STORMWATER MANAGEMENT PROGRAM PLAN

For coverage under the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) 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

Notice of Intent (NOI) and Stormwater Management Program (SWMP) Plan Preparation Date: May 4, 2015

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Revisions

SWMP Plan Version	Date Submitted to EPA	Reason for Revision (e.g., Annual Report, Modification, etc.)	Notes
v.0, May 4, 2015	June 19, 2015	n/a	Initial submission of NOI and corresponding SWMP Plan

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Abbreviations

amsl	above mean sea level
bgs	below ground surface
E. coli	*Escherichia coli*
ft	feet
°F	Fahrenheit
mg/L	milligrams per liter
mph	miles per hour
NM	New Mexico
ppm	parts per million
R and D	Research and Development
Sandia	Sandia Corporation
U.S.	United States

Acronyms

BMP	Best Management Practice
BOD_5	Biological Oxygen Demand
CFR	Code of Federal Regulations
CGP	Construction General Permit
COA	City of Albuquerque
COD	Chemical Oxygen Demand
CWA	Clean Water Act
DCIA	Directly Connected Impervious Area
DO	Dissolved Oxygen
DMR	Discharge Monitoring Report
DoD	Department of Defense
ECC	Environmental Compliance Coordinator
EISA	Energy Independence and Security Act
EO	Executive Order
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
GI/LID	Green Infrastructure/Low Impact Development
GSF	Gross Square Feet
IA	Impervious Area
IDDEP	Illicit Discharge Detection and Elimination Program
KAFB	Kirtland Air Force Base
MEP	Maximum Extent Practicable
MQL	Minimum Quantification Levels
MRG	Middle Rio Grande
MS4	Municipal Separate Stormwater Sewer System
MSGP	Multi-Sector General Permit
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NOI	Notice Of Intent
NOT	Notice Of Termination
OSE	Office Of The State Engineer (New Mexico)
P2/GH	Pollution Prevention/Good Housekeeping
PCB	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
SFO	Sandia Field Office

Acronyms (continued)

SMO	Sample Management Office
SNL	Sandia National Laboratories
SPCC	Spill Prevention, Control And Countermeasure Plan
SSP	Site Sustainability Plan
SSPP	Strategic Sustainability Performance Plan
SWCRC	Solid Waste Collection And Recycling Center
SWMP	Stormwater Management Program
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
WLA	Waste Load Allocation
WQS	Water Quality Standard
WQCC	Water Quality Control Commission (New Mexico)

1. Introduction

This Stormwater Management Program (SWMP) Plan was prepared by Sandia Corporation (Sandia) for the Department of Energy (DOE) National Nuclear Security Administration (NNSA) Sandia Field Office (SFO), owner of Sandia National Laboratories (SNL), located in Albuquerque, New Mexico. The SWMP Plan was developed in support of the requirements of the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Middle Rio Grande Watershed Based Municipal Separate Stormwater Sewer System (MS4) Permit NMR04000MRG (herein MS4 Permit or Permit). The MS4 Permit was issued and became effective on December 22, 2014, and was subsequently modified by EPA on April 9, 2015[1]. The MS4 Permit is included as Appendix A-1 of this SWMP Plan and the Notice of Modification from EPA is Appendix A-2.

The SWMP Plan serves to document proposals, implementation, and assessments associated with operation of the SWMP. The SWMP Plan will be revised and modified as necessary and required over the course of the Permit term, and will include all applicable records.

The initial SWMP Plan (due June 20, 2015) summarizes the applicable Permit requirements and describes how DOE and Sandia intend to comply with the requirements to ensure that stormwater discharges from the SNL MS4 do not contribute pollutants to waters of the United States, namely the Tijeras Arroyo and the Rio Grande. The initial SWMP Plan provides as much information as is currently available with regard to the elements of DOE's and Sandia's Notice of Intent (NOI), description of best management practices (BMPs), measureable goals, and anticipated implementation dates as required by MS4 Part I.B.2. A complete SWMP Plan will be submitted with the first Annual Report (due December 1, 2016), as required in Part III.B.

1.1 Purpose of the MS4 Permit

The MS4 Permit was developed for MS4 operators within the Middle Rio Grande (MRG) Watershed that discharge stormwater to waters of the United States.

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

- Owned by a state, city, town, village, or other public entity that discharges to waters of the United States (U.S.);
- 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

[1] The version of the MS4 Permit referenced throughout this SWMP Plan (Appendix A-1) was issued on December 22, 2014 and modified by EPA on April 9, 2015.

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 Census). 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 Middle Rio Grande; however, the option to independently meet Permit requirements is preserved. DOE (as owner of SNL) and Sandia (as operator of SNL) share responsibility for the SNL MS4. DOE and Sandia together will comply with all of the requirements of the MS4 Permit, but will 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, New Mexico (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: the Tijeras Arroyo, located in the Middle Rio Grande 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 Appendix B-5), 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 SWMP Plan.

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

DOE and Sandia 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. DOE and Sandia comply with the National Historical Preservation Act as follows:

1. There are no DOE-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. Many DOE-owned SNL properties are eligible for listing on the National Register of Historic Places; however DOE is not required to list these properties. Construction and stormwater management/sampling activities proposed in this SWMP Plan are not anticipated to impact any known archaeological or cultural resources. Sandia 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 violation, will be addressed as an illicit discharge pursuant to Part I.D.5.e of the MS4 Permit.

Table 1-1 below lists authorized non-stormwater discharges and indicates those that are applicable to the SNL MS4, and the reason these discharges are not expected to be significant contributors of pollutants to the MS4.

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, including routine water line flushing and fire hydrant flushing	Discharges from line flushings are dechlorinated to less than 1 ppm chlorine prior to discharge to the stormwater drainage system (per Sandia corporate procedure). Diffusers are used on the end of the line to prevent erosion from the high-pressure discharge. Where possible, discharges occur directly to storm drains, to prevent contact with sediment and road contaminants (such as oil).
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	Not applicable to the SNL MS4.
Rising ground waters	Not applicable to the SNL MS4.
Uncontaminated groundwater infiltration and pumped groundwater	Not applicable to the SNL MS4.
Foundation and footing drains, or water from crawl space pumps	Not generally applicable to the SNL MS4. 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 Programs Department per Sandia corporate procedure.
Air conditioning or compressor condensate	Equipment is inspected and maintained in good repair. Condensate is released in low volumes.
Springs	Not applicable to the SNL MS4.
Individual residential car washing	Not applicable to the SNL MS4.
Flows from riparian habitats and wetlands	Not applicable to the SNL MS4.

Allowable Non-Stormwater Discharges	Reason discharge is not expected to be a significant contributor of pollutants:
Dechlorinated swimming pool discharges	Not applicable to 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/cleaned using a mechanical street sweeper. "Washing" is not applicable to the SNL MS4.
Discharges or flows from firefighting activities (excludes firefighting training activities)	This would occur in an emergency situation 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]

DOE and Sandia do not authorize the mixing of stormwater discharges with sources of non-stormwater 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 waters of the United States. [I.A.5.a]

DOE and Sandia discharge industrial stormwater at SNL in accordance with the provisions of the Multi-Sector General Permit (MSGP) as authorized by NMR05GP29 (DOE) and NMR05GQ63 (SNL). These sites will remain compliant with the requirements of the MSGP and the associated Stormwater Pollution Prevention Plan (SWPPP). [I.A.5.b]

DOE and Sandia discharge stormwater from construction activities at SNL in accordance with the provisions of the Construction General Permit (CGP). There are multiple sites with NOIs for coverage under the CGP. These sites will remain compliant with the requirements of the CGP and their associated SWPPPs. [I.A.5.c]

DOE and Sandia will implement measures or controls that are consistent with the EPA-approved TMDL through the SWMP, as documented in this SWMP Plan. [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]

For coverage under the MS4 Permit as new Phase II Class C Permittees, DOE and Sandia will be filing NOIs and submitting a joint SWMP Plan to EPA on or before June 20, 2015 (no later than 180 days from the effective date of the Permit of December 22, 2014). The NOIs are provided as Appendices C-1 and C-2 of this SWMP Plan.

1.3.1 Public Notice

This SWMP Plan will be available for public review and comment, as a part of the NOI. The MS4 Permit, NOIs and SWMP Plan are available to the public and any interested party through the University of New Mexico (UNM) LoboVault online database (https://repository.unm.edu/handle/1928/26737). Physical copies of the documents posted to the UNM LoboVault online database are available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

1.3.1.1 Copy of Public Notice

A copy of the public notices, including the legal newspaper publication and mailing flyer to interested parties, are provided as Appendices C-3 and C-4 of this SWMP Plan.

1.3.1.2 Permittee's Responses to Public Comments

Public comments received by DOE and Sandia will be reviewed and considered for incorporation into a SWMP Plan revision. The comments and a summary of DOE's and Sandia's responses will be submitted to EPA in the package with the NOIs and SWMP Plan on or before June 20, 2015.

1.3.1.3 Continued Availability of Records to Public

Public participation in the review, modification, and implementation of this SWMP Plan is encouraged and provided for as described in Section 11 of this SWMP Plan. The MS4 Permit, NOIs and SWMP Plan are available to the public and any interested party through the UNM LoboVault online database (https://repository.unm.edu/handle/1928/26737). Documents associated with DOE's and Sandia's MS4 Permit coverage will be posted to and maintained on this website throughout the Permit term. Physical copies of the documents posted to the UNM LoboVault online database will be available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

1.3.2 Classification and Population

As prescribed by Appendix A of the MS4 Permit, DOE and Sandia are classified as newly designated Class C Permittees. This SWMP Plan complies with the requirements set forth in the Permit for Class C Permittees.

The SNL MS4 serves a total population of approximately 9,500 people. This population includes employees, contractors, colleagues, consultants, and staff of/to Sandia and the staff of the DOE/NNSA/SFO office that perform job duties within the jurisdictional boundary of the

SNL MS4. Since the SNL MS4 does not include all of SNL, the MS4 population is less than the total population of Sandia Corporation.

1.3.3 NOIs Filed

The NOI form available at http://www.epa.gov/region6/water/npdes/sw/ms4/index.htm includes the information required by Part I.B.2 of the MS4 Permit. This SWMP Plan is a component of DOE's and Sandia's NOI submittal package. The NOIs will be submitted to EPA via e-mail at R6_MS4Permits@epa.gov on or before June 20, 2015. The NOIs will also be submitted to the New Mexico Environment Department (NMED) and the Pueblo of Isleta on or before June 20, 2015.

New Mexico Environment Department
Attn: Bruce Yurdin, 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

1.3.4 Duty to Reapply [MS4 Part IV.C]

DOE and Sandia acknowledge the duty to reapply for coverage under the MS4 Permit at least 180 days prior to the Permit expiration date of December 19, 2019 (i.e., prior to June 22, 2019).

1.4 Site Description

1.4.1 Ownership, Operation and Mission

SNL is a government-owned/contractor-operated facility. Sandia, a wholly owned subsidiary of Lockheed Martin Corporation, manages and operates the laboratory for the DOE, NNSA. The DOE/NNSA, SFO administers the contract (DE-AC04-94AL85000) and oversees contractor operations at the site.

SNL is a multidisciplinary laboratory engaged in research and development (R and D) of non-nuclear components of weapons systems, energy projects, and other programs in the national interest. SNL management encourages and seeks partnerships with appropriate U.S. industry and government groups to collaborate on emerging technologies that support our mission.

The mission at SNL has expanded to develop new technologies in non-military areas. R and 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 degrees Fahrenheit (°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 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 miles per hour (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 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 a year. Data collected by 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 rain 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 two 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 New Mexico. 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 feet (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 Areas are all 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 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 was 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 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 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: 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, and flow for short durations in response to precipitation. They are both tributaries to the Rio Grande, and are considered waters of the United States by EPA. The SNL MS4 only discharges to Tijeras Arroyo.

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 channel flows from east to west and joins the Tijeras Arroyo just south (downstream) of the SNL Northern MS4.

The Tijeras Arroyo drains the west side of the Sandia and the Manzano Mountains, as well as the Tijeras Canyon, before entering KAFB near its northeast boundary. 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/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 very 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 border.

1.4.5 MS4 Boundary and Inclusion Rationale

DOE 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), a 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".

Most of the land owned by DOE and associated with SNL is undeveloped with no conveyance infrastructure, and/or does not discharge to waters of the U.S., and therefore does not meet the definition of a MS4. DOE and Sandia have identified two areas of SNL that meet the definition, which are referred to in this SWMP Plan as the Northern and Southern SNL MS4 Areas. Maps of these areas are included as Appendices B-1 and B-2 of this SWMP Plan, and the criterion for defining their permitted boundaries are discussed below.

1.4.5.1 Northern SNL MS4

The Northern MS4 contains the only portion of SNL that falls within the Albuquerque urbanized area, and represents the only part of SNL that resembles a traditional MS4. It is a developed area of approximately 1.16 square miles, containing significant impervious surfaces comprised mainly of buildings, roads, and parking lots (located within Technical Area (TA)-I, TA-II and TA-IV), and serves a population of approximately 9,200 people. A centralized stormwater drainage system exists throughout the area, comprised of numerous gutters, ditches, inlets, and storm drains.

There are two inflows to the Northern MS4 that are combined into an open concrete lined channel that conveys stormwater from an approximately 10-acre portion of the KAFB residential housing neighborhood and RV park located immediately to the north of TA-I. This flow enters the Northern MS4 and is ultimately conveyed to the Tijeras Arroyo.

There are three outflows from the Northern MS4. Stormwater drainage from approximately 90 percent of the Northern MS4 is conveyed to a concrete lined channel that discharges directly to the Tijeras Arroyo (the main outfall of the Northern MS4). The remaining stormwater drainage that originates in the northwest quadrant of the Northern MS4 is conveyed through an underground stormwater drainage system that is connected to the western-most portion of the KAFB MS4.

In addition to the urbanized features of the Northern MS4, DOE and Sandia thought it prudent to include a site of considerable sediment loss that is contiguous to the southern boundary of TA-

IV. This site is known as the TA-IV Escarpment and has been 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. Corrective actions have been taken and stormwater sampling (pursuant to the MSGP) continues. The TA-IV Escarpment does not drain to stormwater sampling point 05 (SWSP-05) outfall, but drainage is overland towards the Tijeras Arroyo.

1.4.5.2 Southern SNL MS4

The Southern MS4 is a low density developed industrial area that covers approximately 0.27 square miles, includes TA-V and the northeast portion of TA-III, and serves a population of approximately 300 people. Impervious buildings, roads, and parking lots comprise a portion of the Area; however, most of the 0.27 square miles is comprised of highly permeable soils. Stormwater in the Southern MS4 is diverted by curbs and small ditches away from buildings and other facilities to the periphery of the area. The northern and eastern boundaries of the Southern MS4 were determined based on the limits of developed areas. The western and southern boundaries of the Southern MS4 were determined based on the possibility for stormwater to discharge to a receiving water of the Rio Grande (i.e., Tijeras Arroyo). Topography south of the boundary would direct stormwater flow to the closed playa lake area southwest of KAFB, and topography north of the boundary would direct stormwater flow toward the Tijeras Arroyo. However, there is no centralized stormwater drainage system for this area, and no discernible discharge directly to a water of the United States.

1.4.5.3 Other DOE-Owned Areas

There are rural areas of land owned by DOE and considered to be part of SNL, located well-outside the urbanized area defined by the census and lacking any urban-type activities. These areas do not meet the definition of a MS4. The majority of these areas lie west and south of the Southern MS4 (comprised of most of TA-III and the Coyote Test Field), and drains to unnamed playa lakes (southwest of the KAFB boundary) that do not have a surface water connection to the Rio Grande.

1.4.6 Other NPDES Permit Coverage

Some SNL sites that are covered under the MSGP and/or CGP are located within the proposed boundary of the MS4, and are listed in Table 1-2 below. Stormwater discharges associated with industrial and/or construction activities at these sites will be addressed pursuant to the MSGP or CPG, as applicable. All other stormwater discharges associated with these sites will be addressed pursuant to the MS4 Permit. Note that the number and identification of construction sites is dynamic, and permit coverage is terminated following stabilization. As the SWMP is revised, Table 1-2 will be updated.

Table 1-2: Sites Covered Under the MSGP or CGP within the SNL MS4 Boundary as of March 1, 2015

SNL MS4 and Drainage Area	Site Name	Permit	NOI Number	Status
Northern; SWSP-05	Building 705	CGP	NMR12AW90 (Sandia)	active construction

SNL MS4 and Drainage Area	Site Name	Permit	NOI Number	Status
Northern; SWSP-05	887 Sewer Line Replacement	CGP	NMR12AY05 (Sandia)	construction near complete; termination pending
Northern	TA-IV Escarpment	CGP	NMR12AZ96 (Sandia)	construction complete; vegetative stabilization in progress
Southern	TA-III Road Replacement	CGP	NMR12AU80 (Sandia)	construction complete; vegetative stabilization in progress
Northern; SWSP-05	Hazardous Waste Handling Unit	MSGP Sector K	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active with SW sampling
Northern	former SWMUs 46, 232 and 233 (TA-IV Escarpment)	MSGP Sector K	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	SWMUs approved under RCRA permit; SW monitoring to continue under corrective action
Northern; SWSP-05	Solid Waste Collection and Recycling Center	MSGP Sector N	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active with SW sampling
Northern; SWSP-05	Advanced Manufacturing Processes Laboratory	MSGP Sector AC	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active; SW sampling not required
Northern; SWSP-05	Building 858 Complex	MSGP Sector AC	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active; SW sampling not required
Northern; SWSP-05	Neutron Generator Facility	MSGP Sector AC	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active; SW sampling not required
Southern	Outdoor Mixed Waste Storage Lot	MSGP Sector K	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active with SW sampling
Southern	Thermal Treatment Unit	MSGP Sector K	NMR05GP29 (DOE) NMR05GQ63 (Sandia)	active with SW sampling

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, the Permittee may reference the relevant requirement as part of the SWMP and document why the MS4 Permit requirement has been satisfied.

The DOE and Sandia maintain compliance with state and federal regulations and laws that are related to (but do not conflict with) the requirements of the MS4 Permit. In some cases, compliance with the additional regulations and laws (as described below) meets or exceeds the requirements of the MS4 Permit, or demonstrates compliance with NPDES Permits (i.e., CGP, MSGP and MS4).

1.5.1 Endangered Species Act

SNL meets 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 Kirtland Air Force Base; the following are federally and State of New Mexico listed species and/or federally-designated critical habitats located in Bernalillo County and the action area:

- Yellow-billed Cuckoo (*Coccyzus americanus*)
- Mexican Spotted Owl (*Strix occidentalis lucida*)
- Southwestern Willow Flycatcher (*Empidonax traillii extimus*)
- Rio Grande silvery minnow (*Hybognathus amarus*)
- New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)
- Desert massasauga (*Sistrurus catenatus ssp. edwardsii*; under review)
- Gray Vireo (*Vireo vicinior*; State of New Mexico listed only)

Stormwater discharges and discharge-related activities are not likely to adversely affect the species and critical habitats listed above. Although several threatened and endangered species are recognized as having the potential for occurring in the vicinity of the SNL MS4, it is not anticipated to impact any protected species. The surrounding area has been extensively developed and in use for more than 50 years. It is unlikely that habitat for any species of concern is present within the project area or surrounding vicinity. The conclusion of no impact is based on previous experience in the area with similar projects. Sandia maintains an extensive record of biological surveys that have been previously conducted. To ensure no impact, following completion of a NEPA review, the Environmental Programs Department will conduct a survey prior to construction activities to determine the presence of nesting birds protected under the Migratory Bird Treaty Act and any other species that may have protection. Copies of these surveys are maintained on-site in the site-specific CGP SWPPPs.

Based on the justification provided above, DOE and Sandia can verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered or threatened species critical habitat, in accordance with the requirements of Part I.C.3.b(vi).

A current list of endangered or threatened species is available at the U.S. Fish and Wildlife service website http://criticalhabitat.fws.gov/crithab/. A current list of state endangered or threatened species is available at http://www.wildlife.state.nm.us/conservation/wildlife-species-information/threatened-and-endangered-species/.

1.5.2 Energy Independence and Security Act (EISA)

SNL is a Federal facility and currently complies with the EISA, Section 438 of the Clean Water Act (CWA). The purpose of Section 438 is to preserve or restore predevelopment hydrology for

[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.

all development and redevelopment projects with a footprint that exceeds 5,000 square feet. Any SNL projects that disturb 5,000 square feet or more of *ground area* (which includes laydown yards, but not road or parking lot maintenance) are subject to Section 438 requirements. Existing SNL facilities that have an overall footprint of 5,000 square feet or greater that disturb less than 5,000 square feet of ground area as part of any single development or redevelopment project are not subject to Section 438 requirements.

SNL's Facilities Management and Operations Center (FMOC) Design Standards Manual includes the Section 438 requirements and provides guidance on its use, based on 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.

SNL manages post-construction runoff by retaining 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. SNL considers the 95th percentile storm to equal 1.0 inches for SNL per the EPA Guidance and 20 years of on-site precipitation data (Photovoltaics rain gauge). 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 retainment volume difference. Pre-development means before development of any kind or what the ground cover would have been in the natural state.

