No public comments were received during this comment period.
July 2016 – June 2017	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2017. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online and in hard copy at the UNM library. No public comments were received during this comment period.

July 2017 – June 2018	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2018. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online and in hard copy at the UNM Library. No public comments were received during this comment period.
July 2018 – June 2019	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2019. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online through the UNM Library Digital Repository. No public comments were received during this comment period.
July 2019 – June 2020	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2020. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online through the UNM Library Digital Repository. No public comments were received during this comment period.
July 2020 – June 2021	The public was notified via legal notice in *The Albuquerque Journal* for a period of 30 days prior to submission of the NOI and associated SWMPP required by December 1, 2021. Persons on the SNL environmental interested parties mailing list were notified of the public comment period by postal mail. The NOI and SWMPP were made available online through the UNM Library Digital Repository. No public comments were received during this comment period.

Measurable Goal #2	
Reporting Period	**Performance Assessment**
July 2015 – June 2016	A DOE/DoD semi-annual public meeting was held on October 27, 2015, and was advertised on the UNM Digital Repository online database starting September 29, 2015. At that meeting the Stormwater Program provided a 20-minute presentation describing the requirements of the MS4 Permit and the highlights of the SNL SWMPP (Appendix M-1). Part I.D.5.h(iii)(b) of the Permit requires permittees to perform "one assessment of public behavioral change following a public education and/or participation event". In compliance with this requirement, the Stormwater Program conducted a functional behavioral assessment at the public meeting where "stormwater" was presented. The antecedent (before), present (during), and consequence (after) behavior of the public assembly as a whole was observed objectively and recorded. The evaluation form and a summary of the observations are included as Appendix M-2. This assessment requirement has been completed for the term of the permit.
July 2016 – June 2017	A DOE/DoD semi-annual public meeting was held on April 27, 2017. The Stormwater Program prepared a 20-minute presentation describing the requirements of the MS4 Permit and the highlights of the SNL SWMPP (Appendix M-3).
July 2017 – June 2018	A DOE/DoD semi-annual public meeting was held on April 24, 2018, and was advertised on the UNM Digital Repository online database starting March 27, 2018. At that meeting the Stormwater Program presented a poster describing the requirements of the MS4 Permit, highlights of the SNL SWMPP, and graphs of data collected to date at SWSP-05 (Appendix M-4).
July 2018 – June 2019	The stormwater Program presented informational posters at the annual SNL/NM Earth Day. Posters for the CGGP, MSGP, and MS4 permits provided information on regulatory compliance and the importance of protecting stormwater quality. Stormwater team members were present to answer questions.
July 2019 – June 2020	A DOE/DoD semi-annual public meeting was held on October 17, 2019 and was advertised on the UNM Digital Repository online database starting September, 2019. At that meeting the Stormwater Program presented a poster describing the requirements of the MS4 Permit, highlights of the SNL SWMPP, and graphs of data collected to date at SWSP-05 (Appendix M-4).

July 2020 – June 2021	A DOE/DoD semi-annual public meeting was held on October 29, 2020 and was advertised on the UNM Digital Repository online database starting September, 2020. The meeting was held virtually due to COVID-19 restrictions. At that meeting the Stormwater Program presented a poster describing the requirements of the MS4 Permit, highlights of the SNL SWMPP, and graphs of data collected to date at SWSP-05 (Appendix M-4).

12. Comprehensive Monitoring and Assessment Program [MS4 Part III.A]

Stormwater sampling locations for the SNL MS4 were certified as operational on January 20, 2016 (Appendix R-1). SWMPP Sections 2 and 12 were submitted to the EPA and NMED for approval (as the *Wet Weather Monitoring Plan*; Appendix R-2) on November 18, 2015. The EPA and NMED provided comments on February 5, 2016 and the Permittees responded on April 28, 2016 (Appendices R-3 and R-4). Final approval of the *Wet Weather Monitoring Plan* was received electronically from the EPA on February 13, 2017 (Appendix R-5).

12.1 Program Objectives [MS4 Part III.A]

This monitoring and assessment program is designed to meet the following objectives related to the SNL MS4:

- Assess compliance with the MS4 Permit.
- Assess the effectiveness of the SNL MS4 SWMPP.
- Assess the impacts to receiving waters resulting from stormwater discharges.
- Characterize stormwater discharges.
- Identify sources of elevated pollutant loads and specific pollutants.
- Detect and eliminate illicit discharges and illegal connections to the SNL MS4.
- Assess the overall health and evaluate long-term trends in receiving water quality.

SFO and NTESS share responsibility for the SNL MS4. SFO and NTESS together comply with all the requirements of the MS4 Permit, but do so independently of participation in a cooperative group. SFO and NTESS may share monitoring data with other MS4s to help understand impacts on receiving waters. The sharing of data shall not be construed as evidence of the existence of a cooperative program or a shared responsibility for meeting Permit requirements.