SNL's compliance with the requirements of 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 Office of the State Engineer

Section 19.26.2.15 NMAC, issued by the Office of the State Engineer, states, "A permit is required to capture or store surface water in an impoundment" and "A permit to appropriate water is required for an impoundment created by constructed works, sand and gravel operations, or mining operations, including excavations that fill with water." Subsection B of 19.26.2.15 NMAC states, "No permit to appropriate water is required for an impoundment when the primary purpose of the impoundment is flood control, provided the outlet drains the impoundment (from the spillway crest) in 96 hours. The water shall not be detained in the impoundment in excess of 96 hours unless the state engineer has issued a waiver to the owner of the impoundment."

In compliance with Section 438 of the EISA and the MS4 Permit, SNL will be constructing detention basins for post-construction stormwater management (pursuant to Section 438) and may be constructing basins as sediment control BMPs. SNL's stormwater management detention basins and sediment basins will not be constructed for the purpose of capturing, storing or appropriating waters of the state, nor for the primary purpose of flood control as follows:

- Stormwater management detention basins will be designed to allow for the release of detained stormwater within 96 hours. Storm events that exceed the design volume of the impoundment will cause stormwater to discharge in a controlled manner from the impoundment.

- Sediment basins on active construction sites or other areas highly erosive areas of SNL will be constructed for the purpose of retaining water long enough to allow for sediment drop-out. Sediment basins will be designed to allow for the infiltration of stormwater within 96 hours. Storm events that exceed the design volume of the impoundment will cause stormwater to discharge in a controlled manner from the impoundment.

SNL does not interpret the requirements of the MS4 Permit to conflict with compliance with Office of the State Engineer Regulations.

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

SNL is a government-owned/contractor-operated facility located within the boundary of KAFB and Bernalillo County. Sandia, a wholly owned subsidiary of Lockheed Martin Corporation, manages and operates the laboratory for the DOE, NNSA. The DOE/NNSA SFO administers the contract (DE-AC04-94AL85000) and oversees contractor operations at the site.

DOE and Sandia have the legal authority to control discharges to and from the SNL MS4, and will therefore be filing separate NOIs to obtain coverage under the MS4 Permit (as co-permittees). A SWMP will be prepared by Sandia and jointly certified by DOE and Sandia. Where possible, reports and other documentation filed in accordance with the requirements of the MS4 Permit will be jointly certified, or otherwise submitted in duplicate by each co-permittee.

Several parts of the MS4 Permit require an enforcement plan. DOE and Sandia propose to comply with these requirements through Sandia corporate procedure and contract as follows:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, affords Sandia the ability to "enforce" compliance with stormwater requirements. The procedure includes the following statement regarding disciplinary actions for knowingly causing or allowing an illicit discharge: "Granting or permitting exceptions or violations of policy, process, or procedure without authority, regardless of position or title, may be cause for disciplinary action up to and including termination of employment. Violating a policy, process, or procedure may be cause for disciplinary action up to and including termination of employment."
- DOE can enforce compliance with the requirements of the MS4 Permit on Sandia through contract DE-AC04-94AL85000, by application of the following clauses, e.g., Clause I-72, DEAR 970.5204-2 Laws, Regulations, and DOE Directives (DEC 2000); Clause I-75 DEAR 970.5215-3 Conditional Payment of Fee, Profits, and Other Incentives-Facility Management Contracts (AUG 2009) (Deviation); and Clause I-78 Integration of Environment, Safety, and Health Into Work Planning and Execution (DEC 2000). These clauses require Sandia 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 Sandia'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 is responsible for developing, implementing, maintaining and revising this SWMP Plan. Implementation of the SWMP will involve multiple departments within Sandia, in addition to the Environmental Programs Department. As responsibilities are identified for other departments, Table 1-3 will be updated.

Table 1-3: SNL MS4 Stormwater Team

Permittee / Department	Roles and Responsibilities	Primary Contacts
1. Department of Energy (DOE)		
National Nuclear Security Administration Sandia Field Office	• Owner of SNL MS4. • Files NOI for DOE. • Certifies joint SWMP with Sandia. • Oversees Sandia's compliance with MS4 Permit requirements. • Certifies SWMP revisions, Annual Reports, DMRs and all other necessary documentation. • Require compliance with conditions in ordinances, permits, contracts and/or orders.	Karen Agogino (505) 845-6100 Karen.Agogino@nnsa.doe.gov

Permittee / Department	Roles and Responsibilities	Primary Contacts
2. Sandia Corporation *Note: Sandia National Laboratories assumes responsibility for the roles listed below. These roles may be managed under the direction of more than one department.*		

Environmental Programs Department (04143)	• Operator of SNL MS4.
	• Files NOI for Sandia.
	• Prepares SWMP.
	• Certifies joint SWMP with DOE.
	• Certifies SWMP revisions, 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 dumping or disposal 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.
		Kathie Deal, Team Lead
		(505) 844-8503
		kjdeal@sandia.gov
		
		John Kay
		(505) 844-9485
		jtkay@sandia.gov
		
		Carolyn Daniel
		(505) 284-9986
		cdaniel@sandia.gov
		
		Jamie Gomez
		(505) 844-0863
		jlgome@sandia.gov
		
		Danielle Nieto, Stormwater Sampling Field Lead
		(505) 845-7706
		dmnieto@sandia.gov

Facilities Management and Operations Center (04800)	• reserved	reserved

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 water quality standards, and to control discharges to the maximum extent practicable (MEP). This Section of the SWMP Plan presents the water quality standards applicable to the SNL MS4. Measures taken to ensure compliance with those standards are contained throughout the remainder of this SWMP Plan.

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

Water quality standards 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 (Appendix F of this SWMP Plan). 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, total Kjeldahl nitrogen (TKN), total phosphorus, polychlorinated biphenyls (PCBs), and gross alpha. The applicable water quality standard for each of these constituents is listed in Table 2-1 below. The most stringent of the applicable standards listed in the table apply to the SNL MS4.

Table 2-1: Applicable Water Quality Standards for Monitored Constituents

Constituent	Unit	WQCC WQ Standard October 12, 2000	Isleta Pueblo WQ Standard March 18, 2002	Most Stringent Applicable WQ Standard
Temperature	^{o}C	< 32.2	< 32.2	< 32.2
TSS	mg/L	--	--	--
TDS	mg/L	1,500[a]	--	1,500[a]
COD	mg/L	--	--	--
BOD_5	mg/L	--	--	--
DO	mg/L	>5	>5	>5
Oil and Grease	mg/L	--	10/15[d]	10/15[d]
E. coli	cfu/100mL	206/940[b]	47/88[b]	47/88[b]
pH	--	6.6-9.0	6.0-9.0	6.6-9.0
TKN	mg/L	varies[c]	varies[c]	varies[c]
Total Phosphorus	mg/L	--	--	--
PCBs	µg/L	0.00064	0.00074	0.00064
Gross Alpha	pCi/L	15	15	15

-- no established standard; [a] monthly average; [b] monthly geometric mean/single sample; [c] based on ammonia as nitrogen; no TKN standard listed; temperature and pH dependent; typical anticipated range is 2-6 mg/L, calculated as: $N = ((0.0577/(1+10^{7.688-pH}))+(2.487/(1+10^{pH-7.688})))*MIN(2.85, 1.45*10^{0.028*(25-T)})$; [d] weekly average/single sample

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

In the event of an exceedance of any Pueblo of Isleta water quality standard at an in-stream sampling location, DOE and Sandia will notify 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 Water of the U.S. 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 DOE and Sandia 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 SWMP Plan.

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

Impaired waters in New Mexico are those that have been identified by an EPA approved CWA §303(d) List as not meeting applicable New Mexico Surface Water Quality Standards. The MS4 Permit requirements for discharges to impaired waters also extend to controlling pollutants in MS4 discharges to receiving waters of the impaired waters.

The only impaired water in the MRG watershed is the Rio Grande. The Rio Grande has been segregated into several reaches, each with reach-specific impairments. Tijeras Arroyo empties into the Rio Grande where it flows from the Alameda Street Bridge to the Pueblo of Isleta boundary (ID: NM-2105_50). Within that reach, water quality has been determined to be impaired for *E. coli*, dissolved oxygen, PCBs (in fish tissue) and temperature. The only impairment with a total maximum daily load (TMDL) for this reach is *E. coli*.

The SNL MS4 discharges to the Tijeras Arroyo, which flows to the Rio Grande. The portion of the Tijeras Arroyo receiving and conveying stormwater discharges from SNL (Rio Grande to Four Hills Bridge; ID: NM-9000.A_070) is ephemeral and not listed as an impaired water. However, the TMDL for the Alameda Bridge to Isleta Pueblo reach of the Rio Grande extends to the Tijeras Arroyo, since it is a tributary to the Rio Grande.

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

The SNL MS4 discharges to a reach of the Tijeras Arroyo which is not listed as impaired; however, because the Tijeras Arroyo is a receiving water of the Rio Grande and the Rio Grande TMDLs extends up the watershed, the requirements of Part I.C.2.b(i) apply to DOE and Sandia.

A TMDL for bacteria within the Alameda Bridge to Isleta Pueblo reach of the Middle Rio Grande was published by the WQCC on April 13, 2010, and approved by EPA on June 30, 2010 (US EPA, 2010). The 2010 TMDL specifies *E. coli* as the indicator parameter used to assess compliance (see the 2014-2016 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List in Appendix F of this SWMP Plan).

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 approach" be used to determine the maximum WLA for each MS4, or cooperating group of MS4s. A description of the percent jurisdictional approach and relevant TMDL data for the Middle Rio Grande watershed are provided in Appendix B of the Permit. Detailed discussions of the TMDLs and the percent jurisdictional approach can also be found in the document *U.S. EPA-Approved TMDL 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 SWMP Plan. A summary of the calculated SNL MS4 WLAs is provided in Table 2-2 below. A detailed discussion of the calculation of the SNL MS4 WLAs is provided in Appendix F-6 of this SWMP Plan. Monitoring methods that will be used to determine waste loads for evaluating TMDL compliance are described in Section 2.4.2 below.

Table 2-2: SNL MS4 Areas and Associated Waste Load Allocations (Alameda Bridge to Isleta Pueblo Reach of the MRG)

	Area ($Miles^2$)	*E. coli* WLAs by Flow Condition (cfu/day)				
		High	Moist	Mid-Range	Dry	Low
Albuquerque UA[a]	210.41	$3.73x10^{11}$	$9.35x10^{10}$	$6.29x10^{10}$	$2.32x10^{10}$	$5.19x10^{9}$
Normalized UA[b]	1.00	$1.79x10^{9}$	$4.48x10^{8}$	$3.02x10^{8}$	$1.11x10^{8}$	$2.58x10^{7}$
SNL UA	0.54	$9.67x10^{8}$	$2.42x10^{8}$	$1.63x10^{8}$	$5.99x10^{7}$	$1.39x10^{7}$
SWMP-05	1.05	$1.88x10^{9}$	$4.70x10^{8}$	$3.17x10^{8}$	$1.17x10^{8}$	$2.71x10^{7}$
SWMP-02[c]	0.03	$5.37x10^{7}$	$1.34x10^{7}$	$9.06x10^{6}$	$3.33x10^{6}$	$7.74x10^{5}$
SWMP-24	0.08	$1.43x10^{8}$	$3.58x10^{7}$	$2.42x10^{7}$	$8.88x10^{6}$	$2.06x10^{6}$
SWMP-35	0.02	$3.58x10^{7}$	$8.96x10^{6}$	$6.04x10^{6}$	$2.22x10^{6}$	$5.16x10^{5}$
SWMP-36	0.02	$3.58x10^{7}$	$8.96x10^{6}$	$6.04x10^{6}$	$2.22x10^{6}$	$5.16x10^{5}$
SNL Northern MS4[d]	1.16	$2.08x10^{9}$	$5.20x10^{8}$	$3.50x10^{8}$	$1.29x10^{8}$	$2.99x10^{7}$

[a] The area listed is for the portion of the Albuquerque UA that drains to the Alameda Bridge to Isleta Reach of the MRG, as indicated in EPA, 2010.
[b] Values taken from Appendix B of the MS4 Permit
[c] The drainage area within the SNL MS4 for SWSP-02 is approximately 0.03 square miles. The total drainage area for SWSP-02 is larger; it is estimated to be approximately 0.05 square miles because a portion of the runoff from KAFB properties drains to SWSP-02. The flow at 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.
[d] The SNL Northern Area is the sum of areas from SWSP-05, SWSP-24, SWSP-35, and SWSP-36.

2.4.1 Bacteria-Specific BMPs

There are no historic stormwater sampling data for *E. coli* or any bacteria for the SNL MS4. In the absence of sampling data, there is no identified exceedance of the TMDL for bacteria, and therefore, proposals for implementation of BMPs is not possible or appropriate at this time. SNL

meets the definition of a non-traditional MS4[3], as it does not contain 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 areas, wildlife populations are limited within the MS4 boundaries.

There are no on-site wastewater treatment systems that discharge [treated] wastewater to the surface within the boundaries of the SNL MS4. Pre-treatment units are used to meet acceptable discharge limits, but all wastewater is conveyed via underground sewer lines to the Albuquerque Bernalillo County Water Utility Authority. It is not anticipated that bacteria in stormwater discharges from the SNL MS4, as measured by *E. coli*, will exceed the most stringent water quality standards included in Table 2-1.

With consideration to the fact that DOE and Sandia are new MS4 Permittees, the targeted controls, BMPs, measureable goals, and other requirements of Part I.C.2.b(i) will be addressed in the first Annual Report and a revised SWMP Plan (as appropriate) due to EPA by December 1, 2016.

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 boundaries 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, DOE and Sandia propose to monitor *E. coli* for the entire SNL Northern MS4 (not just the UA), and report the WLAs for each of the five monitoring location. Additionally, the amount of *E. coli* attributable to only the portion of the MS4 within the Albuquerque UA will be estimated on a proportional per area basis.

Flow rates at SWSP-02 and SWSP-05 will be 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 will be determined using either a pressure transducer or sonic sensor. The specific methods, data, and calculations used to determine flow for these two monitoring locations will be fully described in the monitoring plan due for submission by September 22, 2015. This will provide direct measurement of flow for all inflow to the MS4 jurisdiction, as well as approximately 90 percent of the Northern MS4.

Flow at the other three monitoring locations (SWSP-24, SWSP-35, and SWSP-36) cannot easily be measured because they are in enclosed subgrade storm drains with limited access. DOE and Sandia propose to estimate flow rates at these locations based on flow rates measured at SWSP-05. The measured flow rate at SWSP-05 will be scaled based on the drainage area of each monitoring location. As an example, the flow at SWSP-24 will be estimated by multiplying the flow monitored at SWSP-05 by the ratio of the SWSP-24 capture area to the SWSP-05 capture area.

[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).

The drainage area for water that flows to SWSP-05 is 1.05 square miles, and the drainage area for SWSP-24 is 0.08 square miles. The estimated flow at SWSP-24 will be calculated as follows:

$$Flow\ at\ SWSP\ 24 = Flow\ at\ SWSP\ 5 \times \left(\frac{Drainage\ Area\ of\ SWSP\ 24}{Drainage\ Area\ of\ SWSP\ 5}\right)$$

$$Flow\ at\ SWSP\ 24 = Flow\ at\ SWSP\ 5\ \times \left(\frac{0.08}{1.05}\right)$$

This same procedure will be used to estimate flow at monitoring locations SWSP-35 and SWSP-36. Waste loads will be calculated using the flows determined as described above, in conjunction with *E. coli* concentrations determined by sampling at each individual monitoring location. The load calculation will be made using the equation provided in Appendix C of the Permit as follows:

$$Load\left(\frac{lb}{day}\right) = Flow\left(\frac{MG}{day}\right) \times Concentration\left(\frac{mg}{L}\right) \times CF$$

Where CF is a conversion factor:

$$CF\left(\frac{L - lb}{MG - mg}\right) = 10^6\left(\frac{gal}{MG}\right) \times \left(\frac{3.785L}{gal}\right) \times \left(\frac{1\ lb}{454{,}000\ mg}\right) = 8.34$$

DOE and Sandia will evaluate the calculated waste loads against the waste load allocations for each monitoring location, in addition to the Albuquerque Urbanized Area, 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, this requirement does not apply to DOE and Sandia.

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

Table 2-3: 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	pending

Activity	Required Implementation Date	Implementation Status
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	pending
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	pending
Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary.	December 1 each year (first due 12/01/2016)	pending

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

Permittees are required to meet the following requirements in order to ensure 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 adversely affect its critical habitat.

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

The MS4 Permit requires DOE and Sandia to identify structural elements, topographical and geographical formations, MS4 operations, or oxygen consuming pollutants contributing to reduced dissolved oxygen (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, and include a detailed description of controls implemented (or proposed) and the corresponding measurable goals in the first and fourth SWMP revisions.

Since DOE and Sandia are new MS4 permittees, there are no historic DO data collected from SNL available for evaluation and consideration in this initial SWMP. Based on the MS4 operations and known structural elements, SNL does not anticipate that DO will exist in stormwater at levels below 5 milligrams per liter (mg/L). DO and other pollutants that may contribute to decreased DO concentrations will be monitored during the first annual reporting period (July 1, 2015 through June 30, 2016, where sampling is required to begin October 22, 2015). Based on those results, control measures, including BMPs and measureable goals, will be developed. These will be presented in the revised SWMP Plan submitted with the first Annual Report, due to EPA December 1, 2016.

The potential elements and sources identified below require additional research and consideration during implementation of the SWMP:

- To date, there are no known structural elements, topographical features, or geographical formations contributing to reduced dissolved oxygen.
- Stormwater discharges from operations within the SNL MS4 are identified and controlled through the Sandia Corporate Policy System. A NEPA review is required to be completed for all proposed new work (Sandia Corporate Procedure ESH100.1.EP.2, *Implement NEPA, Cultural Resources, and Historic Properties Requirements*). Following a NEPA review, all applicable and appropriate 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, Sandia has a rigorous spill response procedure (that includes the Environmental Programs Department) through the Sandia Emergency Operations Center, and adheres to a Spill Prevention, Control and Countermeasure (SPCC) Plan.

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

The MS4 Permit requires DOE and Sandia to develop, implement, and evaluate a Sediment Pollutant Load Reduction Strategy to assess and reduce sediment loads of discharges to receiving waters of the Rio Grande to include the elements outlined below.

3.2.1 Sediment Assessment [MS4 Part I.C.3.b(i)]

DOE and Sandia will identify and investigate areas that may be contributing excessive levels of pollutants in sediments to receiving waters of the Rio Grande. Structural elements, topographical and geographical formations, MS4 operations, and areas indicated as potential sources of sediment pollutants located within the boundary of the SNL MS4 will be identified, and observed erosion of soil or sediment along ephemeral channels or arroyos will be recorded. Priority areas include the southern-most portion of the Northern SNL MS4 Area (TA-IV Escarpment). A full report of the SNL MS4 sediment assessment will be provided to EPA in the first Annual Report (due December 1, 2016).

3.2.2 Estimate of Baseline Loading [MS4 Part I.C.3.b(ii)]

Based on the results of the Sediment Assessment, the baseline sediment loading and potential for contamination from those sediments to enter the Tijeras Arroyo will be estimated for the SNL MS4 drainage areas, impervious areas, and directly connected impervious area. Results of this estimate will be provided to EPA in the first Annual Report (due December 1, 2016).

3.2.3 Targeted Controls [MS4 Part I.C.3.b(iii)]

Using the results from the Sediment Assessment and Estimate of Baseline Loading, targeted controls and BMPs will be developed for the SNL MS4 to decrease the sediment pollutant loads to the Tijeras Arroyo. An implementation schedule with measureable interim goals for each control/BMP will be developed for the next 10 years and submitted with the first Annual Report (due December 1, 2016).

3.2.4 Monitoring and Interim Reporting [MS4 Part I.C.3.b(iv)]

Monitoring will be conducted annually, to evaluate the effectiveness of targeted controls and BMPs, and coordinated with the monitoring activities described in Part III of the MS4 Permit (Section 12 of this SWMP). Documentation of methods and any available monitoring results will be provided in the SWMP submitted with the first Annual Report (due December 1, 2016), and with each subsequent SWMP and Annual Report.

3.2.5 Progress Evaluation and Reporting [MS4 Part I.C.3.b(v)]

The overall effectiveness of the Sediment Pollutant Load Reduction Strategy will be evaluated and reported in a Progress Report submitted with the fifth Annual Report (due December 1, 2020). The Progress Report will provide data and analysis in a manner that will facilitate 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. SWMP Components and Compliance

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

The SWMP developed by DOE and Sandia is designed to control and reduce discharges of pollutants from the SNL MS4 to the MEP, and to protect water quality within and downstream of the SNL MS4. The SWMP will meet the requirements of NPDES Permit NMR04A000, Section 402(p)(3)(B) of the Clean Water Act, and National Pollutant Discharge Elimination System regulations (40 CFR 122.26 through 122.34).

The SWMP Plan documents DOE's and Sandia's development, implementation and enforcement of the SWMP, as well as compliance with the MS4 Permit. The SWMP Plan is revised as necessary (annually at a minimum), and submitted to EPA with the Annual Report 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 SWMP will include the control measure programs listed below. Each control measure program is addressed in a separate section of this SWMP Plan as listed.

- 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 operations through training, maintenance, and waste management.
- Section 8: *Illicit Discharge Detection and Elimination Program* - Prohibits illicit dumping or disposal of materials other than stormwater into the MS4 and controls the discharge of spills.
- Section 9: *Control of Floatable Discharges Program* - Controls floatables in discharges to the MS4 through implementation of source controls and structural controls.
- Section 10: *Public Education and Outreach Program* - Provides education to the regulated community of the impact that illegal discharges and improper disposal of waste have on stormwater quality.
- Section 11: *Public Involvement and Participation Program* - Encourages public involvement and provides opportunities for participation in review, modification and implementation of the SWMP.

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

For each control measure program, this SWMP Plan 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 SWMP Plan evolves through annual revisions, each control measure program will include the following information:

1. Requirement Descriptions and Cooperative Status
2. Mechanisms Used to Comply with Permit Requirements (BMPs)
3. Measurable Goals
4. Anticipated Program Development and Implementation Schedule
5. Performance Assessment

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

The SWMP will undergo an annual review in conjunction with preparation of the Annual Report and include the following components:

- A discussion of progress made in SWMP implementation, including achievement of measureable goals and compliance with control measure program elements and other MS4 Permit conditions.
- An evaluation of the effectiveness of the SWMP in complying with the Permit with respect to controlling pollutant discharges, and complying with water quality standards and TMDLs.
- The necessity for SWMP modifications to comply with the Permit and control pollutant discharges, if applicable.
- The adequacy of staff (man hours needed and projected), funding levels, equipment, and support capabilities to fully implement the SWMP and comply with the Permit conditions.

The first and fourth Annual Reports will contain a complete SWMP revision.

4.5 Schedules of Implementation

The NOI submittal deadline is 180 days from the Permit effective date (i.e., June 20, 2015). While a complete SWMP Plan is not required to be submitted with the NOI, the NOI form requests submission of information that requires significant progress to have been made on the SWMP Plan. This initial SWMP Plan summarizes the applicable Permit requirements and describes how DOE and Sandia intend to comply with the requirements to ensure that stormwater discharges from the SNL MS4 do not contribute pollutants to waters of the United States, namely the Tijeras Arroyo and the Rio Grande. The initial SWMP Plan provides as much information as is currently available with regard to the elements of DOE's and Sandia's NOI, description of BMPs, measureable goals and anticipated implementation dates as required by MS4 Part I.B.2.

A complete SWMP Plan is required (by Part III.B) to be submitted with the first Annual Report (due December 1, 2016); however, the Permit requires implementation of several SWMP elements prior to December 1, 2016. There are separate implementation schedules for the monitoring program and each control measure, which are presented in Sections 5 through 12 of this SWMP Plan.

The SWMP Plan serves to document proposals, implementations, and assessments associated with operation of the SWMP. The SWMP Plan will be revised and modified as necessary and required over the course of the Permit term, and will include all applicable records.

4.6 SWMP Modifications

The SWMP may be modified under the conditions described below. 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]

DOE and Sandia may modify this SWMP Plan 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.

- Modifications adding, but not eliminating, replacing, or jeopardizing fulfillment of any component, control, or requirements of the SWMP can be made by the Permittee at any time upon written notification to the EPA.
- Modifications replacing or eliminating an ineffective or infeasible component, control, or requirement of the SWMP (including monitoring and analysis requirements) may be requested of EPA in writing at any time. When requesting a modification, the Permittee shall include the following information:
    - A description of why the SWMP 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]

Modifications may be requested by EPA 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 modifications are requested by EPA, the Permittee will be provided with an opportunity to propose alternative program modifications to meet the objective of the requested modification.

4.6.3 Due to Modification of the MS4 Permit [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 SWMP 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 (as owner of SNL) and Sandia (as operator of SNL) share responsibility for the SNL MS4. DOE and Sandia together will comply with all of the requirements of the MS4 Permit, but will do so independently of participation in a cooperative group.

5.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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

Sandia's Environmental Programs Department currently maintains Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* to address stormwater discharges at SNL. Revisions to the procedure are in progress to meet all of the MS4 Permit requirements, and to specifically require compliance with the CGP, including the installation of erosion and sediment controls at construction sites. Enforcement of the procedure will be addressed through the protocol discussed in Section 1.6 of this SWMP Plan.

The procedure will be updated by December 22, 2015 and submitted as a component of the revised SWMP Plan due with the first Annual Report (December 1, 2016).

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

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

DOE and Sandia currently comply with the majority of the requirements of Parts I.D.5.a(ii)(b) through (h) of the MS4 Permit. When a construction project is in the planning phase, the project manager submits a NEPA checklist to the Sandia Environmental Programs Department for review. This prompts a review by environmental subject matter experts to determine which environmental permits are necessary for the planned work. The Stormwater Team conducts a NEPA review and requires CGP coverage for any project that is planned to disturb one or more acres of land; or where multiple smaller projects or phases that are less than one acre, but 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). NEPA reviews are also approved by DOE prior to the commencement of work.

When CGP coverage is required for a planned construction project, the project manager is responsible for coordinating with the Sandia Stormwater Team several months prior to commencement of construction activities to obtain a SWPPP and NOI under the CGP. The New Mexico specific requirements of the CGP require SWPPPs to be "prepared in accordance with good engineering practices by qualified (e.g., CPESC certified, engineers with appropriate training, etc.) erosion control specialists 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 are produced by qualified staff on the Sandia Stormwater Team in accordance with the requirements of the CGP (documentation is included in Appendix O of this SWMP). The SWPPPs also 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. Operators for the construction projects include DOE (as applicable), Sandia and the construction contractor, and all are required to certify the SWPPP and submit a NOI to EPA. Subcontractors are also required to sign a form acknowledging their responsibility to comply with the CGP and SWPPP requirements.

The CGP SWPPPs issued by Sandia and DOE (if applicable) comply with the requirements of Part I.D.5.a(ii)(f) by identifying roles and responsibilities of DOE, Sandia, construction contractors, 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/inlet protection, conveyance channels and basins, and temporary and permanent site stabilization. The details of pollution prevention measures such as spill prevention/response, fueling/maintenancing of vehicles, vehicle/equipment washing, storage/handling/disposal of construction products, concrete/paint washout, and fertilizer application are also discussed in detail.

Construction site inspections are performed by the Sandia Stormwater Team 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 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 Team began writing SWPPPs (as opposed to hiring a consultant) and conducting inspections (as opposed to having the construction contractor perform them) for Sandia in 2013. Since then, construction contractors' understanding of and compliance with SWPPP and CGP requirements have greatly improved. Discovery, reporting, recording 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 permit coverage, stop work orders were immediately issued by the Sandia Environmental Programs Department. Work was not authorized to 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 Environmental Programs Department for three years following the notice of termination.

5.2.2.2 Existing Training Program

DOE and Sandia already have a process in place for educating Members of the Workforce[4] and construction contractors involved in the planning, review, permitting, and/or approval of construction site plans, inspections and enforcement, as required by Part I.D.5.a(ii)(g) of the MS4 Permit. Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* was created in 2014 for Members of the Workforce who have job duties that have the potential to impact stormwater quality. Site-specific SWPPP training is also administered by the Sandia Stormwater Team, immediately prior to the commencement of construction, to Members of the Workforce responsible for installing or repairing stormwater controls, conducting inspections and implementing corrective actions. Sandia maintains documentation of training to monitor compliance with these initiatives.

5.2.2.3 Planned Improvements to the Program

In addition to maintaining the rigorous CGP process discussed above, DOE and Sandia will revise Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* to include 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 Sandia [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 detail in the SWPPP and CGP [I.D.5.a(ii)(c)].
- Procedures and responsibilities for site inspections, maintenance or repair of control measures, and implementation of corrective actions. [I.D.5.a(ii)(f)].
- 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. DOE's and Sandia's enforcement authority is discussed in Section 1.6 of this SWMP Plan [I.D.5.a(ii)(f)].
- Requirements for Members of the Workforce with certain job duties to complete Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* annually (discussed in detail in Section 7.2.1.1 of this SWMP Plan). Additional requirements for Members of the Workforce responsible for the installation and/or repair of stormwater

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

controls/measures, conducting stormwater inspections and implementing corrective actions to take site-specific SWPPP training [I.D.5.a(ii)(g)].
- Requirements for maintaining records including NOIs, Notice of Terminations (NOTs), inspection and corrective action reports, and other applicable documentation with the SWPPP [I.D.5.a(ii)(h)].

Pursuant to Part I.D.5.a(ii)(e) of the Permit, DOE and Sandia plan to use the public notice process associated with the MS4 NOI, SWMP and Annual Reports to consider input from the public regarding the development and implementation of this program.

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

As described above, construction site inspections are routinely performed by the Sandia Stormwater Team 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 will be inspected many 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 Notice of Termination, to verify proper final stabilization.

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

As the SMWP evolves, the Stormwater Team identified in Section 1.7 of this SWMP Plan will expand to include subject matter experts and points of contacts in multiple organizations including the Environmental Programs Department and several departments within the Facilities Management and Operations Center. Currently, when a construction SWPPP is developed, the Environmental Programs Department promotes coordination with many departments that have responsibilities associated with the planning, review, permitting, or approval of construction projects/activities, to ensure that stormwater runoff controls prevent erosion and maintain sediment on site. This type of coordination will not only continue, but is currently being improved and formalized through the development of corporate procedures. The procedures will, at a minimum: include details of the SWPPP, NOI and inspection process described in Section 5.2.2 (above); communicate requirements and responsibilities; and identify proper processes for compliance with NPDES permits applicable to SNL.

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

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

DOE's and Sandia's compliance with GI/LID/Sustainable Practices is discussed in detail in Section 6.2.7 of this SWMP Plan. For the purposes of this section, it is critical to note that at

SNL new buildings, major renovations and alterations of buildings greater than 5,000 gross square feet (GSF) must comply with the Guiding Principles for Federal Leadership in High Performance Sustainable Building, and where the work exceeds $5 million, they must achieve the U.S. Green Building Council's certification of LEED Gold for New Construction. A review already occurs in the construction planning stages of each project to demonstrate compliance with GI/LID/Sustainable Practices. A summary of the annual construction projects (one acre or more) that incorporated GI/LID/Sustainable Practices will be included with the SWMP Plan revisions associated with the Annual Report.

5.3 Additional Proposed Activities to Address Construction Site Runoff

DOE and Sandia recognize the potential and severity of stormwater pollution from construction projects/activities. While most construction activities less than one acre in size do not require CGP coverage, in 2014 Sandia began requiring the installation of stormwater controls and pollution prevention measures to address the most critical pollutant sources associated with these activities. In response to NEPA reviews, if the Stormwater Team identifies the potential for a project to generate stormwater pollutants in a sensitive area or within the SNL MS4, the installation/use of the following stormwater controls and pollution prevention measures are required for the duration of the project:

- Install sediment controls for any storm drains or drop inlets *within the boundary of the project* area. 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 construction 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, install alternative controls upgradient of the storm drain.
- Chemicals stored outdoors must be covered/containerized to prevent contact with precipitation and on secondary containment to prevent contact with stormwater.
- Secure portable toilets to prevent tipping (e.g., stake with rebar or bolt to trailer).
- Containers and trucks containing paint, concrete or other building products must be washed into an appropriate waste container. Discharges to the sanitary sewer, storm drain or ground surface are prohibited.

The stormwater controls and pollution prevention measures described in this section will be added to Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*.

5.4 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*, <u>and</u> any other procedures developed to communicate stormwater requirements

for construction will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.

- A current list of active construction projects including applicable permit details will be maintained by the Environmental Programs Department at all times.
- For active construction sites located within the boundary of the SNL MS4, a summary of the number and frequency of inspections, required corrective actions (discovery during site inspections) and associated compliance history will be maintained with the SWMP Plan. The summary will include annual and cumulative totals for each site, and be maintained for the Permit term [I.D.5.a(ii)(h)].
- A log will be maintained of any issued stop work orders for work within the boundary of the SNL MS4 [I.D.5.a(ii)(h)].
- A summary of the annual construction projects (one acre or more) that incorporated GI/LID/Sustainable Practices will be maintained.
- A log will be maintained of the number of construction projects less than one acre in size within the SNL MS4 boundary that were required to implement stormwater controls and pollution prevention measures.

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 Procedure [I.D.5.a.(ii)(a)]	12/22/2015	pending
Include Requirements in Procedure [I.D.5.a.(ii)(b) through (h)]	04/22/2016	pending
Inspect 100 percent of Construction Sites [I.D.5.a.(iii)]	start 04/22/2016; annually thereafter	pending
Coordinate with Other Departments [I.D.5.a.(iv)]	12/22/2015	pending
Evaluate Projects for GI/LID/Sustainable Practices [I.D.5.a.(v)]	12/22/2015	completed; see Section 6.2.7 for more detail
Update the SWMP Plan and Submit Annual Report [I.D.5.a.(vi) and (vii)]	December 1 each year (first due 12/01/2016)	pending
Enhance the program to include program elements of Parts I.D.5.a(viii) through (x).	update as necessary / applicable	pending

5.6 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize stormwater quality impacts.

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

6.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

6.2.1 Development of Strategies [MS4 Part I.D.5.b(ii)(a)]

A combination of structural and/or non-structural BMPs will be implemented to control pollutants in stormwater runoff on new development and redevelopment projects within the SNL MS4. Details of these strategies are discussed below.

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

Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* will be revised to include requirements of the MS4 Permit, EISA and 19.26.2.15 NMAC to address post-construction runoff from new development and redevelopment projects, as discussed below.

6.2.3 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. Estimation of the 90th or 80th percentile storm event discharge volume is included in EPA Technical Report entitled “Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, EPA Publication Number 832-R-14-007”.

Management of stormwater on-site can be achieved through measures such as infiltration, evapotranspiration, detention, and other means. Any impoundments used for flood control will comply with New Mexico Office of the State Engineer (OSE) requirements (19.26.2.15 NMAC) and drain within 96 hours unless OSE has issued a waiver.

As discussed in detail in Section 1.5.2 of this SWMP Plan, 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 square feet. DOE and Sandia manage post-construction runoff by either retaining stormwater from a 95th percentile storm (1.0 inch) on-site (most common); or retaining the calculated volume of the difference between pre-development and post-development runoff. Compliance with the requirements of 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.

Additionally, as discussed in detail in Section 1.5.3 of this SWMP Plan, detention basins will be constructed at SNL for post-construction stormwater management (pursuant to Section 438 and the MS4 Permit) and basins may also be constructed as sediment control BMPs. Stormwater management detention basins and sediment basins will be designed to allow for the release or infiltration of detained stormwater within 96 hours. Storm events that exceed the design volume of the impoundment will cause stormwater to discharge in a controlled manner from the impoundment.

The design standards will be incorporated into Sandia Corporate Procedure and enforcement will be addressed through the protocol discussed in Section 1.6 of this SWMP Plan.

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

Sandia will perform the following actions, and revise Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, to include these actions:

- Pre-construction reviews of BMP designs will be completed during development of construction SWPPPs, as described in Section 5.2.2 of this SWMP Plan.
- Inspections will be performed during construction to verify post-construction stormwater management BMPs are being built as designed.
- An inspection will be performed upon completion of construction to verify post-construction stormwater management BMPs are completed as designed, and once per year to verify proper maintenance.

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 will be addressed through the enforcement protocol discussed in Section 1.6 of this SWMP Plan.

DOE and Sandia will review and revise the post-construction program requirements as appropriate to incorporate improvements in control techniques and technologies.

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

Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* will be revised to include the following elements:

- An awareness of site design techniques and controls, including GI/LID/Sustainability Practices [I.D.5.b(ii)(e)], and the SNL Site Sustainability Plan (SSP; discussed in Section 6.2.7 below).

Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* will be revised to include the following elements:

- Requirement that construction project designers and managers complete a training program on stormwater standards, site design techniques and controls, including GI/LID/Sustainability practices [I.D.5.b(ii)(e)].
- Requirements for site inspections to ensure proper long-term operation, maintenance, and repair of stormwater management practices that are put into place as part of construction projects/activities [I.D.5.b(ii)(f)].
- Requirement that as-built plans, detailing controls for post-construction stormwater management, be submitted within ninety days of construction completion to the Environmental Programs Department for inclusion in the official CGP SWPPP record [I.D.5.b(ii)(f)].
- Requirement to revise Sandia Corporate Procedure, as necessary, to ensure compliance with the MS4 Permit; specifically, to ensure that stormwater controls or management practices for new development and redevelopment projects/activities continue to meet the requirements and objectives of the Permit [I.D.5.b(ii)(h)].

In accordance with Parts I.D.5.b(ii)(g) and I.D.5.c(ii)(n) of the Permit, Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* and the Sandia Integrated Pest Management Plan will be revised (as applicable) to include the following elements:

- Requirements to control the discharge of pollutants as a result of the storage and commercial application of pesticides, herbicides, and fertilizers.
- Requirements that persons using/applying pesticides, herbicides, and fertilizers be properly trained and certified, as applicable and required.
- Requirements to control use and application rates, and encouragement to use of the least toxic products.

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

As the SMWP is developed, the Stormwater Team identified in Section 1.7 of this SWMP Plan will expand to include subject matter experts and points of contacts in multiple organizations including the Environmental Programs Department and several departments within the Facilities Management and Operations Center. DOE and Sandia will coordinate with all departments that have responsibilities associated with the planning, review, permitting, or approval of new development and redevelopment projects/activities within the SNL MS4. This coordination will be formalized through the development of corporate procedures that will communicate requirements, responsibilities, and detailed processes for compliance.

The requirement to ensure the hydrology associated with new development and redevelopment sites mimics (to the extent practicable) the pre-development hydrology of the previously undeveloped site will be discussed with the construction project manager prior to the development of a CGP SWPPP (discussed in Section 5.2.2 of this SWMP Plan). Designs will be made in accordance with the Permit and this section of the SWMP Plan, and documented in the site-specific CGP SWPPP maintained by Sandia's Environmental Programs Department.

6.2.7 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 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 DOE and Sandia are required to comply with numerous Executive Orders (EOs), the EISA and other Acts, as well as other federal mandates regarding sustainability. Sandia prepares the SNL SSP annually in support of DOE's Strategic Sustainability Performance Plan (SSPP). The following are some examples of the federal requirements noted in the FY15 SSP (see Appendix E of this SWMP Plan) that meet the intent of the GI/LID/Sustainable Practices Permit requirements:

- "EISA 2007 requires DOE to reduce its energy intensity by 30 percent by FY 2015 from an FY 2003 baseline." Sandia is succeeding at this goal.
- "EISA 432 requires DOE to complete energy and water evaluations (audits) on its covered facilities every four years." "EISA also requires benchmarking for energy and water use. For buildings that may be ENERGY STAR candidates, Sandia uses the U.S. Environmental Protection Agency's (EPA) Portfolio Manager to benchmark building energy use."
- "DOE is required to install metering devices, advanced or standard, for electricity, NG [natural gas], steam, and water to the maximum extent practicable at all sites in each building and other facilities as well as grounds."
- "In accordance with DOE Secretary Steven Chu's memorandum dated June 1, 2010, unless determined uneconomical by a life-cycle cost analysis and unless the project already has CD-2 approval, roof replacements and roofs for new construction shall be cool roofs. New roofs must have a thermal resistance of at least R-30 to enhance overall building thermal performance."
- "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 [Leadership in Energy and Environmental Design] Gold for New Construction. In addition, in accordance with the EPAct 2005, Section 109, all new federal buildings must be designed so that their energy consumption is 30 percent below the ASHRAE [American Society of Heating, Refrigeration, and Air-Conditioning Engineers] standard. DOE recently adopted ASHRAE 90.1 – 2010 as the new baseline for energy consumption performance."
- "EO 13514 requires federal agencies to pursue a net zero energy strategy where all buildings entering the planning process beginning in 2020 are designed to achieve zero net energy by 2030."
- "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."

- "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."
- "The underlying purchasing requirements are also supported by several federal statutes:
    - EPAct 2005, Section 104, which requires federal agencies to incorporate energy efficiency criteria consistent with ENERGY STAR and FEMP-designated products for all procurements involving energy-consuming products and services
    - Resource Conservation and Recovery Act, Section 6002, which requires federal agencies to purchase EPA-designated recycled-content products
    - Farm Security and Rural Investment Act of 2002, Section 9002, which requires the purchase of U.S. Department of Agriculture (USDA)-designated biobased products"

The FY15 SSP included the following goals that directly support the planning, design and use of GI/LID/Sustainable Practices: greenhouse gas reduction; sustainable buildings; water use efficiency and management; sustainable acquisition; personal computer power management; and renewable energy. Examples of the implemented GI/LID/Sustainable initiatives occurring or planned at SNL are:

- installation of lighting occupancy sensors
- adhering to a temperature band of 70-76 degrees Fahrenheit during standard working hours, and using shut off or set back systems during nonstandard working hours
- installation of high-efficiency lighting
- improvements to chilled water plant efficiency
- replacement of inefficient refrigerators
- design of solar water systems
- replacement of air handling units
- replacement of chillers with magnetic-bearing, high-efficiency chillers
- replacement of boilers with high-efficiency boils
- use of energy, water, and transportation resource-efficient practices when locating, designing, constructing, and operating new buildings
- ensure that design standards and specifications support sustainable design
- avoid development of sensitive land resources
- replace inefficient plumbing fixtures with low-flow fixtures
- install new water meters
- use recycled water for reuse in cooling towers and air scrubbers
- implement a new "sleep" policy for eligible personal computers to conserve energy

Since the SSP is an existing document that has been carefully developed and implemented by DOE and multiple departments within Sandia through corporate policy and procedures, DOE and Sandia are proposing to comply with Part I.D.5.b(iv) of the MS4 Permit by reviewing the initiatives of the final SSP on an annual basis and summarizing the notable and applicable GI/LID/Sustainable Practices in SWMP Plan revisions associated with the Annual Report.