For the purposes of this SWMPP and to be consistent with the intent of the MS4 Permit, "monitoring" and "sampling" are considered to be synonymous terms that mean the sampling and visual observation of stormwater discharges, including related preparation and documentation tasks. Additionally, to avoid confusion with acronyms, where stormwater *monitoring* points would typically be referred to as "SWMPs", they are herein denoted as "SWSPs" for stormwater *sampling* points.

Activities conducted that could potentially generate pollutants within the SNL MS4 are described in Table 12-1 below. The SNL MS4 is not representative of municipal MS4 systems in that: (1) it does not support activities and sources of pollutants typical of municipalities; (2) SFO and NTESS (the Permittees) have total control of the activities within the MS4 boundary, all activities at SNL are highly regulated and policed; thus there is very low potential for illicit discharges or other contribution of pollutants to stormwater; and (3) it is estimated that SNL generates significantly few non-point source pollutants than are found in typical municipal MS4s.

Table 12-1: Potential sources of stormwater pollutants within the SNL MS4

Pollutant Parameter	Source Location	Source Activity	Description
Temperature	Parking lots, roadways, and other hardscaped surfaces	N/A	Precipitation during hot summer months may generate runoff with increased temperature due to hot ground surfaces.
DO	None	N/A	There are no known areas of stagnant water or other oxygen-consuming conditions. DO in stormwater is expected to be near saturation (approximately 7-9 mg/L).
pH	None	N/A	There are no sources of high or low pH materials, or other activities or conditions that would significantly increase or decrease pH. pH is anticipated to be near neutral (approximately 6-8).
Conductivity	General MS4; no specific location	N/A	Conductivity is expected to be typical of urbanized areas. Aside from total suspended solids derived from undeveloped soil-covered areas, there are no suspected sources of elevated conductivity within the SNL MS4.
E. coli	General MS4; no specific location	N/A	There are no known or suspected anthropogenic sources of *E. coli* in the SNL MS4. It is suspected that wildlife such as raccoons, skunks, and rodents contribute moderate amounts of *E. coli* to stormwater discharge.
Gross Alpha	Undeveloped soil-covered areas	N/A	Gross alpha is generated by anthropogenic radioactive sources, as well as radioactive materials in natural materials (e.g. rock and sediment). While there is a history of use of radioactive materials within the SNL MS4, there are no anthropogenic sources of radioactive materials currently exposed to precipitation or stormwater at SNL. The granite rock formations native to the Albuquerque area are known to contain relatively abundant radioactive elements. It is possible that sediment load from undeveloped areas may contribute gross alpha to stormwater.
PCBs	General MS4; no specific location	Atmospheric deposition	There are no known sources or PCBs in the SNL MS4. PCBs were used historically within the MS4, but there are no known releases to the environment. PCBs are deposited atmospherically And are ubiquitous in the environment.
TKN	None	N/A	TKN is generally used as a measure of animal waste. There are no sewage lagoons, treatment works, or populations of agricultural or domestic animals within the SNL MS4. TKN is expected to be low.

Pollutant Parameter	Source Location	Source Activity	Description
NPN	General MS4; no specific location	Fertilizer application; Possible outdoor test activities	Nitrogen-based fertilizers are applied to landscaped areas throughout the SNL MS4 and may be used for outdoor test activities. Runoff from these areas is minimal, but has the potential to be elevated in nitrogen; however, this is not anticipated to be a significant source.
Dissolved phosphorous	General MS4; no specific location	Fertilizer application; Possible outdoor test activities	Phosphorous-based fertilizers are applied to landscaped areas throughout the SNL MS4 and may be used for outdoor test activities. Runoff from these areas is minimal, but has the potential to be elevated in phosphorous; however, this is not anticipated to be a significant source.
Total phosphorous			
COD	None	N/A	The amount of organic material in stormwater runoff is expected to be low. High COD and BOD_5 values are typically associated with animal waste or other organic sources (landfills), of which there are no known sources in the SNL MS4.
BOD_5	None	N/A	
TDS	Site-wide	N/A	TDS is expected to be typical of urbanized areas.
TSS	Undeveloped soil-covered areas	N/A	There are areas of undeveloped (disturbed and undisturbed) silty/sandy/gravelly desert landscape within the SNL MS4.
Oil and grease	Roads and parking lots	Routine vehicle operation and parking	Oil from motor vehicles may be deposited onto paved surfaces (any oil deposits in parking lots or roadways reported to EOC are cleaned up). Fleet Services is a highly controlled operation regulated under the MSGP, and is an unlikely source of oil in stormwater. Food services facilities at SNL are closely regulated and inspected, and are unlikely to be a source of grease in stormwater.

12.2 Monitoring Locations [MS4 Part III.A.1.a(ii)]

Permittees not participating in a cooperative monitoring program are required to monitor all wet weather inflows and outflows of the MS4 jurisdiction. This section discusses SNL MS4 monitoring locations (Appendix B-2) and methods.