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

The number of acres of IA (including conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops) and DCIA (the portion of IA with a direct hydraulic connection to the MS4 via continuous paved surfaces, gutters, pipes, and other impervious features) will be estimated for the SNL MS4.

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

DOE and Sandia will conduct an inventory and 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 MS4 will be subdivided such that the entire area can be evaluated over the term of the Permit.

Regarding the potential for retrofitting, the following factors will be 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 will be 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

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

Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* (or others as applicable) will be revised to include the following watershed protection elements:

- 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)].
- 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)].
- Recommendations to identify environmentally and ecologically sensitive areas that serve critical watershed functions within the MS4 (as applicable) during the plan and design phases of project, and to preserve, protect, create and/or restore these areas during and after construction [I.D.5.b(viii)(c)].
- Recommendations for disconnecting direct discharges to surface waters from impervious surfaces such as parking lots [I.D.5.b(viii)(d)].

- Recommendations for implementing stormwater management practices that protect groundwater quality [I.D.5.b(viii)(e)].
- Recommendations to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges [I.D.5.b(viii)(f)]. Such hydromodification may require additional permitting under Section 404 of the CWA.
- Requirements to protect native soils, prevent topsoil stripping, and prevent compaction of soils [I.D.5.b(viii)(g)].
- Requirements to reduce water quality impacts and recommendations to maintain pre-development runoff conditions [I.D.5.b(viii)(h)].

6.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*, and any other procedures developed to communicate stormwater requirements for construction will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
- For construction sites within the SNL MS4 equal to or greater than one acre in size, 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.
- For construction sites within the SNL MS4 equal to or greater than one acre in size, one inspection will be performed annually to verify proper maintenance of post-construction stormwater management BMPs.
- An annual 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 ninety days of construction completion. Noncompliance will result in enforcement and corrective action.
- The initiatives of the final SSP will be reviewed on an annual basis and the notable GI/LID/Sustainable Practices summarized in the Annual Report.
- The SNL MS4 will be surveyed and added to a matrix that evaluates potential sites based on the criteria listed in Section 6.2.9 above. 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.
- A log will be maintained to summarize any additional measures that have been implemented to decrease impervious areas, decrease stormwater discharges, and/or improve water quality. If no measureable improvements are noted, master planning and project planning procedures will be reviewed and a plan to encourage the use of such measures will be developed. The log will be updated annually.

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

Table 6-1: Post-Construction Stormwater Management Program Implementation Schedule

Activity	Required Implementation Date	Implementation Status
Develop Strategies [I.D.5.b(ii)(a)]	12/22/2015	pending
Develop Procedure [I.D.5.b(ii)(b)]	12/22/2017	pending
Implement Site Design Standards [I.D.5.b(ii)(b)]	12/22/2018	pending
Ensure Implementation of Structural Controls [I.D.5.b(ii)(c) and (d)]	12/22/2016	pending
Develop Procedures [I.D.5.b(ii)(e) through (h)]	12/22/2015	pending
Coordinate with Other Departments [I.D.5.b(iii)]	11/22/2015	pending
Perform GI/LID/Sustainable Practices Assessment of Procedures, Plans and Other Documents [I.D.5.b(iv)]	06/22/2016	Annual review of SSP will occur instead.
Develop and Submit Assessment Report [I.D.5.b(iv)]	12/22/2016	Annual review of SSP will occur instead.
Estimate IA and DCIA Acres [I.D.5.b(vi)]	12/22/2016	pending
Retrofit Inventory and Priority Ranking [I.D.5.b(vii)]	12/22/2017	pending
Incorporate Watershed Protection Elements into Procedure [I.D.5.b(viii)]	12/22/2016	pending
Update the SWMP Plan and Submit Annual Report [I.D.5.b(ix) and (x)]	December 1 each year (first due 12/01/2016)	pending
Enhance Program to include elements of Parts I.D.5.b(xi) through (xiii).	update as necessary / applicable	pending

6.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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

7.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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

DOE and Sandia will include documentation of the SNL MS4 Pollution Prevention/Good Housekeeping Program in the SWMP Plan by December 22, 2015. The majority of the requirements of these Parts are already effective at SNL; however, some program elements need additional refinement to align with the MS4 Permit. A description of activities and programs already in place, and additional measures planned are 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 SWMP Plan, Sandia requires Members of the Workforce with job duties that have the potential to impact stormwater quality to take Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*. While SW100 is most commonly administered to people with construction-related jobs, the curriculum is comprehensive including stormwater protection, allowable non-stormwater discharges, prohibited discharges, training, spill prevention and response, good housekeeping, and pollution prevention measures, as well as the requirements of all three NPDES Permits (i.e., CGP, MSGP and MS4) applicable to SNL. The annual training is required for Members of the Workforce and DOE with 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, contractors or provide support;
- Work in permitted areas where industrial materials or activities are exposed to stormwater, or are responsible for implementing stormwater pollution prevention controls/activities necessary to meet the conditions of the industrial stormwater permit;

- 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 stormwater quality standards and pollution prevention controls.

A copy of the training will be incorporated into the SWMP Plan by December 22, 2015.

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.

As collaboration with other Departments within Sandia evolves, maintenance activities and schedules (e.g., stormwater drainage system maintenance and street sweeping) will be included and updated in the SWMP Plan.

Regarding inspections, Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* will be revised to include procedures (including frequency) for inspecting structural and non-structural stormwater controls within the MS4, as well as any other elements required by the Permit. All Members of the Workforce conducting inspections will have a minimum credential as a "qualified inspector." DOE and Sandia consider a "qualified inspector" to be knowledgeable in the principles and practices of erosion and sediment controls and pollution prevention, and to possess 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 Stormwater Team (see Section 1.7 of this SWMP Plan) that conduct inspections are qualified inspectors. Types of licenses and certifications held by qualified inspectors include Professional Engineer (PE), Certified Professional of Erosion and Sediment Control (CPESC), Certified Inspector of Sediment and Erosion Control (CISEC), and Certified Stormwater Inspector - MS4 (CSI-MS4). Stormwater Team training documentation and certificates are included as Appendix O-1 of this SWMP Plan.

The SWMP Plan will be updated to include the elements of MS4 Part I.D.5.c(i)(b) by December 22, 2015.

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 are able to be captured as opposed to transported directly into the stormwater drainage system.

Salt or deicing products are sparingly used on roadways and sidewalks when necessary. Salt/deicer is 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.

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.

Due to the arid nature of SNL, there are no dedicated snow disposal areas operated by DOE and Sandia.

Sandia's waste transfer station is referred to as the Solid Waste Collection and Recycling Center (SWCRC). The SWCRC is a two acre area designed to manage solid waste and recyclable materials generated by SNL. It is covered under the MSGP and is located in the Northern 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; and
- 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/grates.

Additional information applicable to Permit Part I.D.5.c(i)(c) will be provided in future SWMP revisions.

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

As needed, DOE and Sandia will clean debris, floatables, and sediment from basins, ditches, and other conveyance infrastructure. The removal will be conducted in a manner to ensure that any

accumulated sources of materials that may contribute to water quality degradation are not discharged from the MS4 during a storm event.

Sandia maintains equipment and qualified operators who currently conduct this work. Details of the operation and the maintenance schedule will be included in the SWMP Plan on December 22, 2015.

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

DOE and Sandia will review existing procedures to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices, by December 22, 2016. Additionally, an assessment of technical guidance documents will be performed to determine water quality impacts and the potential for incorporation of water quality controls into new flood control projects. The assessment (due December 22, 2016) is required to include the following elements:

- Methods for determining water quality impacts;
- Citations and descriptions of design standards that ensure water quality controls are incorporated;
- A summary of master planning and project planning procedures and design review procedures; and
- A schedule for future review and revision to update standards with new or innovative practices.

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

In addition to maintaining the primary Pollution Prevention/Good Housekeeping elements described above and the construction pollution prevention measures discussed in Section 5.2.2 of this SWMP Plan, DOE and Sandia will evaluate the successfulness of the program and revise the SWMP to include the following, as appropriate:

- A list of all stormwater quality facilities (by drainage area), including location and description [I.D.5.c(ii)(a)];
- An operational manual for de-icing activities, including methods to protect water quality [I.D.5.c(ii)(b)];
- A plan to control stormwater quality associated with vehicle related pollutants from storage and maintenance yards [I.D.5.c(ii)(c)];
- A review and revision of the existing street sweeping plan and schedule to optimize benefit to stormwater quality [I.D.5.c(ii)(d)];
- A list of the roadways most likely contributing to pollution in runoff to target for pollution prevention and good housekeeping [I.D.5.c(ii)(e)];
- A review and revision of existing plan for collecting used motor vehicle fluids, toxics, and hazardous materials [I.D.5.c(ii)(f)];
- A review and revision of the existing procedures and schedule for cleaning debris and sediment from the stormwater drainage system [I.D.5.c(ii)(g)];
- A review and revision of the existing litter control program, including public awareness campaigns [I.D.5.c(ii)(h)];

- Procedures and a schedule to evaluate existing flood control devices, structures and drainageways to assess the potential for retrofitting to improve pollutant removal [I.D.5.c(ii)(i)];
- A review and revision of the existing inspection procedure for stormwater drainage structures [I.D.5.c(ii)(j)];
- MS4 Part I.D.5.c(ii)(k), that requires control of floatables and trash discharged from the MS4 for industrial and commercial areas, is addressed in Section 9 of this SWMP Plan.
- MS4 Part I.D.5.c(ii)(m), that requires review of flood control projects for impacts or benefits to water quality, is addressed in Section 7.2.1.5 of this SWMP Plan (above).
- MS4 Part I.D.5.c(ii)(n), that requires procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by the Permittee or contractors, is addressed in Section 6.2.5 of this SWMP Plan.

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

DOE and Sandia discharge industrial stormwater at SNL in accordance with the provisions of the MSGP as authorized by NMR05GP29 (DOE) and NMR05GQ63 (SNL), as discussed in Sections 1.2.4 and 1.4.6 of this SWMP Plan. 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 Section 1.4.6 of this SWMP Plan includes a list of sites within the SNL MS4 boundary that are currently covered under the MSGP, and their associated drainage area. A map of these sites will be included in Appendix B of the SWMP Plan by December 22, 2015.

7.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*, and any other procedures developed to communicate stormwater requirements will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
- The SNL MS4 will be divided into areas and inspected for compliance with the Pollution Prevention/Good Housekeeping (P2/GH) Program such that each area is inspected a minimum of two times within the Permit term. Areas identified for improvement will be targeted for additional education and corrective actions. Successful implementation of practices will also be documented.
- The chemicals and application methods associated with deicing operations and storage at SNL will be reviewed and procedures revised (as necessary) by December 22, 2016.
- DOE and Sandia will prepare a cumulative summary of retrofit evaluations conducted during the Permit term on existing flood control devices, structures and drainage ways to

benefit water quality. The SWMP Plan 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	pending
Enhance P2/GH Program [I.D.5.c.(ii)]	12/22/2016	pending
Produce Map of Industrial Facilities [I.D.5.c.(iii)]	12/22/2015	pending
Update the SWMP and Annual Report [I.D.5.c.(iv) and (v)]	December 1 each year (first due 12/01/2016)	pending

7.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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

8.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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

A map of the SNL MS4 stormwater drainage system, indicating all outfalls and the names and locations of all waters of the U.S. that receive discharges from those outfalls is provided in Appendix B-3 of this SWMP Plan.

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

Sandia currently has a corporate procedure that prohibits discharges to the surface without prior approval from the Environmental Programs Department (Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*). The procedure provides the following requirements of all Members of the Workforce:

- Obtain written approval from the Environmental Programs Department to discharge to the surface, prior to any such discharge.
- Obtain written approval from the Environmental Programs Department before discharging stormwater that has been collected in secondary containment to the stormwater drainage system.
- Do not allow cooling tower water and evaporative cooling blowdown water to be discharged to the stormwater drainage system.

Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* is presented to Members of the Workforce as a component of annual mandatory corporate training materials, and other safety and environmental screening processes (e.g., Primary Hazard Screening and NEPA reviews) for new or reoccurring work activities. For Members of the Workforce that have a potential to impact stormwater quality in their job duties, the procedure is reiterated in Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*.

DOE and Sandia will revise existing Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* and Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* to meet the requirements of the MS4 Permit.

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 Illicit Discharge Detection and Elimination Program (IDDEP) to detect and address illicit discharges to the MS4, to contain the following elements:

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 visually detect. 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 are trained to prevent and required to report activities or events with the potential to cause environmental harm. Additionally, Sandia has a team of more than 10 full time field personnel who are conducting a variety of on-site 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 (Sandia Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies*; and ESH100.4.RPT.4, *Report Environmental Releases*). The Emergency Operations Center (EOC) and the Environmental Programs Department receive the incident reports and follow-up with a response team and investigation.

If an illicit discharge is observed, the SNL Spill Response Team and Stormwater Team will perform or coordinate the following activities to identify possible sources:

- Visual screening (tracking flow upstream to source) of the area;
- Interviews of employees with corporate knowledge of operations within the area;
- Collection of 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 scope 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, samples may be sent 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 holding 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 SWMP Plan.

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

Illicit discharges reported to the Environmental Management Department will be investigated by the appropriate personnel depending upon the nature of the release. The Stormwater Team (see Section 1.7 of the SWMP) will assist in the investigation of illicit discharges within the jurisdiction of the SNL MS4.

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.

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

DOE and Sandia will evaluate and assess the effectiveness of the SNL MS4 IDDEP annually, and revise the SWMP accordingly for submission with the Annual Report due by December 1st each year.

8.2.3.5 Procedures for Coordination with Adjacent MS4s [MS4 Part I.D.5.e(i)(c)E]

MS4s adjacent to SNL include KAFB, the City of Albuquerque (COA), and Bernalillo County. The SNL MS4 and all adjacent MS4s discharge to the Tijeras Arroyo, which lies within the KAFB jurisdictional boundary. The Tijeras Arroyo does not exist within the SNL MS4 jurisdiction. In the event DOE or Sandia observes an illicit discharge within the Tijeras Arroyo, all adjacent MS4 entities will be notified by DOE. DOE and Sandia will work with KAFB and the other MS4 entities (as appropriate) to identify the source of the illicit discharge.

Adjacent or upstream MS4s with the potential to contribute illicit discharges to the SNL MS4 are limited to KAFB. There is a relatively small amount of stormwater discharge from the KAFB residential housing area into the Northern SNL MS4 Area. Discharges into the Northern SNL MS4 will be monitored by SWSP-02. In the event an illicit discharge is observed as an inflow to the Northern SNL MS4, DOE will notify the responsible parties of the KAFB MS4. DOE and Sandia will work with KAFB (as appropriate) to identify the source of the illicit discharge.

Adjacent or downstream MS4s with the potential to be impacted by illicit discharges from the SNL MS4 via the Tijeras Arroyo include KAFB, COA, Bernalillo County, the Albuquerque Metropolitan Area Flood Control Authority (AMAFCA), and the Pueblo of Isleta. In the event of an illicit discharge originating within the SNL MS4 jurisdiction that flows into the Tijeras Arroyo or KAFB's MS4, DOE will immediately notify KAFB and other affected MS4s and work with them (as appropriate) to remedy any impacts. DOE will update the affected MS4 as investigations into the source and cause of the discharge develop, and corrective actions are planned or taken to prevent future discharges.

8.2.4 Development of an IDDEP Education Plan [MS4 Part I.D.5.e(i)(d)]

Sandia 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.

Sandia will be debuting a stormwater awareness campaign in 2015, "*Stormwater - Keep it Clean*" to include educational brochures, posters and a publication in *The Porcelain Press* (discussed in more detail in Section 10 of this SWMP Plan). The campaign will target Members of the Workforce to raise stormwater quality awareness and advertise training, and will occur during each wet season (July 1 through October 31). The Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* is offered to Members of the Workforce 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 (i.e., construction, grounds crew, maintenance, etc.). These educational materials and reminders will continue to be published and improved, as needed. Copies of the most recent editions of these materials will be included as an Appendix to the SWMP Plan.

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, for the sake of compliance with the MS4 Permit, means Members of the Workforce. Members of the Workforce are required to report spills[5] in accordance with Sandia Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies*; and ESH100.4.RPT.4, *Report Environmental Releases*. Sandia maintains hotlines for the reporting of both emergencies and non-emergencies. Using any landline at SNL, 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 Sandia EOC is available at 844-6515 for spill response and cleanup.

Sandia is the primary recipient of calls from these numbers. DOE and various departments within Sandia are in the chain of notification and response.

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

All illicit discharges at SNL are taken seriously by DOE and Sandia. Should an illicit discharge be detected, it will be investigated within 48 hours, and the sources identified as soon as possible. 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 non-stormwater discharges listed in Section 1.2.3 of this SWMP Plan be addressed if they have been determined to be a significant source of pollutants to the MS4. DOE and Sandia have not identified any illicit discharges within these categories (or any other category) thought to be contributors of pollutants to the SNL MS4. Any illicit discharges detected will be sampled and investigated in accordance with Section 8. If sources of illicit

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

discharges containing significant pollutants are identified in the future, the SWMP Plan will be updated to include specific measures to address those discharges.

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

The MS4 Permit requires screening of the entire MS4 jurisdiction 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 (as identified by the methods described in Section 8.2.3 of this SWMP Plan), or where there have been five or more complaints from the public in the past year.

The SNL MS4 has no identified high priority areas at this time. Screening of the SNL MS4 is informally conducted on an on-going basis by field personnel trained to monitor for leaks, spills, and other discharges; however 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 illicit discharge. The locations inspected, observations and findings will be documented on an inspection form. Any illicit discharge encountered will be sampled, tracked to its source, and corrected through administrative or engineered control measures.

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

Sandia's 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 department 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 the Laboratories' programs in proactively meeting the waste management hierarchy through close collaboration and regular communication."

8.2.9.1 Solid Waste Collection and Recycling

The SNL SWCRC has three purposes:

1. Screen the 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 operating at an annual rate of approximately 1.5 million pounds of waste and 1.3 million pounds of recyclable materials. As the amount of waste has declined and/or has been diverted to recycling, the amount of recyclables has been 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/demolition scrap metals. Baling of waste and most recyclables reduces volume, thus reduces transportation fees and commands 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 parts per million (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 the halogens are not due to solvents or other hazardous waste.
- Meets all acceptance criteria imposed by Sandia's 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. Hazardous waste storage and treatment at SNL is conducted in accordance with permits issued by the NMED.

Hazardous waste generated at SNL is handled pursuant to Sandia 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 Sandia Hazardous Waste Management Facility for processing and transport to off-site recycling, treatment, and/or disposal facilities.

8.2.9.4 Waste Compliance Program

Sandia has implemented its Environmental Compliance Coordinators Program (ECCP) to provide additional resources and oversight to help ensure individual SNL facilities and organizations comply with Sandia corporate pollution prevention policies and procedures. Environmental Compliance Coordinators (ECCs) work directly with facilities or organizations to provide a conduit between the Environmental Programs Department and those directly responsible for implementing environmental controls within SNL. ECCs help ensure compliance by conducting audits and performing periodic walk-throughs of facilities and operations.

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.

Sandia has a detailed SPCC Plan that includes prevention measures including inspections, testing, records, security, operational procedures, best management practices, and personnel. In the event of a release, Sandia maintains a sophisticated system of containment facilities, trained response staff, and emergency equipment to prevent pollutants from entering the stormwater drainage system.

Spill prevention is stressed in Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*, and CGP SWPPPs require Members of the Workforce to be familiar with Sandia Corporate Procedures: ISS100.6.1, *Prepare for and Manage Emergencies*; and ESH100.4.RPT.4, *Report Environmental Releases,* and the SPCC Plan. Spill kits are required to be kept on all construction and applicable industrial sites, and equipped to respond to the types and quantities of chemicals stored on-site. Personnel are required to be familiar with its location.

Spills (regardless of size) are required to be reported by Members of the Workforce in accordance with the Sandia Corporate Procedures discussed above. In the event a spill is reported to the Sandia EOC, designated personnel within the Environmental Programs Department (the SNL Spill Response Team) and DOE will be contacted to respond to the incident. Information such as the location, date, time, duration, source, cause, quality/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. All required written notifications and reporting to federal, state and local authorities is completed by Sandia and DOE.

8.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* and Sandia Corporate Training SW100, *Stormwater Pollution Prevention*

Training will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.

- 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.
- Measureable goals associated with the education plan are discussed in Section 10 of this SWMP Plan.
- 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.
- An annual summary of solid waste management will be included in the SWMP Plan revision included with each Annual Report.
- Revisions to the SNL SPCC Plan are made by the Oil Storage Tank Program within the Environmental Programs Department. The DOE and Sandia Stormwater Team will coordinate to review and propose necessary revisions to the SPCC, such that it can be included as an appendix of the SWMP Plan revision required to be submitted with the fourth Annual Report due December 1, 2019.