The SNL MS4 comprises an area of approximately 1.16 sq. mi. and resembles a traditional MS4 with regard to channelized stormwater flow. The developed portion contains significant impervious surfaces comprised mainly of buildings, roads, and parking lots, and a centralized stormwater drainage system comprised of numerous gutters, ditches, inlets, and storm drains. The northern half of the SNL MS4 is part of the Albuquerque UA (as determined by the 2010 decennial census) and is approximately 0.54 sq. mi; or 47 percent of the SNL MS4.

The locations and first receiving waters of the inflow and outflow sampling points for the SNL MS4 are listed in Table 12-2 below. There are two inflows which are combined into an open concrete-lined channel that conveys stormwater from a portion of the KAFB residential housing neighborhood located immediately to the north of TA-I. The inflow is monitored at SWSP-02 (Appendix B-3). The inflow that enters the SNL MS4 and is ultimately conveyed to the Tijeras Arroyo.

There are four outflows (one outfall and three discharge points) from the SNL MS4. Drainage from approximately 90 percent of the SNL MS4 is conveyed to a concrete-lined channel that discharges directly to the Tijeras Arroyo. This outfall location is monitored at SWSP-05. The remaining stormwater discharges from the northwest quadrant of the SNL MS4 discharge to the KAFB MS4 through three separate jurisdictional transition points, and are monitored at three storm drains referred to as SWSP-24, SWSP-35 and SWSP-36. Stormwater leaving the SNL MS4 at these three points is ultimately conveyed to the Rio Grande via the KAFB MS4 and AMAFCA North Diversion Channel. The SWSPs are depicted on a map in Appendix B-3 of this SWMPP.

Table 12-2: SNL MS4 stormwater monitoring locations and first receiving waters

Monitoring ID (SWSP)	Sampler Type	Latitude	Longitude	First Receiving Water	Type of Waterbody
SWSP-02 (inflow)	Automatic	35.05311	-106.54162	Tijeras Arroyo	Ephemeral[1] arroyo
SWSP-05 (outfall)	Automatic	35.03232	-106.54675	Tijeras Arroyo	Ephemeral[1] arroyo
SWSP-24 (outfall)	Automatic	35.05444	-106.54984	Rio Grande via KAFB MS4 and AMAFCA MS4	N/A; MS4
SWSP-35 (outfall)	Automatic	35.05165	-106.54786	Rio Grande via KAFB MS4 and AMAFCA MS4	N/A; MS4
SWSP-36 (outfall)	Automatic	35.05087	-106.54711	Rio Grande via KAFB MS4 and AMAFCA MS4	N/A; MS4

12.2.1 Changes to Monitoring Locations [MS4 Parts III.A.1.g]

Alternate monitoring locations may be substituted for just cause during the term of the MS4 Permit. Requests for approval of an alternate monitoring location(s) will be made to the EPA and NMED in writing and include the rationale for the requested monitoring station relocation. Unless disapproved by the EPA, use of an alternate monitoring location(s) may commence 30 days from the date of the request. At least six samples are required to be collected during the first year of monitoring at the substitute monitoring location(s). In the event that there are fewer than six events where a sample was able to be collected, it will be documented for reporting purposes.

12.3 Wet Weather Monitoring [MS4 Parts III.A.1 and III.A.5.a]

Wet weather monitoring is conducted during both the wet season and the dry season at the sampling locations identified in Section 12.2 of this SWMPP. The wet season occurs between July 1 and October 31, and the dry season occurs between November 1 and June 30. Wet weather monitoring is required to be conducted for a minimum of eight events during the Permit term (December 22, 2014 through December 19, 2019) of which at least four events occur during the wet season and two events occur during the dry season. Wet weather monitoring is performed when the magnitude of a storm event is greater than 0.25 inches and is preceded by at least a 48-hour period since a precipitation event of 0.1 inches or greater has occurred.

Typical precipitation events in the MRG Basin are brief, intense, and highly localized. Stormwater flow may occur far from an actual rain event, and the water quality of the flow may have little to do with pollutants originating within the MS4. The majority of the stormwater flowing in the SNL MS4 originates from direct precipitation within the MS4 boundary. There is only a small portion from KAFB that enters the SNL MS4 and is monitored at SWSP-02.

For the purpose of the MS4 Permit, precipitation is monitored using a tipping bucket rain gauge mounted on a meteorological tower (Tower A21) located in the center of the SNL MS4 (Latitude: 35.041, Longitude: -106.543; see figure in Appendix B-2). The tipping bucket gauge measures precipitation to the nearest 0.01-inch. Measurements are saved to a data logger every 15 minutes and can be used to determine the start time, duration, intensity, and total for storm events. Tower A21 data are uploaded after each storm event, or monthly in the absence of any storms. These data are used to determine and document a qualifying storm event. If Tower A21 registers 0.25 inches of precipitation (i.e., a qualifying event), then wet weather sampling will be performed at SWSP-02, SWSP-05, SWSP-24, SWSP-35, and SWSP-36. The SNL MS4 sampling points are identified on maps B-3 and B-5 in Appendix B of this SWMPP.