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	submitted as complete with NOI
Develop Procedure [I.D.5.e(i)(b)]	12/22/2016	pending
Develop IDDEP Plan [I.D.5.e(i)(c)]	12/22/2016	pending
Develop Education Plan [I.D.5.e(i)(d)]	12/22/2015	pending
Establish Hotline [I.D.5.e(i)(e)]	12/22/2015	pending
Investigate IDDE [I.D.5.e(i)(f)]	12/22/2015	pending
Screen High Priority Areas [I.D.5.e(iii)]	12/22/2015	pending
Screen Entire System [I.D.5.e(iii)]	12/22/2019	pending
Develop Waste Collection Program [I.D.5.e(iv)]	12/22/2016	pending
Develop Spill Prevention Program [I.D.5.e(v)]	12/22/2015	pending
Update SWMP and Annual Report [I.D.5.e(vi-vii)]	December 1 each year (first due 12/01/2016)	pending
Enhance Program to include elements of Part I.D.5.e(ix)(f).	update as necessary / applicable	pending

8.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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 floatables program is required to include source controls and structural controls, where needed. This section of the SWMP Plan also satisfies that requirements of MS4 Permit Part III.A.3 regarding floatables monitoring.

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

9.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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

Collection and monitoring of floatables at SNL has not been previously conducted, and therefore, the amount of floatables discharged into the SNL MS4 is not well documented. The Tijeras Arroyo is almost entirely solid waste free where it flows through KAFB. SNL's smoke-free campus and the culture of the workforce foster an environment such that solid waste dumping (i.e., littering) is uncommon. Additionally, on a larger scale, Sandia manages floatables through administrative and source controls, through robust waste management and pollution prevention programs. These programs are described in detail in Section 8.2 of this SWMP Plan.

For the reasons stated above, DOE and Sandia do not anticipate there to be a significant amount of floatables generated 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)]

Sandia operates an aggressive waste management and pollution prevention programs that include education and a recycling facility. During FY 2014 approximately 70 percent of the solid waste generated by Sandia was recycled. There is an insignificant litter or refuse presence within the SNL MS4; therefore DOE and Sandia 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 Floatables 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.

9.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges*, Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training*, and any other procedures developed to communicate stormwater requirements will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
- The main SNL MS4 outfall measured by stormwater sampling point SWSP-05 will be inspected quarterly for the presence of floatable debris. Inspection reports will be maintained with the SWMP Plan.
- An annual assessment of the Floatables 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 quarterly inspection reports, and a recommendation whether or not to propose structural controls as a corrective action (if necessary).
- Annual accomplishments of the Sandia waste management and pollution prevention programs will be summarized and included in the SWMP Plan.

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	pending
Estimate Annual Floatables Volume [I.D.5.f(i)(b)]	12/22/2016	Implementation of source control measures will occur instead.
Update the SWMP Plan and Submit Annual Report [I.D.5.f(ii-iii)]	December 1 each year (first due 12/01/2016)	pending

9.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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.

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

10.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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

DOE and Sandia will implement an education and training program with the following objectives [I.D.5.g(i)(a)]:

- To teach Members of the Workforce about the impacts of stormwater discharges on surface water bodies.
- To train Members of the Workforce how to reduce pollutants in stormwater runoff while performing their job duties, as well as at home.
- To educate school children about the impacts of stormwater discharges on surface water bodies and teach them how to reduce pollutants in stormwater runoff at home.

Parts I.D.5.g(i)(b) and (e) of the MS4 Permit require development of educational materials. DOE and Sandia already use (and will continue to use) the following materials:

- The Stormwater Quality Program has a website for access by Members of the Workforce. It contains basic regulatory requirements pertaining to the protection of stormwater quality, training information, and contacts for the Stormwater Team.
- Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* is available online to Members of the Workforce and a 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 BMP also fulfills the requirement of Part I.D.5.g(viii)(e) of the Permit.
- A stormwater pollution prevention informational brochure is distributed at the cafeteria during environmental events and other events such as Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day.

- Sandia publishes and posts *The Porcelain Press* bi-monthly in SNL restrooms to notify Members of the Workforce of Environmental, Safety and Health events, policies, trainings, etc. One issue during stormwater season (July 1 - Oct 31) is dedicated to stormwater pollution prevention awareness and to advertise SW100 training.
- Sandia owns educational models for stormwater/watershed, groundwater, and drinking water/wastewater and performs demonstrations to students in the classroom, during Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day. This BMP also fulfills the requirement of Part I.D.5.g(viii)(a).

The following materials will be developed to improve the existing education program:

- One-page BMP and Pollution Prevention Fact Sheets will be created and distributed to construction contractors requiring additional assistance in complying CGP and SWPPP requirements.
- In the summer of 2015, the "Stormwater - *Keep It Clean*" campaign will make its debut. A poster is currently in development for distribution around SNL during stormwater season (July 1 - Oct 31) to raise stormwater pollution prevention awareness and advertise SW100 training. It is DOE and Sandia's goal for this campaign to grow in scope in the coming years as the educational program evolves.
- Sandia Corporate Procedure ESH100.2.ENV.10, *Manage Surface and Stormwater Discharges* will be revised to include requirements for implementing a stormwater pollution prevention education/training program for Members of the Workforce.

The following educational elements will be incorporated into DOE's and Sandia's educational program:

- Information about proper septic system maintenance, proper use and disposal of fertilizers and pesticides, protection and restoration of riparian vegetation, and proper disposal of motor oil and household hazardous wastes [I.D.5.g(i)(c) and I.D.5.g(viii)(i)].
- Information on how 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/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)].

Educational materials targeted towards Members of the Workforce will focus on how job duties can impact stormwater quality. For example, BMP/Pollution Prevention Fact Sheets will be distributed to construction crews that need additional assistance in understanding the requirements of the CGP and SWPPP. Outreach activities (and associated materials), such as the stormwater/watershed model demonstration, will be age-appropriate for grade-school children, and focus on how residential activities can impact stormwater quality [I.D.5.g(i)(f)].

10.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- The Stormwater Quality Program website and Sandia Corporate Training SW100, *Stormwater Pollution Prevention Training* will be reviewed and updated annually, at a minimum, to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
- The corporate online training system that disseminates Stormwater Pollution Prevention Training (SW100) is equipped to track completion. DOE's and Sandia's goal is to maintain a minimum of 90 percent annual participation in SW100 training. Since the target audience for this training is growing daily, the total number of participants completing the training annually is expected to rise.
- The informational brochures and campaign posters will be reviewed and updated annually to ensure regulatory and contact information is current, and to respond to the educational and training needs of Members of the Workforce.
- One *Porcelain Press* publication will occur annually during the stormwater season (July 1 - October 31).
- The Stormwater Team will hold 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., Earth Day, Family Day or cafeteria event) and include demonstrations of educational models (watershed, wastewater, drinking water, ground water, etc.) to grade-school children and/or Members of the Workforce. These goals will commence July 1, 2016.

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	pending
Update the SWMP Plan and Submit Annual Report [I.D.5.g(iii) and (iv)]	December 1 each year (first due 12/01/2016)	pending
Enhance Program to include applicable elements of Parts I.D.5.g(v) and (viii); ((vi) and (vii) do not apply).	update as necessary / applicable	pending

10.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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 SWMP Plan. Permittees are required to make the SWMP Plan 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 SWMP.

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

11.2 Mechanisms Used to Comply with Permit Requirements (BMPs)

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 will include a comprehensive planning process which involves public participation and, where necessary, intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and other such provisions as appropriate.

DOE and Sandia will notify the public via legal notice in the Albuquerque Journal for a period of 30 days, prior to the submission of the NOI (and associated SWMP Plan) and each Annual Report (and associated SWMP Plan revision). Persons on the DOE and Sandia environmental interested parties mailing list will be notified of the upcoming public notice by postal mail.

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., NOI, Annual Report, SWMP Plan, etc.) will be maintained up-to-date at https://repository.unm.edu/handle/1928/26737 through the UNM LoboVault online database. Current documents associated with DOE's and Sandia's MS4 Permit coverage will be posted to and maintained on this website throughout the Permit term. Physical copies of the documents posted to the UNM LoboVault online database will be available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

Public meetings (e.g., the DOE/Department of Defense (DoD) Semi-Annual Public Meeting) or hearings where stormwater is an agenda topic will also be advertised on the website.

Comments received by DOE and Sandia in response to any public comment period will be reviewed and considered for incorporation into the applicable document (NOI, Annual Report, SWMP Plan, etc.). The comments and a summary of DOE's and Sandia's responses will be submitted to EPA.

Part I.D.5.h(iii)(b) of the Permit requires DOE and Sandia to perform "one assessment of public behavioral change following a public education and/or participation event". In compliance with this requirement, DOE and Sandia will conduct a functional behavioral assessment at DOE/DoD Semi-Annual Public Meeting, before, during, and after the topic of "stormwater" is presented. The public's antecedent (before), present (during), and consequence (after) behavior will be observed and recorded.

As necessary, pursuant to Part I.D.5.h(iii)(c) of the Permit, DOE and Sandia will solicit involvement from the Technical Advisory Group (TAG) for the Middle Rio Grande 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 in Appendix P of this SWMP Plan).

Due to the nature of the work performed at SNL and security requirements, DOE and Sandia will not retain volunteers for stormwater pollution prevention activities and awareness throughout the area, as required by Part I.D.5.h(iii)(d). Sandia 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)]

DOE and Sandia 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 intended to be limited to any specific economic or ethnic groups. Public notices will be printed in a newspaper of general circulation in the Albuquerque area (i.e., The Albuquerque Journal) and be available online. Additionally, physical copies of the documents posted to the UNM LoboVault online database (https://repository.unm.edu/handle/1928/26737) will be available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

The DOE/DoD Semi-Annual Public Meetings are open to all citizens and the public is encouraged to attend.

11.3 Measureable Goals

DOE and Sandia have developed the following measureable goals and/or information to be provided in the Annual Report to correspond with the existing and/or proposed BMPs discussed above:

- Comments received by the public in response to any and all public notices will be considered and maintained with the SWMP Plan for the duration of the Permit term.
- DOE and Sandia will perform one functional behavioral assessment during the Permit term at DOE/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	submitted as complete with NOI
Comply with State, Tribal, and Local Public Notice Requirements [I.D.5.h(iv)]	12/22/2015	pending
Include elements of Part I.D.5.h(v).	12/22/2015	pending
Update the SWMP Plan and Submit Annual Report [I.D.5.h(vi), (vii) and (viii)]	December 1 each year (first due 12/01/2016)	pending
Enhance Program to include elements of Part I.D.5.h(ix).	update as necessary / applicable	pending

11.5 Performance Assessment

This section is reserved for future SWMP Plan revisions.

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

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 DOE's and Sandia's SWMP.
- 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.

DOE (as owner of SNL) and Sandia (as operator of SNL) share responsibility for the SNL MS4. DOE and Sandia together will comply with all of the requirements of the MS4 Permit, but will do so independently of participation in a cooperative group. Monitoring data may be shared 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 SWMP Plan and to be consistent with the intent of the MS4 Permit, "monitoring" and "sampling" are synonymous terms that mean the sampling and visual observation of stormwater discharges, including the related preparation and documentation tasks. Additionally, to avoid confusion of acronyms, where stormwater monitoring points would typically be referred to as "SWMPs", they are herein denoted as "SWSP" for stormwater sampling points.

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 to and outflows from the MS4 jurisdiction. This section discusses the monitoring locations and methods for the two SNL MS4 Areas which are depicted on a map in Appendix B-2 of this SWMP Plan.

12.2.1 Northern SNL MS4

The Northern MS4 comprises an area of approximately 1.16 square miles and represents the only part of SNL that resembles a traditional MS4. 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 area contains the only part of the Albuquerque urbanized area (as determined by the 2010 Decennial Census) that exists within the SNL MS4. The portion of the Northern Area that is coincident with the urbanized area boundary is approximately 0.54 square miles, which is

roughly 47 percent of the northern MS4 area. The entire Northern MS4 has been included for Permit coverage because it represents the actual area from which stormwater is collected and discharged by the MS4.

There are two inflows to the Northern MS4 that 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. This flow enters the Northern MS4 and is ultimately conveyed to the Tijeras Arroyo. This inflow location will be monitored, and is referred to as SWSP-02 shown on a map Appendix B-3 of this SWMP Plan.

There are a total of three outflows (one outfall and two discharge points) from the Northern MS4. Drainage from approximately 90 percent of the Northern MS4 is conveyed to a concrete lined channel that discharges directly to the Tijeras Arroyo. This outfall location will be monitored, and is referred to as SWMP-05 (see Appendix B-3 of this SWMP Plan). The remaining stormwater drainage that originates in the northwest quadrant of the Northern MS4 is conveyed through an underground stormwater drainage system that is connected to the western-most portion of the KAFB MS4. There are two discharge points where the Northern SNL MS4 becomes the KAFB MS4. The jurisdictional transition from the SNL MS4 to the KAFB MS4 will be monitored at three points within the stormwater drainage system referred to as SWSP-24, SWSP-35 and SWSP-36 (see Appendix B-3 of this SWMP Plan).

12.2.2 Southern SNL MS4

The Southern MS4 is a low density developed industrial area that covers approximately 0.27 square miles. Impervious buildings, roads, and parking lots comprise a portion of the Area; however, most of the area is comprised of highly permeable soils (see Appendix B-4 of this SWMP Plan). Stormwater in the Southern MS4 is diverted by sloped topography, curbs and small ditches away from buildings and other facilities to the periphery of the area. The northern and eastern boundaries of the Southern MS4 were determined based on the limits of developed areas. The western and southern boundaries of the Southern MS4 were determined based on the possibility for stormwater to discharge to a receiving water of the Rio Grande (i.e., Tijeras Arroyo); however there is no centralized stormwater drainage system for this Area, and no discernible discharge directly to a water of the United States.

BMPs associated with the control measure programs will be applied to the Southern MS4; however, due to the diffuse and minimal stormwater discharges from the Southern MS4, monitoring of stormwater from the Southern MS4 is not proposed at this time.

12.2.3 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 thirty 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 less 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 will be conducted during both the wet season and dry season at the sampling locations identified in Section 12.2 of this SWMP Plan. The wet season occurs between July 1 and October 31, and the dry season occurs between November 1 and May 31. 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 will be 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.

Typical precipitation events in the Middle Rio Grande 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. This is not the case for the SNL MS4 because flow does not enter the Northern SNL MS4 (except from a small portion of KAFB). Stormwater in the SNL MS4 originates from direct precipitation within the MS4 boundary.

DOE and Sandia maintain a network of rain gauges at SNL, specifically at stormwater sampling points. The primary rain gauge used to measure storm events for MS4 monitoring purposes will be located at SWSP-02. If this gauge registers 0.25 inches of precipitation (i.e., a qualifying event), wet weather sampling at SWSP-02, SWSP-05, SWSP-24, SWSP-35, and SWSP-36 will be performed. The SNL MS4 sampling points are identified on maps B-3 and B-5 in Appendix B of this SWMP Plan.

Samples will be collected using the grab sample option described in Part III.A.1.c of the Permit. Portable auto-samplers will be programmed and equipped with four subsample bottles to collect four grab samples a minimum of 15 minutes apart during the first two hours of the discharge event. The grab samples will be collected in equal volumes and composited in equal portions in the field. Field measurements of temperature, pH, conductivity, and DO will be measured in each subsample container and in the composited sample. The composited sample will be preserved (as appropriate) and processed at the Sandia Sample Management Office (SMO) 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 12-1 below. Limitations that may affect the retrieval time of the auto-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 will be 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-6 of this SWMP Plan.

Table 12-1: Wet Weather Monitoring Parameters, Analytical Methods, MQLs, and Hold Times

Parameter	Analytical Method	MQL (mg/L)	Hold Time
pH	field meter	--	15 minutes
Temperature	field meter	--	15 minutes
Conductivity	field meter	--	15 minutes
DO	field meter	5.0[a]	15 minutes
TSS	SM 2540 D	100[a]	7 days
TDS	SM 2540 C	1500[a]	7 days
COD	EPA 410.4	120[b]	28 days
BOD_5	SM 5210 B	30[b]	48 hours
Oil and Grease	SM 1664 A	15[b]	28 days
E. coli	SM9223B	47[a] cfu/100mL	6 hours
TKN (Total Ammonia + Organic Nitrogen)	SM 4500	2[a]	28 days
Nitrate + Nitrite	EPA 300.0	132[a]	28 days
Dissolved Phosphorous	SM 4500	2.0[b]	14 days
Total Phosphorous	SM 4500	2.0[b]	14 days
PCBs	EPA 1668	0.00064[a] µg/L	1 year
Gross Alpha	SM 7110 B	15[a] pCi/L	6 months

[a] No established MQL for the analytical method has been established. The values in this table reflects the water quality standards listed in Section 2.1

[b]No established MQL for the analytical method listed has been established. There are no water quality standards for this constituent either. The value listed is an EPA "benchmark" value indicating levels EPA considers having the potential to impair water quality.

12.3.1 Sampling Limitations

12.3.1.1 Safety

DOE and Sandia 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, arroyos, etc.). 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 that 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/personal leave,

inclement weather, facility shutdown, or Kirtland Air Force Base 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) will be a challenge. Should fewer than four grab samples be collected, subsamples of equal volumes will be composited in equal portions in the field while achieving the minimum volume for laboratory analysis of all parameters. In the event that the volume of a subsample is inadequate to achieve the minimum volume for laboratory analysis, it will be discarded and not incorporated as part of the composite sample. In the event that the volume of a composite sample is inadequate to achieve the minimum volume for laboratory analysis, the list of required parameters may be divided over multiple storm events.

12.3.1.4 E. coli

E. coli has a holding 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.

12.3.1.5 Documentation

In the event any of the above limitations occur, DOE and Sandia will document such occurrences on a Discharge Monitoring Report (DMR), Annual Report or SWMP Plan revision, as applicable.

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

Table 12-2: Wet Weather Monitoring Implementation Schedule

Activity	Required Implementation Date	Status or Anticipated Completion Date
Submit Wet Weather Monitoring Preference	06/20/2015	pending
Submit Detailed Description of Monitoring Scheme	11/22/2015	pending
Submit Certification that Sampling Sites are Operational; Begin Sampling	01/22/2016	pending
Update SWMP and Annual Report	December 1 each year (first due 12/01/2016)	pending

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

If the results from wet weather monitoring indicate that the SNL MS4 is contributing to in-stream Water Quality Standard (WQS) exceedances, then additional monitoring locations will be established to determine the potential source(s) of contamination. The locations of the additional wet weather monitoring stations will be submitted to EPA and NMED for approval, and the SWMP updated to reflect their addition.

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

Dry weather monitoring will be 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 screening will be conducted in conjunction with the Illicit Discharge Detection and Elimination Program described in Section 8 of this SWMP Plan.

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. Any dry weather flow encountered will be sampled, investigated and tracked to its source, as described in Section 8 of this SWMP Plan. If they 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 will be conducted in the same method as wet weather monitoring (i.e., grab sample option described in Part III.A.1.c). Following a storm event greater than 0.1 inch preceded by an antecedent dry period of at least seventy-two (72) hours, a minimum of four grab samples will be collected a minimum of 15 minutes apart. The grab samples will be collected in equal portions and composited in the field. The composited sample will be preserved (as appropriate) and processed at the Sandia SMO before shipment to the appropriate laboratory.

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

Floatable monitoring will be conducted as described in Section 9 of this SWMP Plan. The details and results associated with floatables monitoring will be 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) will be done in accordance with the methods specified in 40 CFR 136. Analytical results will be reported with minimum quantification levels (MQLs) at or below those listed in Appendix F of the MS4 Permit, as applicable. Parameters, analytical methods, MQLs, and holding times are listed in Table 12-1 above.

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 on the DMR.

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

The recording and maintenance of monitoring results is discussed in Section 15 of this SWMP Plan.

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

Monitoring results are reported with the Annual Reports. Submission of Annual Reports, DMRs and SWMP Plan revisions is discussed in Section 13 of this SWMP Plan. Section 14 of this SWMP Plan includes additional reporting requirements regarding: items for compliance with Permit requirements associated with WQS (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 monitoring period of July 1 through June 30. The suggested Annual Report form is located at http://epa.gov/region6/water/npdes/sw/ms4/index.htm.

The first Annual Report for the SNL MS4 will be due December 1, 2016, and will cover the reporting period of July 1, 2015 through June 30, 2016. The first and fourth Annual Reports (due December 1, 2016 and December 1, 2019) will include the submittal of a complete SWMP Plan revision.

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

Each Annual Report will include a section addressing SWMP 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 SWMP Revisions [MS4 Part III.B.2]

Revisions to the SWMP Plan will be included in the Annual Report. Revisions will include any reassessment of or changes to control measures and BMPs reported in the NOI. A cumulative list of SWMP Plan revisions will be maintained.

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

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

- An evaluation of performance in terms of measureable 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 SWMP.
- A summary of the data that are accumulated throughout the monitoring 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 required for Class A permittees. As Class C Permittees, this Permit requirement is not applicable to DOE and Sandia.

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 (as owner of SNL) and Sandia (as operator of SNL) share responsibility for the SNL MS4. DOE and Sandia together will comply with all of the requirements of the MS4 Permit, but will do so independently of participation in a cooperative group. DOE and Sandia may share monitoring data with other

MS4s when the sharing of such data is useful to DOE and Sandia, or to the other entity. 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, DOE and Sandia will provide public notice and make a copy of the draft Annual Report and SWMP Plan revision available for public review and comment. All public comments received will be reviewed and considered for incorporation into the final Annual Report and SWMP Plan.

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

Annual Reports shall be 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. Section 17 of this SWMP Plan includes more detail on signature requirements and notes authorized designees, as applicable.

13.8 Submission of DMRs, Annual Reports and SWMP Plan Revisions [MS4 Part III.D]

Monitoring results (Parts III.A.1 III.A.3, and III.A.5.e) obtained between July 1 and June 30 will be submitted on DMRs along with the Annual Report. The DMR forms will be provided by EPA following approval of the Comprehensive Monitoring and Assessment Program for the SNL MS4. A separate DMR is required for each of the two monitoring seasons; the wet season (July 1 through October 31) and the dry season (November 1 through June 30).

Signed copies of the DMRs, Annual Reports and revised SWMP Plans will be submitted electronically to R6_MS4Permits@epa.gov. DMRs, Annual Reports, and revised SWMP Plans will also be submitted (in hard copy unless otherwise requested) to NMED and the Pueblo of Isleta.

New Mexico Environment Department
Attn: Bruce Yurdin, 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, DMRs and SWMP Plan revisions is discussed in Section 13 of this SWMP Plan.

Requests for SWMP updates, modifications to monitoring locations or an application for an individual MS4 Permit will be submitted to EPA at the address below.

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

The submission of NOTs, requests for SWMP updates, items for compliance with Permit requirements associated with WQS (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: Bruce Yurdin, 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]

DOE and Sandia will provide advance notice to EPA and NMED of any planned changes or activity which may result in noncompliance with the MS4 Permit.

15. Records

15.1 Recordkeeping [MS4 Part IV.P]

The following records and documentation will be maintained for the SNL MS4:

- Monitoring Information
  - Date, time, location of sampling event or 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
- DMRs
- Permit NMR04A000
- Data used to complete the NOI, if applicable
- NOI(s)
- SWMP
- All information and determinations used to document permit eligibility under Part I.A.5.f and Part I.A.3.b of the Permit.

Records will be maintained for the duration of the Permit term or five years from the time of generation, whichever is longer. Following a review, all records, data, and documents will be made available to EPA and the public, upon written request.

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

DOE and Sandia will maintain SWMP records developed in accordance with Part I.D, Part IV.P, and Part IV for at least five years after Permit coverage is terminated or coverage under the Permit expires.

16. References[6]

New Mexico Water Quality Control Commission, October 12, 2000. Water Quality Standards for Interstate and Intrastate Surface Waters; 20.6.4 NMAC. http://water.epa.gov/scitech/swguidance/standards/wqslibrary/upload/nmwqs.pdf

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. FY15 Site Sustainability Plan, Sandia National Laboratories, Albuquerque, New Mexico.

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

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, November 18, 2014. 2014-2016 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report, Appendix A. http://www.nmenv.state.nm.us/swqb/303d-305b/2014-2016/2014-2016NMList.pdf

[6] Hyperlinks are provided for documents readily available to the public online. Hard copies of the SWMP Plan that are made available by DOE and/or Sandia Corporation will additionally include a compact disc (CD) containing these documents as appendences. The CD is located after the Appendices cover page.

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 NOI will be 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 NOI may not be delegated to a lower level. Similarly, pursuant to I.A.6.b(iii) of the MS4 Permit, the NOT 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 shall be 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, SWMPs, 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:

- 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 DOE and Sandia, their names or positions will be identified in a letter(s) of authorization. A copy of the letter(s) will be provided to EPA as well as maintained in Appendix N of future SWMP Plans.

17.2 Sandia Corporation Certifying Signature for SWMP dated May 4, 2015

SANDIA CORPORATION

"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: Michael W. Hazen **Title:** Vice President, Infrastructure Operations

Signature: _____ **Date:** 5 May 2015

17.3 Department of Energy Certifying Signature for SWMP dated May 4, 2015

DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION

"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: Jeffrey P. Harrell **Title:** Manager, Sandia Field Office

Signature: _____ **Date:** 5/5/2015

APPENDICES[1]

☒ Compact Disc (CD) of selected appendices[2]

☒ Appendix A: MS4 Permit No. NMR04A000

☒ Appendix B: SNL Site Maps

☒ Appendix C: NOI and Public Notice

☒ Appendix D: SNL Precipitation Data

☒ Appendix E: Sandia Corporate Requirements

☒ Appendix F: Water Quality Standards, TMDLs, and §303(d) List

☐ Appendix G: Supporting Documents for Construction Site Runoff Control Program

☐ Appendix H: Supporting Documents for Post-Construction Stormwater Management Program

☐ Appendix I: Supporting Documents for Pollution Prevention / Good Housekeeping Program

☐ Appendix J: Supporting Documents for Illicit Discharge Detection and Elimination Program

☐ Appendix K: Supporting Documents for Control of Floatable Discharges Program

☐ Appendix L: Supporting Documents for Public Education and Outreach Program

☐ Appendix M: Supporting Documents for Public Involvement and Participation Program

☐ Appendix N: Delegation of Authority

☒ Appendix O: Training Documentation

☒ Appendix P: MS4 Technical Advisory Group

[1] Appendices marked as "☒" currently contain materials. Appendices not marked as "☐" do not currently contain materials. Documentation will be added to the SWMP Plan as elements are developed in accordance with Permit requirements and schedules.
[2] The CD does not contain all appendices; rather only those not included as a hard copy in this SWMP Plan. See specific appendix cover sheets for a list of the contents.

Appendix A: MS4 Permit No. NMR04A000

No.	Description
A-1	MS4 Permit No. NMR04A000 issued December 22, 2014 and modified by EPA on April 9, 2015.
A-2	Notice of Minor Permit Modification, dated April 9, 2015

Appendix A-1

Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

NPDES General Permit No. NMR04A000

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "Act"), except as provided in Part I.A.5 of this permit, operators of municipal separate storm sewer systems located in the area specified in Part I.A.1 are authorized to discharge pollutants to waters of the United States in accordance with the conditions and requirements set forth herein.

Only operators of municipal separate storm sewer systems in the general permit area who submit a Notice of Intent and a storm water management program document in accordance with Part I.A.6 of this permit are authorized to discharge storm water under this general permit.

This is a renewal NPDES permit issued for these portions of the small municipal separate storm sewer systems covered under the NPDES permit No NMR040000 and NMR04000I and the large municipal separate storm sewer systems covered under the NPDES permit No NMS000101.

This permit is issued on and shall become effective on the date of publication in the Federal Register. DEC 2 2 2014

This permit and the authorization to discharge shall expire at, midnight, December 19, 2019.

Signed by

William K. Honker, P.E.
Director
Water Quality Protection Division

Prepared by

Nelly Smith
Environmental Engineer
NPDES Permits and TMDLs Branch

MIDDLE RIO GRANDE WATERSHED BASED MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

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PART I. INDIVIDUAL PERMIT CONDITIONS

A. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1. **Permit Area**. This permit is available for MS4 operators within the Middle Rio Grande Sub-Watersheds described in Appendix A. This permit may authorize stormwater discharges to waters of the United States from MS4s within the Middle Rio Grande Watershed provided the MS4:

   a. Is located fully or partially within the corporate boundary of the City of Albuquerque;

   b. Is located fully or partially within the Albuquerque urbanized area as determined by the 2000 and 2010 Decennial Census. Maps of Census 2010 urbanized areas are available at: http://water.epa.gov/polwaste/npdes/stormwater/Urbanized-Area-Maps-for-NPDES-MS4-Phase-II-Stormwater-Permits.cfm;

   c. Is designated as a regulated MS4 pursuant to 40 CFR 122.32; or

   d. This permit may also authorize an operator of a MS4 covered by this permit for discharges from areas of a regulated small MS4 located outside an Urbanized Areas or areas designated by the Director provided the permittee complies with all permit conditions in all areas covered under the permit.

2. **Potentially Eligible MS4s.** MS4s located within the following jurisdictions and other areas, including any designated by the Director, are potentially eligible for authorization under this permit:

   - City of Albuquerque
   - AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Authority)
   - UNM (University of New Mexico)
   - NMDOT (New Mexico Department of Transportation District 3)
   - Bernalillo County
   - Sandoval County
   - Village of Corrales
   - City of Rio Rancho
   - Los Ranchos de Albuquerque
   - KAFB (Kirtland Air Force Base)
   - Town of Bernalillo
   - EXPO (State Fairgrounds/Expo NM)
   - SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority)
   - ESCAFCA (Eastern Sandoval County Arroyo Flood Control Authority)
   - Sandia Laboratories, Department of Energy (DOE)
   - Pueblo of Sandia
   - Pueblo of Isleta
   -Pueblo of Santa Ana

3. **Eligibility**. To be eligible for this permit, the operator of the MS4 must provide:

   a. Public Participation: Prior submitting the Notice of Intent (NOI), the operator of the MS4 must follow the local notice and comment to procedures at Part I.D.5.h.(i).

   b. National Historic Preservation Act (NHPA) Eligibility Provisions

   In order to be eligible for coverage under this permit, the applicant must be in compliance with the National Historic Preservation Act. Discharges may be authorized under this permit only if:

(i) Criterion A: 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; or

(ii) Criterion B: the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) (or equivalent tribal authority) that outlines all measures the MS4 operator will undertake to mitigate or prevent adverse effect to the historic property.

Appendix C of this permit provides procedures and references to assist with determining permit eligibility concerning this provision. You must document and incorporate the results of your eligibility determination in your SWMP.

The permittee shall also comply with the requirements in Part IV.U.

4. **Authorized Non-Stormwater Discharges**. The following non-stormwater discharges need not be prohibited unless determined by the permittees, U.S. Environmental Protection Agency (EPA), or New Mexico Environment Department (NMED) to be significant contributors of pollutants to the municipal separate storm sewer system (MS4). Any such discharge that is identified as significant contributor pollutants to the MS4, or as causing or contributing to a water quality standards violation, must be addressed as an illicit discharge under the illicit discharge and improper disposal practices established pursuant to Part I.D.5.e of this permit. For all of the discharges listed below, not treated as illicit discharges, the permittee must document the reason these discharges are not expected to be significant contributors of pollutants to the MS4. This documentation may be based on either the nature of the discharge or any pollution prevention/treatment requirements placed on such discharges by the permittee.

- potable water sources, including routine water line flushing;
- lawn, landscape, and other irrigation waters provided all pesticides, herbicides and fertilizers have been applied in accordance with approved manufacturing labeling and any applicable permits for discharges associated with pesticide, herbicide and fertilizer application;
- diverted stream flows;
- rising ground waters;
- uncontaminated groundwater infiltration (as defined at 40 CFR §35.2005 (20));
- uncontaminated pumped groundwater;
- foundation and footing drains;
- air conditioning or compressor condensate;
- springs;
- water from crawl space pumps;
- individual residential car washing;
- flows from riparian habitats and wetlands;
- dechlorinated swimming pool discharges;
- street wash waters that do not contain detergents and where no un-remediated spills or leaks of toxic or hazardous materials have occurred;
- discharges or flows from fire fighting activities (does not include discharges from fire fighting training activities); and,
- other similar occasional incidental non-stormwater discharges (e.g. non-commercial or charity car washes, etc.)

5. **Limitations of Coverage**. This permit does not authorize:

a. Non-Storm Water*:* Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:

(i) In compliance with a separate NPDES permit; or

(ii) Exempt from permitting under the NPDES program; or

(iii) Determined not to be a substantial contributor of pollutants to waters of the United States. See Part I.A.4.

b. Industrial Storm Water*:* Storm water discharges associated with industrial activity as defined in 40 CFR §122.26(b)(14)(i)-(ix) and (xi).

c. Construction Storm Water*:* Storm water discharges associated with construction activity as defined in 40 CFR §122.26(b)(14)(x) or 40 CFR §122.26(b)(15).

d. Currently Permitted Discharges*:* Storm water discharges currently covered under another NPDES permit.

e. Discharges Compromising Water Quality*:* Discharges that EPA, prior to authorization under this permit, determines will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable water quality standard. Where such a determination is made prior to authorization, EPA may notify you that an individual permit application is necessary in accordance with Part IV.M. However, EPA may authorize your coverage under this permit after you have included appropriate controls and implementation procedures in your SWMP designed to bring your discharge into compliance with water quality standards.

f. Discharges Inconsistent with a TMDL*:* You are not eligible for coverage under this permit for discharges of pollutants of concern to waters for which there is an applicable total maximum daily load (TMDL) established or approved by EPA unless you incorporate into your SWMP measures or controls that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, you must incorporate documentation into your SWMP supporting a determination of permit eligibility with regard to waters that have an EPA-established or approved TMDL. If a wasteload allocation has been established that would apply to your discharge, you must comply with the requirements established in Part I.C.2.b.(i). Where an EPA-approved or established TMDL has not specified a wasteload allocation applicable to municipal storm water discharges, but has not specifically excluded these discharges, adherence to a SWMP that meets the requirements in Part I.C.2.b.(ii) of this general permit will be presumed to be consistent with the requirements of the TMDL. If the EPA-approved or established TMDL specifically precludes such discharges, the operator is not eligible for coverage under this general permit.

6. **Authorization Under This General Permit**

a. Obtaining Permit Coverage.

(i) An MS4 operator seeking authorization to discharge under this general permit must submit electronically a complete notice of intent (NOI) to the e-mail address provided in Part I.B.3 (see suggested EPA R6 MS4 NOI format located in EPA website at http://epa.gov/region6/water/npdes/sw/ms4/index.htm), in accordance with the deadlines in Part I.B.1 of this permit. The NOI must include the information and attachments required by Parts I.B.2, Part I.A.3, Part I.D.5.h.(i), and I.A.5.f of this permit. By submitting a signed NOI, the applicant certifies that all eligibility criteria for permit coverage have been met. If EPA notifies a discharger (either directly, by public notice, or by making information available on the Internet) of other NOI options that become available at a later date, such as electronic submission of forms or information, the MS4 operator may take advantage of those options to satisfy the NOI submittal requirements.

(ii) If an operator changes or a new operator is added after an NOI has been submitted, the operator must submit a new or revised NOI to EPA.

(iii) An MS4 operator who submits a complete NOI and meets the eligibility requirements in Part I of this permit is authorized to discharge storm water from the MS4 under the terms and conditions of this general permit only upon written notification by the Director. After review of the NOI and any public comments on the NOI, EPA may condition permit coverage on correcting any deficiencies or on including a schedule to respond to any public comments. (See also Parts I.A.3 and Part I.D.5.h.(i).)

(iv) If EPA notifies the MS4 operator of deficiencies or inadequacies in any portion of the NOI (including the SWMP), the MS4 operator must correct the deficient or inadequate portions and submit a written statement to EPA certifying that appropriate changes have been made. The certification must be submitted within the time-frame specified by EPA and must specify how the NOI has been amended to address the identified concerns.

(v) The NOI must be signed and certified in accordance with Parts IV.H.1 and 4. Signature for the NOI, which effectively takes the place of an individual permit application, may not be delegated to a lower level under Part IV.H.2

b. Terminating Coverage.

(i) A permittee may terminate coverage under this general permit by submitting a notice of termination (NOT). Authorization to discharge terminates at midnight on the day the NOT is post-marked for delivery to EPA.

(ii) A permittee must submit an NOT to EPA within 30 days after the permittee:

(a) Ceases discharging storm water from the MS4,

(b) Ceases operations at the MS4, or

(c) Transfers ownership of or responsibility for the facility to another operator.

(iii) The NOT will consist of a letter to EPA and must include the following information:

(a) Name, mailing address, and location of the MS4 for which the notification is submitted;

(b) The name, address and telephone number of the operator addressed by the NOT;

(c) The NPDES permit number for the MS4;

(d) An indication of whether another operator has assumed responsibility for the MS4, the discharger has ceased operations at the MS4, or the storm water discharges have been eliminated; and

(e) The following certification:

I certify under penalty of law that all storm water discharges from the identified MS4 that are authorized by an NPDES general permit have been eliminated, or that I am no longer the operator of the MS4, or that I have ceased operations at the MS4. I understand that by submitting this Notice of Termination I am no longer authorized to discharge storm water under this general permit, and that discharging pollutants in storm water to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by an NPDES permit. I also understand that the submission of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

(f) NOTs, signed in accordance with Part IV.H.1 of this permit, must be sent to the e-mail address in Part I.B.3. Electronic submittal of the NOT required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

B. NOTICE OF INTENT REQUIREMENTS

1. **Deadlines for Notification**.

a. Designations: Small MS4s automatically designated under 40 CFR 122.32(a)(1), large MS4s located within the corporate boundary of the COA including the COA and former co-permittees under the NPDES permit No

NMS000101, and MS4s designated under 40 CFR 122.26(a)(1)(v), 40 CFR 122.26(a)(9)(i)(C) or (D), or 40 CFR 122.32(a)(2) are required to submit individual NOIs by the dates listed in Table 1. Any MS4 designated as needing a permit after issuance of this permit will be given an individualized deadline for NOI submittal by the Director at the time of designation.

In lieu of creating duplicate program elements for each individual permittee, implementation of the SWMP, as required in Part I.D, may be achieved through participation with other permittees, public agencies, or private entities in cooperative efforts to satisfy the requirements of Part D. For these programs with cooperative elements, the permittee may submit individual NOIs as established in Table 1. See also "Permittees with Cooperative Elements in their SWMP " under Part.I.B.4 and "Shared Responsibilities and Cooperative Programs" under Part I.D.3.

Table 1 Deadlines to Submit NOI

Permittee Class Type	**NOI Deadlines**
Class A: MS4s within the Cooperate Boundary of the COA including former co-permittees under the NPDES permit No NMS000101	90 days from effective date of the permit or 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class B: MS4s designated under 40 CFR 122.32(a)(1). Based on 2000 Decennial Census Map	90 days from effective date of the permit or 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class C: MS4s designated under 40 CFR 122.26(a)(1)(v), 40 CFR 122.26(a)(9)(i)(C) or (D), or 40 CFR 122.32(a)(2) or MS4s newly designated under 122.32(a)(1) based on 2010 Decennial Census Map	180 days from effective date of the permit or notice of designation, unless the notice of designation grants a later date or; 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.
Class D: MS4s within Indian Country Lands designed under 40 CFR 122.26(a)(1)(v), 122.26(a)(9)(i)(C) or (D), 122.32(a)(1), or 122.32(a)(2)	180 days from effective date of the permit or notice of designation, unless the notice of designation grants a later date or; 180 days from effective date of the permit if participating in cooperative programs for one or more program elements.

See Appendix A for list of potential permittees in the Middle Rio Grande Watershed

b. New Operators. For new operators of all or a part of an already permitted MS4 (due to change on operator or expansion of the MS4) who will take over implementation of the existing SWMP covering those areas, the NOI must be submitted 30 days prior to taking over operational control of the MS4. Existing permittees who are expanding coverage of their MS4 area (e.g., city annexes part of unincorporated county MS4) are not required to submit a new NOI, but must comply with Part I.D.6.d.

c. Submitting a Late NOI. MS4s not able to meet the NOI deadline in Table I and Part I.B.1.b due to delays in determining eligibility should notify EPA of the circumstance and progress to date at the address in Part I.B.3 and then proceed with a late NOI. MS4 operators are not prohibited from submitting an NOI after the dates provided in Table 1 and Part I.B.1.b. If a late NOI is submitted, the authorization is only for discharges that occur after permit coverage is effective. The permitting authority reserves the right to take appropriate enforcement actions for any unpermitted discharges.

d. End of Administrative Continued Coverage under Previous Permit. Administrative continuance is triggered by a timely reapplication. Discharges submitting an NOI for coverage under this permit are considered to have met

the timely reapplication requirement if NOI is submitted by the deadlines included in Table 1 of Part I.B.1. For MS4s previously covered under either NMS000101 or NMR040000, continued coverage under those permits ends: a) the day after the applicable deadline for submittal of an NOI if a complete NOI has not been submitted or b) upon notice of authorization under this permit if a complete and timely NOI is submitted.

2. **Contents of Notice of Intent**. An MS4 operator eligible for coverage under this general permit must submit an NOI to discharge under this general permit. The NOI will consist of a letter to EPA containing the following information (see suggested EPA R6 MS4 NOI Format located in EPA website at http://www.epa.gov/region6/water/npdes/sw/ms4/index.htm) and must be signed in accordance with Part IV.H of this permit:

   a. The legal name of the MS4 operator and the name of the urbanized area and core municipality (or Indian reservation/pueblo) in which the operator's MS4 is located;

   b. The full facility mailing address and telephone number;

   c. The name and phone number of the person or persons responsible for overall coordination of the SWMP;

   d. An attached location map showing the boundaries of the MS4 under the applicant's jurisdiction. The map must include streets or other demarcations so that the exact boundaries can be located;

   e. The area of land served by the applicant's MS4 (in square miles);

   f. The latitude and longitude of the approximate center of the MS4;

   g. The name(s) of the waters of the United States that receive discharges from the system.

   h. If the applicant is participating in a cooperative program element or is relying on another entity to satisfy one or more permit obligations (see Part I.D.3), identify the entity(ies) and the element(s) the entity(ies) will be implementing;

   i. Information on each of the storm water minimum control measures in Part I.D.5 of this permit and how the SWMP will reduce pollutants in discharges to the Maximum Extent Practicable. For each minimum control measure, include the following:

      (i) Description of the best management practices (BMPs) that will be implemented;

      (ii) Measurable goals for each BMP; and

      (iii) Time frames (i.e., month and year) for implementing each BMP;

   j. Based on the requirements of Part I.A.3.b describe how the eligibility criteria for historic properties have been met;

   k. Indicate whether or not the MS4 discharges to a receiving water for which EPA has approved or developed a TMDL. If so, describe how the eligibility requirements of Part I.A.5.f and Part I.C.2 have been met.