Samples are collected using automatic samplers to meet the grab sample requirement described in Part III.A.1.c of the Permit. Detailed procedures for sample collection are provided in FOP 95-16, *Stormwater Monitoring*. Portable automatic samplers are programmed to collect four grab samples a minimum of 15 minutes apart during the first two hours of the discharge event. The automatic samplers at two locations (SWSP-02 and SWSP-05) are equipped with four separate one-gallon bottles. Each bottle is filled with one of the four subsamples; a composite sample is prepared using equal volumes of the subsamples contained in the four containers. The automatic samplers at the other three locations (SWSP-24, SWSP-35, and SWSP-36) are a different model than those at SWSP-02 and SWSP-05, and are equipped with a single four-gallon container. The four required subsamples are composited automatically when collected in the single container.

Field measurements of temperature, pH, conductivity, and DO are made for each subsample (this applies to SWSP-02 and SWSP-05 only) as well as for the composited sample. The composited sample will be preserved (as appropriate) and processed at the SNL Sample Management Office before shipment to the appropriate laboratory. Wet weather monitoring constituents required in the Permit, along with acceptable analytical methods (from 40 CFR Part 136) and their

associated hold times are listed in Table 12-3. Limitations that may affect the retrieval time of the automatically collected samples, compositing methods, and laboratory analysis are discussed below in Section.12.3.1.

Wet weather monitoring will also consist of determining flow rates during the discharge event so that the total daily discharge can be determined. Daily discharge volumes are used to calculate the *E. coli* waste load for evaluation of TMDL compliance. A discussion of flow measurements, waste loads, and TMDLs is provided in Section 2.4 and Appendix F-1 of this SWMPP.

Table 12-3: Wet weather monitoring parameters, analytical methods, MQLs, and hold times

Parameter	Analytical Method	MQL	Hold Time
pH	Water quality meter	--	15 minutes
Temperature	Water quality meter	--	15 minutes
Conductivity	Water quality meter	--	15 minutes
DO	Water quality meter	--	15 minutes
TSS	SM 2540 D	100[a] mg/L	7 days
TDS	SM 2540 C	1500[a] mg/L	7 days
COD	EPA 410.4	120[b] mg/L	28 days
BOD_5	SM 5210 B	30[b] mg/L	48 hours
Oil and grease	SM 1664 A	15[b] mg/L	28 days
E. coli	SM 9223 B	88[a] cfu/100mL	6 hours
TKN	EPA 351.2	2[a] mg/L	28 days
NPN	EPA 353.2	10[a] mg/L	28 days
Dissolved phosphorous	EPA 365.4	2.0[b] mg/L	28 days
Total phosphorous	EPA 365.4	2.0[b] mg/L	28 days
PCBs	EPA 1668 C	0.00017[a] µg/L	1 year
Gross alpha	EPA 900.0	15[a] pCi/L	180 days

[a] The values in this table reflect the WQSs listed in Table 2-1.
[b] There are no WQSs for this constituent. The value listed is an EPA "benchmark" value indicating levels the EPA considers having the potential to impair water quality.
MQL = minimum quantification level

12.3.1 Sampling Limitations

12.3.1.1 Safety

Members of the Workforce are required to adhere to strict safety procedures when performing work. Wet season storm events in Albuquerque are typically accompanied by lightning and flash flooding of stormwater drainage areas (e.g., conveyance channels and arroyos). Safety procedures prohibit worker exposure to such situations; therefore, it may not be possible to retrieve the automatically-collected samples within 15 minutes to measure field parameters. The samplers will be accessed as soon as practicable to measure field parameters and retrieve the automatically-collected samples.

12.3.1.2 Business Hours

Samples will be retrieved from the automatic samplers during normal business hours - Monday through Friday, 7:30 am to 5:00 pm. Additionally, Members of the Workforce who conduct stormwater monitoring are not required to work on the following observed holidays: Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and, Christmas Day through New Year's Day (i.e., winter shutdown).

The field team is staffed with multiple technicians; however, the inability to collect samples during normal business hours due to unexpected circumstances (e.g., sick or personal leave, inclement weather, facility shutdown, or KAFB gate closure) is possible. Should this occur, automatically collected samples will be retrieved as soon as practicable or during the next qualifying storm event.

12.3.1.3 Stormwater Flow Duration and Sample Volume

Stormwater from wet season storm events has a tendency to flow with high velocity at high volumes for a short period of time. It is anticipated that the collection of four grab samples collected a minimum of 15 minutes apart (as required by the Permit), may be a challenge at some locations. Should fewer than four grab samples be collected due to limited flow duration, the number of subsamples will be documented, composited, and submitted for analysis.