      Note: If an individual permittee or a group of permittees seeks an alternative sub-measureable goal for TMDL controls under Part I.C.2.b.(i).(c).B, the permittee or a group of permittees must submit a preliminary proposal with the NOI. This proposal shall include, but is not limited to, the elements included in Appendix B under Section B.2.

   l. Signature and certification by an appropriate official (see Part IV.H). The NOI must include the certification statement from Part IV.H.4.

3. **Where to Submit.** The MS4 operator must submit the signed NOI to EPA via e-mail at R6_MS4Permits@epa.gov (note: there is an underscore between R6 and MS4) and NMED to the address provided in Part III.D.4. See also Part III.D.4 to determine if a copy must be **p**rovided to a Tribal agency.

   The following MS4 operators: AMAFCA, Sandoval County, Village of Corrales, City of Rio Rancho, Town of Bernalillo, SSCAFCA, and ESCAFCA must submit the signed NOI to the Pueblo of Sandia to the address provided in Part III.D.4.

   Note: See suggested EPA R6 MS4 NOI Format located in EPA website at http://www.epa.gov/region6/water/npdes/sw/ms4/index.htm. A complete copy of the signed NOI should be maintained on site. Electronic submittal of the documents required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

4. **Permittees with Cooperative Elements in their SWMP.** Any MS4 that meets the requirements of Part I.A of this general permit may choose to partner with one or more other regulated MS4 to develop and implement a SWMP or SWMP element. The partnering MS4s must submit separate NOIs and have their own SWMP, which may incorporate jointly developed program elements. If responsibilities are being shared as provided in Part I.D.3 of this permit, the SWMP must describe which permittees are responsible for implementing which aspects of each of the minimum measures. All MS4 permittees are subject to the provisions in Part I.D.6.

   Each individual MS4 in a joint agreement implementing a permit condition will be independently assessed for compliance with the terms of the joint agreement. Compliance with that individual MS4s obligations under the joint agreement will be deemed compliance with that permit condition. Should one or more individual MS4s fail to comply with the joint agreement, causing the joint agreement program to fail to meet the requirements of the permit, the obligation of all parties to the joint agreement is to develop within 30 days and implement within 90 days an alternative program to satisfy the terms of the permit.

C. SPECIAL CONDITIONS

1. **Compliance with Water Quality Standards**. Pursuant to Clean Water Act §402(p)(3)(B)(iii) and 40 CFR §122.44(d)(1), this permit includes provisions to ensure that discharges from the permittee's MS4 do not cause or contribute to exceedances of applicable surface water quality standards, in addition to requirements to control discharges to the maximum extent practicable (MEP) set forth in Part I.D. Permittees shall address stormwater management through development of the SWMP that shall include the following elements and specific requirements included in Part VI.

   a. Permittee's discharges shall not cause or contribute to an exceedance of surface water quality standards (including numeric and narrative water quality criteria) applicable to the receiving waters. In determining whether the SWMP is effective in meeting this requirement or if enhancements to the plan are needed, the permittee shall consider available monitoring data, visual assessment, and site inspection reports.

   b. Applicable surface water quality standards for discharges from the permittees' MS4 are those that are approved by EPA and any other subsequent modifications approved by EPA upon the effective date of this permit found at New Mexico Administrative Code §20.6.4. Discharges from various portions of the MS4 also flow downstream into waters with Pueblo of Isleta and Pueblo of Sandia Water Quality Standards;

   c. The permittee shall notify EPA and the Pueblo of Isleta in writing as soon as practical but not later than thirty (30) calendar days following each Pueblo of Isleta water quality standard exceedance at an in-stream sampling location. In the event that EPA determines that a discharge from the MS4 causes or contributes to an exceedance of applicable surface water quality standards and notifies the permittee of such an exceedance, the permittee shall, within sixty (60) days of notification, submit to EPA, NMED, Pueblo of Isleta (upon request) and Pueblo of Sandia (upon request), a report that describes controls that are currently being implemented and additional controls that will be implemented to prevent pollutants sufficient to ensure that the discharge will no longer cause or contribute to an exceedance of applicable surface water quality standards. The permittee shall implement such additional controls upon notification by EPA and shall incorporate such measures into their SWMP as described in Part I.D of this permit. NMED or the affected Tribe may provide information

documenting exceedances of applicable water quality standards caused or contributed to by the discharges authorized by this permit to EPA Region 6 and request EPA take action under this paragraph.

d. Phase I Dissolved Oxygen Program (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit): Within one year from effective date of the permit , the permittees shall revise the May 1, 2012 Strategy to continue taking measures to address concerns regarding discharges to the Rio Grande by implementing controls to eliminate conditions that cause or contribute to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. The permittees shall:

(i) Continue identifying structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;

(ii) Continue implementing controls, and updating/revising as necessary, to eliminate structural elements or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the United States;

(iii) To verify the remedial action in the North Diversion Channel Embayment, the COA and AMAFCA shall continue sampling for DO and temperature until the data indicate the discharge does not exceed applicable dissolved oxygen water quality standards in waters of the United States; and

(iv) Submit a revised strategy to FWS for consultation and EPA for approval from a year of effective date of the permit and progress reports with the subsequent Annual Reports. Progress reports to include:

(a) Summary of data.

(b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States. Including summary of findings of the assessment required in Part I.C.1.d.(i).

(c) Conclusions drawn, including support for any determinations.

(d) Activities undertaken to eliminate MS4 discharge contribution to exceedances of applicable dissolved oxygen water quality standards in waters of the United States.

(e) Account of stakeholder involvement.

e. PCBs (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit and Bernalillo County): The permittee shall address concerns regarding PCBs in channel drainage areas specified in Part I.C.1.e.(vi) by developing or continue updating/revising and implementing a strategy to identify and eliminate controllable sources of PCBs that cause or contribute to exceedances of applicable water quality standards in waters of the United States. Bernalillo County shall submit the proposed PCB strategy to EPA within two (2) years from the effective date of the permit and submit a progress report with the third and with subsequent Annual Reports. COA and AMAFCA shall submit a progress report with the first and with the subsequent Annual Reports. The progress reports shall include:

(i) Summary of data.

(ii) Findings regarding controllable sources of PCBs in the channel drainages area specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the United States via the discharge of municipal stormwater.

(iii) Conclusions drawn, including supporting information for any determinations.

(iv) Activities undertaken to eliminate controllable sources of PCBs in the drainage areas specified in Part I.C.1.e.(vi) that cause or contribute to exceedances of applicable water quality standards in waters of the United States via the discharge of municipal stormwater including proposed activities that extend beyond the five (5) year permit term.

(v) Account of stakeholder involvement in the process.

(vi) Channel Drainage Areas: The PCB strategy required in Part I.C.1.e is only applicable to:

<u>COA and AMAFCA Channel Drainage Areas</u>:
- San Jose Drain
- North Diversion Channel

<u>Bernalillo County Channel Drainage Areas:</u>
- Adobe Acres Drain
- Alameda Outfall Channel
- Paseo del Norte Outfall Channel
- Sanchez Farm Drainage Area

A cooperative strategy to address PCBs in the COA, AMAFCA and Bernalillo County's drainage areas may be developed between Bernalillo County, AMAFCA, and the COA. If a cooperative strategy is developed, the cooperative strategy shall be submitted to EPA within three (3) years from the effective date of the permit and submit a progress report with the fourth and with subsequent Annual Reports,

Note: COA and AMAFCA must continue implementing the existing PCB strategy until a new Cooperative PCB Strategy is submitted to EPA.

f. Temperature (Applicable only to the COA and AMAFCA as a continuation of program in 2012 NMS000101 individual permit): The permittees must continue assessing the potential effect of stormwater discharges in the Rio Grande by collecting and evaluating additional data. If the data indicates there is a potential of stormwater discharges contributing to exceedances of applicable temperature water quality standards in waters of the United States, within thirty (30) days such as findings, the permittees must develop and implement a strategy to eliminate conditions that cause or contribute to these exceedances. The strategy must include:

(i) Identify structural controls, post construction design standards, or pollutants contributing to raised temperatures in the receiving waters of the Rio Grande. Both dry and wet weather discharges shall be addressed. Assessment may be made using available data or collecting additional data;

(ii) Develop and implement controls to eliminate structural controls, post construction design standards, or the discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for temperature in waters of the United States; and

(iii) Provide a progress report with the first and with subsequent Annual Reports. The progress reports shall include:

(a) Summary of data.

(b) Activities undertaken to identify MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States.

(c) Conclusions drawn, including supporting information for any determinations.

(d) Activities undertaken to reduce MS4 discharge contribution to exceedances of applicable temperature water quality standards in waters of the United States.

(e) Accounting of stakeholder involvement.

2. **Discharges to Impaired Waters with and without approved TMDLs**. Impaired waters are those that have been identified pursuant to Section 303(d) of the Clean Water Act as not meeting applicable surface water quality standards. This may include both waters with EPA-approved Total Maximum Daily Loads (TMDLs) and those for which a TMDL has not yet been approved. For the purposes of this permit, the conditions for discharges to impaired waters also extend to controlling pollutants in MS4 discharges to tributaries to the listed impaired waters in the Middle Rio Grande watershed boundary identified in Appendix A.

   a. Discharges of pollutant(s) of concern to impaired water bodies for which there is an EPA approved total maximum daily load (TMDL) are not eligible for this general permit unless they are consistent with the approved TMDL. A water body is considered impaired for the purposes of this permit if it has been identified, pursuant to the latest EPA approved CWA §303(d) list, as not meeting New Mexico Surface Water Quality Standards.

   b. The permittee shall control the discharges of pollutant(s) of concern to impaired waters and waters with approved TMDLs as provided in sections (i) and (ii) below, and shall assess the success in controlling those pollutants.

      (i) Discharges to Water Quality Impaired Water Bodies with an Approved TMDL
      If the permittee discharges to an impaired water body with an approved TMDL (see Appendix B), where stormwater has the potential to cause or contribute to the impairment, the permittee shall include in the SWMP controls targeting the pollutant(s) of concern along with any additional or modified controls required in the TMDL and this section. The SWMP and required annual reports must include information on implementing any focused controls required to reduce the pollutant(s) of concern as described below:

         (a) Targeted Controls: The SWMP submitted with the first annual report must include a detailed description of all targeted controls to be implemented, such as identifying areas of focused effort or implementing additional Best Management Practices (BMPs) that will be implemented to reduce the pollutant(s) of concern in the impaired waters.

         (b) Measurable Goals: For each targeted control, the SWMP must include a measurable goal and an implementation schedule describing BMPs to be implemented during each year of the permit term. Where the impairment is for bacteria, the permittee must, at minimum comply with the activites and schedules described in Table 1.a of Part I.C.2.(iii).

         (c) Identification of Measurable Goal: The SWMP must identify a measurable goal for the pollutant(s) of concern. The value of the measurable goal must be based on one of the following options:

            A. If the permittee is subject to a TMDL that identifies an aggregate Waste Load Allocation (WLA) for all or a class of permitted MS4 stormwater sources, then the SWMP may identify such WLA as the measurable goal. Where an aggregate WLA measurable goal is used, all affected MS4 operators are jointly responsible for progress in meeting the measurable goal and shall (jointly or individually) develop a monitoring/assessment plan. This program element may be coordinated with the monitoring required in Part III.A.

            B. Alternatively, if multiple permittees are discharging into the same impaired water body with an approved TMDL (which has an aggregate WLA for all permitted stormwater MS4s), the MS4s may combine or share efforts, in consultation with/and the approval of NMED, to determine an alternative sub-measurable goal derived from the WLA for the pollutant(s) of concern (e.g., bacteria) for their respective MS4. The SWMP must clearly define this alternative approach and must describe how the sub-measurable goals would cumulatively support the aggregate WLA. Where an aggregate WLA measurable goal has been broken into sub-measurable goals for individual MS4s, each permittee is only responsible for progress in meeting its WLA sub-measurable goal.

C. If the permittee is subject to an individual WLA specifically assigned to that permittee, the measurable goal must be the assigned WLA. Where WLAs have been individually assigned, or where the permittee is the only regulated MS4 within the urbanized area that is discharging into the impaired watershed with an approved TMDL, the permittee is only responsible for progress in meeting its WLA measurable goal.

(d) Annual Report: The annual report must include an analysis of how the selected BMPs have been effective in contributing to achieving the measurable goal and shallll include graphic representation of pollutant trends, along with computations of annual percent reductions achieved from the baseline loads and comparisons with the target loads.

(e) Impairment for Bacteria: If the pollutant of concern is bacteria, the permittee shall include focused BMPs addressing the five areas below, as applicable, in the SWMP and implement as appropriate. If a TMDL Implementation Plan (a plan created by the State or a Tribe) is available, the permittee may refer to the TMDL Implementation Plan for appropriate BMPs. The SWMP and annual report must include justification for not implementing a particular BMP included in the TMDL Implementation Plan. The permittee may not exclude BMPs associated with the minimum control measures required under 40 CFR §122.34 from their list of proposed BMPs. The BMPs shall, as appropriate, address the following:

A. Sanitary Sewer Systems
- Make improvements to sanitary sewers;
- Address lift station inadequacies;
- Identify and implement operation and maintenance procedures;
- Improve reporting of violations; and
- Strengthen controls designed to prevent over flows

B. On-site Sewage Facilities (for entities with appropriate jurisdiction)
- Identify and address failing systems; and
- Address inadequate maintenance of On-Site Sewage Facilities (OSSFs).

C. Illicit Discharges and Dumping
- Place additional effort to reduce waste sources of bacteria; for example, from septic systems, grease traps, and grit traps.

D. Animal Sources
- Expand existing management programs to identify and target animal sources such as zoos, pet waste, and horse stables.

E. Residential Education: Increase focus to educate residents on:
- Bacteria discharging from a residential site either during runoff events or directly;
- Fats, oils, and grease clogging sanitary sewer lines and resulting overflows;
- Decorative ponds; and
- Pet waste.

(f) Monitoring or Assessment of Progress: The permittee shall monitor or assess progress in achieving measurable goals and determining the effectiveness of BMPs, and shall include documentation of this monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A. The permittee may use the following methods either individually or in conjunction to evaluate progress towards the measurable goal and improvements in water quality as follows:

A. Evaluating Program Implementation Measures: The permittee may evaluate and report progress towards the measurable goal by describing the activities and BMPs implemented, by identifying the appropriateness of the identified BMPs, and by evaluating the success of implementing the measurable goals. The permittee may assess progress by using program implementation indicators

such as: (1) number of sources identified or eliminated; (2) decrease in number of illegal dumping; (3) increase in illegal dumping reporting; (4) number of educational opportunities conducted; (5) reductions in SSOs; or, 6) increase in illegal discharge detection through dry screening, etc.; and

B. Assessing Improvements in Water Quality: The permittee may assess improvements in water quality by using available data for segment and assessment units of water bodies from other reliable sources, or by proposing and justifying a different approach such as collecting additional instream or outfall monitoring data, etc. Data may be acquired from NMED, local river authorities, partnerships, and/or other local efforts as appropriate. Progress towards achieving the measurable goal shall be reported in the annual report. Annual reports shall report the measurable goal and the year(s) during the permit term that the MS4 conducted additional sampling or other assessment activities.

(g) Observing no Progress towards the Measurable Goal: If, by the end of the third year from the effective date of the permit, the permittee observes no progress toward the measurable goal either from program implementation or water quality assessments, the permittee shall identify alternative focused BMPs that address new or increased efforts towards the measurable goal. As appropriate, the MS4 may develop a new approach to identify the most significant sources of the pollutant(s) of concern and shall develop alternative focused BMPs (this may also include information that identifies issues beyond the MS4's control). These revised BMPs must be included in the SWMP and subsequent annual reports.

Where the permittee originally used a measurable goal based on an aggregated WLA, the permittee may combine or share efforts with other MS4s discharging to the same impaired stream segment to determine an alternative sub-measurable goal for the pollutant(s) of concern for their respective MS4s, as described in Part I.C.2.b.(i).(c).B above. Permittees must document, in their SWMP for the next permit term, the proposed schedule for the development and subsequent adoption of alternative sub-measurable goals for the pollutant(s) of concern for their respective MS4s and associated assessment of progress in meeting those individual goals.

(ii) Discharges Directly to Water Quality Impaired Water Bodies without an Approved TMDL:
The permittee shall also determine whether the permitted discharge is directly to one or more water quality impaired water bodies where a TMDL has not yet been approved by NMED and EPA. If the permittee discharges directly into an impaired water body without an approved TMDL, the permittee shall perform the following activities:

(a) Discharging a Pollutant of Concern: The permittee shall:

A. Determine whether the MS4 may be a source of the pollutant(s) of concern by referring to the CWA §303(d) list and then determining if discharges from the MS4 would be likely to contain the pollutant(s) of concern at levels of concern. The evaluation of CWA §303(d) list parameters should be carried out based on an analysis of existing data (e.g., Illicit Discharge and Improper Disposal Program) conducted within the permittee's jurisdiction.

B. Ensure that the SWMP includes focused BMPs, along with corresponding measurable goals, that the permittee will implement, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. (note: Only applicable if the permittee determines that the MS4 may discharge the pollutant(s) of concern to an impaired water body without a TMDL. The SWMP submitted with the first annual report must include a detailed description of proposed controls to be implemented along with corresponding measurable goals.

C. Amend the SWMP to include any additional BMPs to address the pollutant(s) of concern.

(b) Impairment for Bacteria: Where the impairment is for bacteria, the permittee shall identify potential significant sources and develop and implement targeted BMPs to control bacteria from those sources (see Part I.C.2.b.(i).(e).A through E.. The permittee must, at minimum comply with the activities and

schedules described in Table 1.a of Part I.C.2.(iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

Note: Probable pollutant sources identified by permittees should be submitted to NMED on the following form: ftp://ftp.nmenv.state.nm.us/www/swqb/Surveys/PublicProbableSourceIDSurvey.pdf

(c) Impairment for Nutrients: Where the impairment is for nutrients (e.g., nitrogen or phosphorus), the permittee shall identify potential significant sources and develop and implement targeted BMPs to control nutrients from potential sources. The permittee must, at minimum comply with the activities and schedules described in Table 1.b of Part I.C,2, (iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

(d) Impairment for Dissolved Oxygen: See Endangered Species Act (ESA) Requirements in Part I.C.3. These program elements may be coordinated with the monitoring required in Part III.A.

(iii) Program Development and Implementation Schedules: Where the impairment is for nutrient constituent (e.g., nitrogen or phosphorus) or bacteria, the permittee must at minimum comply with the activities and schedules in Table 1.a and Table 1.b.

Table 1.a. Pre-TMDL Bacteria Program Development and Implementation Schedules

Activity	**Class Permittee**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Identify potential significant sources of the pollutant of concern entering your MS4	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of bacteria in municipal storm water contributed by (if applicable) by pets, recreational and exhibition livestock, and zoos.	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit	Fourteen (14) months from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by areas within your MS4 served by on-site wastewater treatment systems.	Fourteen (14) months from effective date of permit	Fourteen (14) moths from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Review results to date from the Illicit Discharge Detection and Elimination program (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4	Fourteen (14) months from effective date of permit	Fourteen (14) months from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit	Eighteen (18) months from effective date of permit	Twenty (20) months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

Table 1.b. Pre-TMDL Nutrient Program Development and Implementation Schedules

Activity	**Class Permittee**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Identify potential significant sources of the pollutant of concern entering your MS4	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of pollutant of concern in municipal storm water contributed by residential and commercial use of fertilizer	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by fertilizer use at municipal operations (e.g., parks, roadways, municipal facilities)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by municipal and private golf courses within your jurisdiction	One (1) year from effective date of permit	One (1)year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the nutrient pollutant of concern and updates their measurable goals	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

These program elements may be coordinated with the monitoring required in Part III.A**.**

3. **Endangered Species Act (ESA) Requirements**. Consistent with U.S. FWS Biological Opinion dated August 21, 2014 to ensure actions required by this permit are not likely to jeopardize the continued existence of any currently listed as endangered or threatened species or adversely affect its critical habitat, permittees shall meet the following requirements and include them in the SWMP:

   a. Dissolved Oxygen Strategy in the Receiving Waters of the Rio Grande:

      (i) The permittees must identify (or continue identifying if previously covered under permit NMS000101) structural controls, natural or man-made topographical and geographical formations, MS4 operations, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. The permittees shall implement controls, and update/revise as necessary, to eliminate discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the Rio Grande. The permittees shall submit a summary of findings and a summary of activities undertaken under Part I.C.3.a.(i) with each Annual Report. The SWMP submitted with the first and fourth annual reports must include a detailed description of controls implemented (or/and proposed control to be implemented) along with corresponding measurable goals. (Applicable to all permittees).