In the event that the volume of a composited sample from any of the sampling points is inadequate to achieve the minimum volume for laboratory analysis, less than the full sample volume may be collected with the understanding that there may not be sufficient volume for duplicate or quality control samples. Additionally, partial sampling may be conducted and the full list of required parameters collected over multiple storm events. The priority order for sample collection is listed in Table 12-4 and was developed with priority given to the parameters most likely or known to cause degradation to stormwater discharged at SNL, and to EPA and NMED recommendations (based on impairments in downstream receiving waters).

Table 12-4: List of required sample volumes and priority for laboratory submittal.

Parameter	Priority (Order of Laboratory Analysis)[1]	Laboratory Minimum Required Volume (mL)	Additional Volume for Quality Control (mL)	Additional Volume Required to Rerun Samples (mL)	Full Sample Volume (mL)	Cumulative Full Sample (mL)
E. coli	1	120	---	---	120	120
Gross alpha	2	150	150	150	500	620
PCBs	3	1,000	1,000	1,000	4,000	4,620
TKN	4	100	200	100	500	5,120
Nitrate + Nitrite	5	4	8	4	125	5,245
Dissolved phosphorous	6	50	100	50	250	5,495
Total phosphorous	7	50	100	50	250	5,745
COD	8	2	4	2	125	5,870
BOD_5	9	500	500	500	1,000	6,870
TSS	10	1,000	1,000	1,000	2,000	8,870
TDS	11	100	100	100	500	9,370
Oil and grease	12	1,250	1,250	1,250	3,750	13,120

[1] The priority order of parameters is based on recommendations made by NMED via e-mail on February 5, 2016.

12.3.1.4 E. coli

E. coli has a hold time of six hours. Laboratories contracted to conduct *E. coli* analysis operate on standard business hours of Monday through Friday, 8:00 am to 5:00 pm. Should a storm event create a stormwater discharge at a period when timely sample retrieval is not possible or on a Friday afternoon, the retrieval, processing and delivery of the collected sample to the laboratory may not occur within the maximum hold time. However, the sample may be submitted to the laboratory for analysis, or *E. coli* may be analyzed in stormwater from another storm event.

Because the number of opportunities for meeting a 6-hour hold time are very limited, *E. coli* samples are submitted for analysis if a 24-hour hold time can be achieved. Research literature suggests that while shorter hold times are preferred, in many cases, *E. coli* concentrations do not change significantly within the first 24 hours after collection, as long as samples remain refrigerated below 10 degrees C. In the event that an *E. coli* sample does not meet the required 6-hour hold time and laboratory analysis was performed, the hold time exceedance will be documented in the comments section of the DMRs submitted with the Annual Report. Sample collection (by automatic sampler), retrieval (by field team), and laboratory analysis times will be provided.

12.3.1.5 Documentation

In the event any of the previous limitations occur, they will be documented in DMRs, Annual Reports, and/or a SWMPP update, as applicable.

12.3.2 Anticipated Program Development and Implementation Schedule [MS4 Table 10]

Table 12-5: Wet weather monitoring implementation schedule

Activity	Required Implementation Date	Status or Anticipated Completion Date
Submit wet weather monitoring preference	06/20/2015	Completed
Submit detailed description of monitoring scheme (i.e., *Wet Weather Monitoring Plan*)	11/22/2015	Completed; see Appendix R-2
Submit certification that sampling sites are operational; begin sampling	01/22/2016	Completed; see Appendix R-1
Update SWMPP and Annual Report	December 1 each year (first due 12/01/2016)	Complete for December 1, 2021

12.3.3 Contingency Plan [MS4 Parts III.A.1.h]

If wet weather monitoring data indicate that discharges from the SNL MS4 are contributing to in-stream exceedances of WQSs, then additional monitoring locations may be proposed in

accordance with Section 4.6 of this SWMPP to determine the potential source(s) of contamination. The locations of the additional wet weather monitoring stations will be submitted to the EPA and NMED for approval, and the SWMPP updated to reflect their addition.

12.4 Dry Weather Discharge Screening [MS4 Part III.A.2]

Dry weather monitoring is conducted to identify, investigate, and address areas that may be contributing contaminants to the SNL MS4 as a result of discharges that occur without the direct influence of storm events (i.e., illicit discharge, allowable non-stormwater discharges). Dry weather monitoring is conducted in conjunction with the IDDE Program described in Section 8 of this SWMPP.

The entire SNL MS4 will be screened at least once every five years and any identified high priority areas (where known illicit discharges are occurring) at least once every year. All known outfalls and MS4 conveyance structures will be inspected and documented for the presence of dry weather flow. Dry weather flow encountered will be investigated, sampled (as appropriate) and tracked to its source, as described in Section 8 of this SWMPP. If non-stormwater discharges are determined to be illicit discharges they will be ceased through either administrative or engineered control measures as described in Section 8.

Dry weather sample collection is conducted in the same method as wet weather monitoring (i.e., using the grab sample option described in Part III.A.1.c). The grab samples are collected in equal portions and composited in the field. The composited sample is preserved (as appropriate) and processed at the SNL Sample Management Office before shipment to the appropriate laboratory. In accordance with MS4 Part III.A.2, the constituent list will include BOD_5, TSS, *E. coli*, oil and grease, nutrients, and pollutants identified as impairments to water bodies receiving the discharges (for SNL, this includes PCBs, gross alpha, temperature, and DO).

12.5 Floatable Monitoring [MS4 Part III.A.3]

Floatable monitoring is conducted as described in Section 9 of this SWMPP. The details and results associated with floatables monitoring is maintained in Section 9.

12.6 Analytical Methods [MS4 Parts III.A.5.b and IV.Q]

Analysis of all samples (i.e., wet weather, dry weather, and IDDEP) is performed in accordance with the methods specified in 40 CFR 136. Parameters, analytical methods, MQLs, and hold times are listed in Table 12-3.

Analytical results will be reported with MQLs at or below those listed in Appendix F of the MS4 Permit, and below NM WQSs, as applicable. The WQSs were provided to the analytical laboratories being used by SNL, and it has been verified that the laboratories will conduct the analyses with a MQL below the WQS. The applicable WQSs and laboratory reporting limits are provided in Table 2-1 of this SWMPP.

12.7 Additional Monitoring by the Permittee [MS4 Part IV.T]

Should the approved sampling locations for the SNL MS4 be monitored more frequently than required by the Permit, using test procedures approved under 40 CFR §136 or as specified in the Permit, the results shall be included in the calculation and reporting of the data submitted in the DMR. Such increased monitoring frequency shall also be indicated in the DMR.

12.8 Recording of Monitoring Results and Maintaining Records [MS4 Part IV.P]

All monitoring data collected pursuant to the MS4 Permit will be submitted to the EPA in DMRs submitted with the Annual Report which is due December 1 of each year. Since stormwater sample collection time (logged by the automatic sampler) may differ from sample retrieval time (recorded by the field team), sample retrieval time and sample analysis time will be recorded on the DMRs submitted with the Annual Reports.

Records are maintained as discussed in Section 15 of this SWMPP.

12.9 Reporting of Monitoring Results [MS4 Part III.D]

Monitoring results are reported with the Annual Reports. Submission of Annual Reports, DMRs and SWMPP updates is discussed in Section 13.8 of this SWMPP. Section 14 of this SWMPP includes additional reporting requirements regarding: items for compliance with Permit requirements associated with WQSs (MS4 Part I.C.1) and TMDLs (MS4 Part I.C.2), monitoring scheme and certifications required in Part III.A.1, modifications to monitoring locations, and all other reports.

13. Annual Report [MS4 Part III.B]

Annual Reports, including DMRs, will be submitted by December 1 each year, and will report on the reporting period of July 1 (of the previous year) through June 30. The suggested Annual Report form is located at http://epa.gov/region6/water/npdes/sw/ms4/index.htm. The first and fourth Annual Reports (due December 1, 2016 and December 1, 2019, respectively) are required to include the submittal of a complete SWMPP (and/or update).

13.1 SWMPP Implementation Status [MS4 Part III.B.1]

Each Annual Report will include a section addressing SWMPP implementation status. The section will describe the status of compliance with all schedules established under the MS4 Permit, and the status of actions required in Parts I, III, and VI of the Permit.

13.2 SWMPP Updates [MS4 Part III.B.2]

Updated SWMPPs will be included with the Annual Reports. Updates will include any reassessment of or changes to control measures and BMPs reported in the NOI. A cumulative list of substantive SWMPP updates will be maintained.

13.3 Performance Assessment [MS4 Part III.B.3]

Each Annual Report will include an assessment of performance of the SWMPP and overall compliance with the MS4 Permit. The assessment will include:

- An evaluation of performance in terms of measurable goals, including, but not limited to: a description of number and nature of enforceable actions and inspections; public education; and public involvement aspects of the SWMPP.
- A summary of the data that are accumulated throughout the reporting period (July 1 through June 30). Data will include water quality monitoring results, calculated waste loads, floatables monitoring results, illicit discharge detections, and any other quantitative measures of performance.
- Identification of water quality degradations or improvements.

13.4 Annual Expenditures [MS4 Part III.B.4]

Tracking and reporting of annual expenditures is only required for Class A permittees. As Class C Permittees, these Permit requirements are not applicable to SFO and NTESS.

13.5 Cooperative Responsibilities [MS4 Part III.B.5]

The MS4 Permit requires permittees participating in a cooperative program to share responsibility for preparation and contents of the Annual Report. DOE/NNSA/SFO (as owner of SNL) and NTESS (as operator of SNL) share responsibility for the SNL MS4. SFO and NTESS together comply with all the requirements of the MS4 Permit, but do so independently of participation in a cooperative group. SFO and NTESS may share monitoring data with other

MS4s; however, the sharing of data shall not be construed as evidence of the existence of a cooperative program or a shared responsibility for meeting Permit requirements.

13.6 Public Notice and Comments [MS4 Part III.B.6]

A minimum of 45 days prior to submission of each Annual Report, SFO and NTESS will provide public notice and make a copy of the Annual Report, SWMPP update, and DMRs available for public review and comment. All public comments received will be reviewed and considered for incorporation into the final deliverables due to the EPA on or before December 1 each year.

13.7 Signature Requirements [MS4 Part III.B.7]

Annual Reports are signed and certified in accordance with Part IV.H, and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been apprised of the content. Section 17 of this SWMPP includes more detail on signature requirements and notes authorized designees, as applicable.

13.8 Submission of Annual Reports, SWMPP Updates, and DMRs [MS4 Part III.D]

Monitoring results (MS4 Parts III.A.1 III.A.3, and III.A.5.e) obtained between July 1 and June 30 (of the next calendar year) will be submitted on DMRs.. A separate DMR will be completed for each sampling event at each sampling point. The NetDMR system provides a total of four blank DMRs per site for both the wet season and dry weather (total of 8 DMRs per site). Unused blank DMR forms are required to be submitted using the 'no discharge" (NODI) code 9..

Signed copies of the Annual Reports and updated SWMPP will be submitted electronically to R6_MS4Permits@epa.gov. All monitoring data will be entered onto DMRs and submitted to the EPA using the NetDMR system at https://cdx.epa.gov/. DMRs, Annual Reports, and updated SWMPPs will also be submitted (in hard copy unless otherwise requested) to NMED and the Pueblo of Isleta.

New Mexico Environment Department
Attn: Levi Dean, Program Manager
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

Pueblo of Isleta
Attn: Ramona M. Montoya, Environmental Division Manager
P.O. Box 1270
Isleta, NM 87022

14. Additional Reporting [MS4 Part III.D]

Submission of Annual Reports, SWMPP updates, and DMRs is discussed in Section 13.8 of this SWMPP.

As applicable, requests for modifications to monitoring locations will be emailed to R6_MS4Permits@epa.gov and mailed to the following address:

NPDES Permits & TMDLs Branch
Attn: Brent Larsen
US EPA, Region 06
1445 Ross Ave., Suite 1200
Mail Code: 6WQ-PP
Dallas, TX 75202-2733

Applications for MS4 Permit coverage will be submitted to the EPA at the following address:

U.S. EPA Region 6
Water Quality Protection Agency
Operations Support Office (6WQ-O)
1445 Ross Avenue
Dallas, TX 75202-2733

As applicable, the submission of NOTs, requests for SWMPP modifications, items for compliance with Permit requirements associated with WQSs (MS4 Part I.C.1) and TMDLs (MS4 Part I.C.2), monitoring scheme and certifications required in Part III.A.1, modifications to monitoring locations, and all other reports will also be submitted (in hard copy unless otherwise requested) to NMED and the Pueblo of Isleta.

New Mexico Environment Department
Attn: Levi Dean, Program Manager
Surface Water Quality Bureau
Point Source Regulation Section
P.O. Box 5469
Santa Fe, New Mexico 87502

Pueblo of Isleta
Attn: Ramona M. Montoya, Environmental Division Manager
P.O. Box 1270
Isleta, NM 87022

14.1 Anticipated Non-compliance [MS4 Part IV.X]

SFO and NTESS will provide notice to the EPA and NMED of any planned changes or activity that may result in non-compliance with the MS4 Permit.

15. Records

15.1 Recordkeeping [MS4 Part IV.P]

The following records and documentation are maintained for the SNL MS4:

- Monitoring Information
  - Date, time, location of sampling event, and measurement
  - Initials or name of individuals performing the sampling
  - Date and time analyses were performed
  - Initials or names of individuals who performed the analyses
  - References and written procedures for analytical methods used
  - Results of analyses, including bench sheets or instrument readouts
  - Calibration and maintenance records
- Reports (including Annual Reports)
- DMRs
- MS4 Permit NMR04A000
- Data used to complete the NOIs, if applicable
- NOIs
- NOTs
- SWMPPs
- All information and determinations used to document Permit eligibility under Part I.A.5.f and Part I.A.3.b of the Permit.

All records required by the Permit are maintained onsite at SNL in the office of the Stormwater Program. Following a review, all records, data, and documents will be made available to the EPA and the public, upon written request.

15.2 Records Retention [MS4 Part I.D.7]

The SWMPP and all associated records and deliverables will be maintained for at least five years after Permit coverage is terminated or coverage under the Permit expires. NTESS retains copies of the official records in binders (or volumes) that are stored in the offices of the Stormwater Program. Electronic copies of records are maintained in accordance with Corporate Procedure IM100.2.2, *Control Records*.

16. References

New Mexico Environment Department, September 23, 2016. *2016-2018 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report*, Appendix A. https://www.env.nm.gov/swqb/303d-305b/2016-2018/documents/EPA-APPROVED2016APPA--IntegratedList.pdf

New Mexico Environment Department, April 25, 2016. *2016-2018 Integrated List Spreadsheet* https://www.env.nm.gov/swqb/303d-305b/2016-2018/documents/FINALDRAFT303d_305b_List_04_25_16.xlsx

New Mexico Water Quality Control Commission, October 12, 2000. *Water Quality Standards for Interstate and Intrastate Surface Waters*; 20.6.4 NMAC. http://164.64.110.239/nmac/parts/title20/20.006.0004.htm

Pueblo of Isleta, March 18, 2002. *Pueblo of Isleta Surface Water Quality Standards*, Tribal Resolution 02-064. http://water.epa.gov/scitech/swguidance/standards/upload/2005_12_14_standards_wqslibrary_tribes_isleta_6_wqs.pdf

Sandia National Laboratories, New Mexico (SNL/NM), December 2014. Appendix B of the *2015 Annual Site Environmental Report SNL/NM*: *FY15 Site Sustainability Plan*. http://www.sandia.gov/news/publications/environmental_reports/.

U.S. Bureau of Reclamation (Water Resources Research Laboratory), 2001. *Water Measurement Manual*, 3rd edition. http://www.usbr.gov/pmts/hydraulics_lab/pubs/wmm/

U.S. DOE/Sandia Corporation, January 2015, *Resource Conservation and Recovery Act Facility Operating Permit*, EPA ID No. NM5890110518 https://www.env.nm.gov/HWB/documents/FINAL_SNLPermit_Parts_1-8__1-16-2015.pdf

U.S. EPA, June 30, 2010. *U.S. EPA Approved Total Maximum Daily Loads for the Middle Rio Grande Watershed*. http://www.nmenv.state.nm.us/swqb/documents/swqbdocs/MAS/TMDLs/MRG/Online/USEPA-ApprovedMRG_TMDL06-30-10.pdf

U.S. EPA, April 2014. *Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico*. EPA Publication Number 832-R-14-007. https://www3.epa.gov/region6/water/npdes/sw/ms4/nfs_albuquerque_report_april2014_v2.pdf

U.S. EPA, December 4, 2009. *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*. https://www.epa.gov/sites/production/files/2015-08/documents/epa_swm_guidance.pdf

U.S. Department of the Interior Fish and Wildlife Service, August 21, 2014. *Biological Opinion NPDES Permit No. NMR04A000 (MRG Watershed MS4 Permit) Consultation Number: 02ENNMOO-20I1-F-0024-R001* https://www.fws.gov/southwest/es/NewMexico/documents/BO/2011-F-0024-R001_EPA_MRG_MS4_Permit_BO_final_August2014.pdf

17. Certifications [MS4 Parts IV.H and III.C]

Pursuant to Parts I.B.2.l and I.A.6.a(v) of the MS4 Permit, the NOIs were signed and certified in accordance with Parts IV.H.1 and 4 of the Permit, by a principal executive officer for the corporation or agency. Signature for the NOIs may not be delegated to a lower level position. Similarly, pursuant to I.A.6.b(iii) of the MS4 Permit, the NOTs will be signed and certified in accordance with Part IV.H.1 of the Permit, by a principal executive officer for the corporation or agency.

Annual Reports are signed and certified, in accordance with Part IV.H and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been apprised of the content of the Annual Report. [Part III.B.7]

All DMRs, SWMPPs, reports, certifications, or information either submitted to EPA, or that the MS4 Permit requires the permittee to maintain, will be signed and certified in accordance with Part IV.H of the Permit as follows:

- The signature shall be of a principal executive officer or authorized designee.
- The authorized designee can be either a specific person or corporate position having responsibility for the overall operation of the regulated facility, such as position of manager or position having responsibility for the environmental matters for the corporation or agency.
- Authorization of the designee must be made in writing and submitted.

17.1 Delegation of Authority

As individuals or positions are authorized as signatory designees for SFO and NTESS, their names or positions will be identified in a letter(s) of authorization. Copies of the letters are provided to the EPA as well as maintained in Appendix N of this SWMPP.

17.2 NTESS Certifying Signature for SWMPP Update v.7

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name: Johnathon Huff **Title:** Director of Environment, Safety and Health

Signature: Johnathon D. Huff Johnathon D. Huff 2021.09.20 08:17:49 -06'00' **Date:** 09/20/21

17.3 DOE/NNSA Certifying Signature for SWMPP Update v.7

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name: William V. Wechsler **Title:** Assistant Manager for Engineering, Sandia Field Office

Signature: William V. Wechsler Digitally signed by William V. Wechsler Date: 2021.09.17 08:56:11 -06'00' **Date:** 9/17/2021