      (ii) As required in Part I.C.1.d, the COA and AMAFCA shall revise the May 1, 2012 Strategy for dissolved oxygen to address dissolved oxygen at the North Diversion Channel Embayment and/or other MS4 locations. The permittees shall submit the revised strategy to FWS and EPA for approval within a year of permit issuance and progress reports with the subsequent Annual Reports (see also Part I.C.1.d.(iv)). The permittees shall **e**nsure that actions to reduce pollutants or remedial activities selected for the North Diversion Channel Embayment and its watershed are implemented such that there is a reduction in

frequency and magnitude of all low oxygen storm water discharge events that occur in the Embayment or downstream in the MRG as indicated in Table 1.c. Actions to meet the year 3 measurable goals must be taken within 2 years from the effective date of the permit. Actions to meet the year 5 measurable goals must be taken within 4 years from the effective date of the permit.

Table 1.c Measurable Goals of Anoxic and Hypoxia Levels Measured by Permit Year

Permit Year	*Anoxic Events*, max*	*Hypoxic Events**, max*
Year 1	*18*	*36*
Year 2	*18*	*36*
Year 3	*9*	*18*
Year 4	*9*	*18*
Year 5	*4*	*9*

Notes:

- * Anoxic Events: See Appendix G, for oxygen saturation and dissolved oxygen concentrations at various water temperatures and atmospheric pressures for the North Diversion Channel area that are considered anoxic and associated with the Rio Grande Silvery minnow lethality.
- ** Hypoxic Events: See Appendix for G, for oxygen saturation and dissolved oxygen concentrations at various water temperatures and atmospheric pressures for the North Diversion Channel area that are considered hypoxic and associated with the Rio Grande silvery minnow harassment.

(a) The revised strategy shall include:

A. A Monitoring Plan describing all procedures necessary to continue conducting continuous monitoring of dissolved oxygen (DO) and temperature in the North Diversion Channel Embayment and at one (1) location in the Rio Grande downstream of the mouth of the North Diversion Channel within the action area (e.g., Central Bridge). The monitoring plan to be developed will describe the methodology used to assure its quality, and will identify the means necessary to address any gaps that occur during monitoring, in a timely manner (that is, within 24 to 48 hours).

B. A Quality Assurance and Quality Control (QA/QC) Plan describing all standard operating procedures, quality assurance and quality control plans, maintenance, and implementation schedules that will assure timely and accurate collection and reporting of water temperature, dissolved oxygen, oxygen saturation, and flow. The QA/QC plan should include all procedures for estimating oxygen data when any oxygen monitoring equipment fail. Until a monitoring plan with quality assurance and quality control is submitted by EPA, any data, including any provisional or incomplete data from the most recent measurement period (e.g. if inoperative monitoring equipment for one day, use data from previous day) shall be used as substitutes for all values in the calculations for determinations of incidental takes. Given the nature of the data collected as surrogate for incidental take, all data, even provisional data (e.g., oxygen/water temperature data, associated metadata such as flows, date, times), shall be provided to the Service in a spreadsheet or database format within two weeks after formal request.

(b) Reporting: The COA and AMAFCA shall provide

A. An Annual Incidental Take Report to EPA and the Service that includes the following information: beginning and end date of any qualifying stormwater events, dissolved oxygen values and water temperature in the North Diversion Channel Embayment, dissolved oxygen values and water temperature at a downstream monitoring station in the MRG, flow rate in the North Diversion Channel, mean daily flow rate in the MRG, evaluation of oxygen and temperature data

as either anoxic or hypoxic using Table 2 of the BO, and estimate the number of silvery minnows taken based on Appendix A of the BO**.** Electronic copy of The Annual Incidental Take Report should be provided with the Annual Report required under Part III.B no later than December 1 for the proceeding calendar year.

B. A summary of data and findings with each Annual Report to EPA and the Service. All data collected (including provisional oxygen and water temperature data, and associated metadata), transferred, stored, summarized, and evaluated shall be included in the Annual Report. If additional data is requested by EPA or the Service, The COA and AMAFCA shall provide such as information within two weeks upon request,

The revised strategy required under Part I.C.3.a.(ii),the Annual Incidental Take Reports required under Part I.C.3.a.(ii).(b).A, and Annual Reports required under Part III.B can be submitted to FWS via e-mail nmesfo@fws.gov and joel_lusk@fws.gov, or by mail to the New Mexico Ecological Services field office, 2105 Osuna Road NE, Albuquerque, New Mexico 87113. (Only Applicable to the COA and AMAFCA

b. Sediment Pollutant Load Reduction Strategy (Applicable to all pemittees): The permittee must develop, implement, and evaluate a sediment pollutant load reduction strategy to assess and reduce pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters of the Rio Grande. The strategy must include the following elements:

(i) Sediment Assessment: The permittee must identify and investigate areas within its jurisdiction that may be contributing excessive levels (e.g., levels that may contribute to exceedance of applicable Water Quality Standards) of pollutants in sediments to the receiving waters of the Rio Grande as a result of stormwater discharges. The permittee must identify structural elements, natural or man-made topographical and geographical formations, MS4 operations activities, and areas indicated as potential sources of sediments pollutants in the receiving waters of the Rio Grande. At the time of assessment, the permittee shall record any observed erosion of soil or sediment along ephemeral channels, arroyos, or stream banks, noting the scouring or sedimentation in streams. The assessment should be made using available data from federal, state, or local studies supplemented as necessary with collection of additional data. The permittee must describe, in the first annual report, all standard operating procedures, quality assurance plans to assure that accurate data are collected, summarized, evaluated and reported.

(ii) Estimate Baseline Loading: Based on the results of the sediment pollutants assessment required in Part I.C.3.b.(i) above the permittee must provide estimates of baseline total sediment loading and relative potential for contamination of those sediments by urban activities for drainage areas, sub-watersheds, Impervious Areas (IAs), and/or Directly Connected Impervious Area (DCIAs) draining directly to a surface waterbody or other feature used to convey waters of the United States. Sediment loads may be provided for targeted areas in the entire Middle Rio Grande Watershed (see Appendix A) using an individual or cooperative approach. Any data available and/or preliminary numeric modeling results may be used in estimating loads.

(iii) Targeted Controls: Include a detailed description of all proposed targeted controls and BMPs that will be implemented to reduce sediment pollutant loads calculated in PartI.C.3.b.(ii) above during the next ten (10) years of permit issuance. For each targeted control, the permittee must include interim measurable goals (e.g., interim sediment pollutant load reductions) and an implementation and maintenance schedule, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions. Any data available and/or preliminary numeric modeling results may be used in establishing the targeted controls, BMPs, and interim measurable goals. The permittee must prioritize pollutant load reduction efforts and target areas (e..g. drainage areas, sub-watersheds, IAs, DCIAs) that generate the highest annual average pollutant loads.

(iv) Monitoring and Interim Reporting: The permittee shall monitor or assess progress in achieving interim measurable goals and determining the effectiveness of BMPs, and shall include documentation of this

monitoring or assessment in the SWMP and annual reports. In addition, the SWMP must include methods to be used. This program element may be coordinated with the monitoring required in Part III.A.

(v) Progress Evaluation and Reporting: The permittee must assess the overall success of the Sediment Pollutant Load Reduction Strategy and document both direct and indirect measurements of program effectiveness in a Progress Report to be submitted with the fifth Annual Report. Data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of the BMPs and compliance with the ESA requirements specified in Part I.C.3.b. The Progress Report must include:

(a) A list of species likely to be within the action area:

(b) Type and number of structural BMPs installed;

(c) Evaluation of pollutant source reduction efforts;

(d) Any recommendation based on program evaluation;

(e) Description of how the interim sediment load reduction goals established in Part I.C.3.b.(iii) were achieved; and

(f) Future planning activities needed to achieve increase of sediment load reduction required in Part I.C.3.d.(iii).

(vi) Critical Habitat (Applicable to all permittees): Verify that the installation of stormwater BMPs will not occur in or adversely affect currently listed endangered or threatened species critical habitat by reviewing the activities and locations of stormwater BMP installation within the location of critical habitat of currently listed endangered or threatened species at the U.S. Fish and Wildlife service website http://criticalhabitat.fws.gov/crithab/.

D. STORMWATER MANAGEMENT PROGRAM (SWMP)

1. **General Requirements**. The permittee must develop, implement, and enforce a SWMP designed to reduce the discharge of pollutants from a MS4 to the maximum extent practicable (MEP), to protect water quality (including that of downstream state or tribal waters), and to satisfy applicable surface water quality standards. The permittees shall continue implementation of existing SWMPs, and where necessary modify or revise existing elements and/or develop new elements to comply with all discharges from the MS4 authorized in Part I.A. The updated SWMP shall satisfy all requirements of this permit, and be implemented in accordance with Section 402(p)(3)(B) of the Clean Water Act (Act), and the Stormwater Regulations (40 CFR §122.26 and §122.34). This permit does not extend any compliance deadlines set forth in the previous permits (NMS000101 with effective date March 1, 2012 and permits No: NM NMR040000 and NMR04000I with effective date July 1, 2007).

   If a permittee is already in compliance with one or more requirements in this section because it is already subject to and complying with a related local, state, or federal requirement that is at least as stringent as this permit's requirement, the permittee may reference the relevant requirement as part of the SWMP and document why this permit's requirement has been satisfied. Where this permit has additional conditions that apply, above and beyond what is required by the related local, state, or federal requirement, the permittee is still responsible for complying with the~~se~~ additional conditions in this permit.

2. **Legal Authority**. Each permittee shall implement the legal authority granted by the State or Tribal Government to control discharges to and from those portions of the MS4 over which it has jurisdiction. The difference in each co-permittee's jurisdiction and legal authorities, especially with respect to third parties, may be taken into account in developing the scope of program elements and necessary agreements (i.e. Joint Powers Agreement, Memorandum of Agreement, Memorandum of Understanding, etc.). Permittees may use a combination of statute, ordinance, permit, contract, order, interagency or inter-jurisdictional agreement(s) with other permittees to:

a. Control the contribution of pollutants to the MS4 by stormwater discharges associated with industrial activity and the quality of stormwater discharged from sites of industrial activity (applicable only to MS4s located within the corporate boundary of the COA);

b. Control the discharge of stormwater and pollutants associated with land disturbance and development activities, both during the construction phase and after site stabilization has been achieved (post-construction), consistent with Part I.D.5.a and Part I.D.5.b;

c. Prohibit illicit discharges and sanitary sewer overflows to the MS4 and require removal of such discharges consistent with Part I.D.5.e;

d. Control the discharge of spills and prohibit the dumping or disposal of materials other than stormwater (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4;

e. Control, through interagency or inter-jurisdictional agreements among permittees, the contribution of pollutants from one (1) portion of the MS4 to another;

f. Require compliance with conditions in ordinances, permits, contracts and/or orders; and

g. Carry out all inspection, surveillance and monitoring procedures necessary to maintain compliance with permit conditions.

3. **Shared Responsibility and Cooperative Programs**.

a. The SWMP, in addition to any interagency or inter-jurisdictional agreement(s) among permittees, (e.g., the Joint Powers Agreement to be entered into by the permittees), shall clearly identify the roles and responsibilities of each permittee.

b. Implementation of the SWMP may be achieved through participation with other permittees, public agencies, or private entities in cooperative efforts to satisfy the requirements of Part I.D in lieu of creating duplicate program elements for each individual permittee.

(i) Implementation of one or more of the control measures may be shared with another entity, or the entity may fully take over the measure. A permittee may rely on another entity only if:

(a) the other entity, in fact, implements the control measure;

(b) the control measure, or component of that measure, is at least as stringent as the corresponding permit requirement; or,

(c) the other entity agrees to implement the control measure on the permittee's behalf. Written acceptance of this obligation is expected. The permittee must maintain this obligation as part of the SWMP description. If the other entity agrees to report on the minimum measure, the permittee must supply the other entity with the reporting requirements in Part III.D of this permit. The permittee remains responsible for compliance with the permit obligations if the other entity fails to implement the control measure component.

c. Each permittee shall provide adequate finance, staff, equipment, and support capabilities to fully implement its SWMP and all requirements of this permit.

4. **Measurable Goals**. The permittees shall control the discharge of pollutants from its MS4. The permittee shall implement the provisions set forth in Part I.D.5 below, and shall at a minimum incorporate into the SWMP the control measures listed in Part I.D.5 below. The SWMP shall include measurable goals, including interim milestones, for each control measure, and as appropriate, the months and years in which the MS4 will undertake the required actions and the frequency of the action.

5. **Control Measures**.

a. Construction Site Stormwater Runoff Control.

(i) The permittee shall 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. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. **Permittees previously covered under permit NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit**. (Note: Highway Departments and Flood Control Authorities may only apply the construction site stormwater management program to the permittees's own construction projects)

(ii) The program must include the development, implementation, and enforcement of, at a minimum:

(a) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal or local law;

(b) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices (both structural and non-structural);

(c) 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 (see EPA guidance at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=117);

(d) Procedures for site plan review which incorporate consideration of potential water quality impacts. The site plan review must be conducted prior to commencement of construction activities, and include a review of the site design, the planned operations at the construction site, the planned control measures during the construction phase (including the technical criteria for selection of the control measures), and the planned controls to be used to manage runoff created after the development;

(e) Procedures for receipt and consideration of information submitted by the public;

(f) Procedures for site inspection (during construction) and enforcement of control measures, including provisions to ensure proper construction, operation, maintenance, and repair. The procedures must clearly define who is responsible for site inspections; who has the authority to implement enforcement procedures; and the steps utilized to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and the quality of the receiving water. If a construction site operator fails to comply with procedures or policies established by the permittee, the permittee may request EPA enforcement assistance. The site inspection and enforcement procedures must describe sanctions and enforcement mechanism(s) for violations of permit requirements and penalties with detail regarding corrective action follow-up procedures, including enforcement escalation procedures for recalcitrant or repeat offenders. Possible sanctions include non-monetary penalties (such as stop work orders and/or permit denials for non-compliance), as well as monetary penalties such as fines and bonding requirements;

(g) Procedures to educate and train permittee personnel involved in the planning, review, permitting, and/or approval of construction site plans, inspections and enforcement. Education and training shall also be provided for developers, construction site operators, contractors and supporting personnel, including requiring a stormwater pollution prevention plan for construction sites within the permitee's jurisdiction;

(h) Procedures for keeping records of and tracking all regulated construction activities within the MS4, i.e. site reviews, inspections, inspection reports, warning letters and other enforcement documents. A

summary of the number and frequency of site reviews, inspections (including inspector's checklist for oversight of sediment and erosion controls and proper disposal of construction wastes) and enforcement activities that are conducted annually and cumulatively during the permit term shall be included in each annual report; and

(iii) Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres within the MS4 jurisdiction. Site inspections are to be followed by any necessary compliance or enforcement action. Follow-up inspections are to be conducted to ensure corrective maintenance has occurred; and, all projects must be inspected at completion for confirmation of final stabilization.

(iv) The permittee must coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area to ensure that the construction stormwater runoff controls eliminate erosion and maintain sediment on site. Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.

(v) The site plan review required in Part I.D.5.a.(ii)(d) must include an evaluation of opportunities for use of GI/LID/Sustainable practices and when the opportunity exists, encourage project proponents to incorporate such practices into the site design to mimic the pre-development hydrology of the previously undeveloped site. For purposes of this permit, pre-development hydrology shall be met according to Part I.D.5.b of this permit. (consistent with any limitations on that capture). Include a reporting requirement of the number of plans that had opportunities to implement these practices and how many incorporated these practices.

(vi) The permittee must include in the SWMP a description of the mechanism(s) that will be utilized to comply with each of the elements required in Part I.D.5.a.(i) throughout Part I.D.5.a.(v), including description of each individual BMP (both structural or non-structural) or source control measures and its corresponding measurable goal.

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report. The permittee must include in each annual report:

(a) A summary of the frequency of site reviews, inspections and enforcement activities that are conducted annually and cumulatively during the permit term.

(b) The number of plans that had the opportunity to implement GI/LID/Sustainable practices and how many incorporated the practices.

Program Flexibility Elements

(viii) The permittee may use storm water educational materials locally developed or provided by the EPA (refer to http://water.epa.gov/polwaste/npdes/swbmp/index.cfm, http://www.epa.gov/smartgrowth/parking.htm, http://www.epa.gov/smartgrowth/stormwater.htm), the NMED, environmental, public interest or trade organizations, and/or other MS4s.

(ix) The permittee may develop or update existing construction handbooks (e.g., the COA NPDES Stormwater Management Guidelines for Construction and Industrial Activities Handbook) to be consistent with promulgated construction and development effluent limitation guidelines.

(x) The construction site inspections required in Part I.D.5.a.(iii) may be carried out in conjunction with the permittee's building code inspections using a screening prioritization process.

Table 2. Construction Site Stormwater Runoff Control - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of the permit
Develop requirements and procedures as required in Part I.D.5.a.(ii)(b) through in Part I.D.5.a.(ii)(h)	Ten (10) months from effective date of permit	Thirteen (13) months from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.5.a.(iii)	Ten (10) months from effective date of permit	Start Thirteen (13) months from effective date of permit and annually thereafter	Start Sixteen (16) months from effective date of permit and annually thereafter	Start eighteen (18) months from effective date of permit and thereafter	Start two (2) years from effective date of permit and thereafter
Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.a.(iv)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.5.a.(v)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.a.(vi) and in Part I.D.5.a.(vii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(x)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

b. Post-Construction Stormwater Management in New Development and Redevelopment

(i) The permittee must 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, that discharge into the MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs, updating as necessary, to comply with the requirements of this permit**. (Note: Highway Departments and Flood Control Authorities may only apply the post-construction stormwater management program to the permittee's own construction projects)

(ii) The program must include the development, implementation, and enforcement of, at a minimum:

(a) Strategies which include a combination of structural and/or non-structural best management practices (BMPs) to control pollutants in stormwater runoff.

(b) An ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law. The ordinance or policy must:

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, through stormwater controls that infiltrate, evapotranspire the discharge volume, except in instances where full compliance cannot be achieved, as provided in Part I.D.5.b.(v). The stormwater from rooftop discharge may be harvested and used on-site for non-commercial use. Any controls utilizing impoundments that are also used for flood control that are located in areas where the New Mexico Office of the State Engineer requirements at NMAC 19.26.2.15 (see also Section 72-5-32 NMSA) apply must drain within 96 hours unless the state engineer has issued a waiver to the owner of the impoundment.

Options to implement the site design standard include, but not limited to: management of the discharge volume achieved by canopy interception, soil amendments, rainfall harvesting, rain tanks and cisterns, engineered infiltration, extended filtration, dry swales, bioretention, roof top disconnections, permeable pavement, porous concrete, permeable pavers, reforestation, grass channels, green roofs and other appropriate techniques, and any combination of these practices, including implementation of other stormwater controls used to reduce pollutants in stormwater (e.g., a water quality facility).

Estimation of the 90th or 80th percentile storm event discharge volume is included in EPA Technical Report entitled "*Estimating Predevelopment Hydrology in the Middle Rio Grande Watershed, New Mexico, EPA Publication Number 832-R-14-007*". Permittees can also estimate:

Option A: a site specific 90th or 80th percentile storm event discharge volume using methodology specified in the referenced EPA Technical Report.

Option B: a site specific pre-development hydrology and associated storm event discharge volume using methodology specified in the referenced EPA technical Report.

(c) The permittee must ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with preconstruction BMP design; failure to construct BMPs

in accordance with the agreed upon pre-construction design; and ineffective post-construction operation and maintenance of BMPs;

(d) The permittee must ensure that the post-construction program requirements are constantly reviewed and revised as appropriate to incorporate improvements in control techniques;

(e) Procedure to develop and implement an educational program for project developers regarding designs to control water quality effects from stormwater, and a training program for plan review staff regarding stormwater standards, site design techniques and controls, including training regarding GI/LID/Sustainability practices. Training may be developed independently or obtained from outside resources, i.e. federal, state, or local experts;

(f) Procedures for site inspection and enforcement to ensure proper long-term operation, maintenance, and repair of stormwater management practices that are put into place as part of construction projects/activities. Procedure(s) shall include the requirement that as-built plans be submitted within ninety (90) days of completion of construction projects/activities that include controls designed to manage the stormwater associated with the completed site (post-construction stormwater management). Procedure(s) may include the use of dedicated funds or escrow accounts for development projects or the adoption by the permittee of all privately owned control measures. This may also include the development of maintenance contracts between the owner of the control measure and the permittee. The maintenance contract shall include verification of maintenance practices by the owner, allows the MS4 owner/operator to inspect the maintenance practices, and perform maintenance if inspections indicate neglect by the owner;

(g) Procedures to control the discharge of pollutants related to commercial application and distribution of pesticides, herbicides, and fertilizers where permittee(s) hold jurisdiction over lands not directly owned by that entity (e.g., incorporated city). The procedures must ensure that herbicides and pesticides applicators doing business within the permittee's jurisdiction have been properly trained and certified, are encouraged to use the least toxic products, and control use and application rates according to the applicable requirements; and

(h) Procedure or system to review and update, as necessary, the existing program to ensure that stormwater controls or management practices for new development and redevelopment projects/activities continue to meet the requirements and objectives of the permit.

(iii) The permittee must coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private new development and redevelopment projects/activities within the permit area to ensure the hydrology associated with new development and redevelopment sites mimic to the extent practicable the pre-development hydrology of the previously undeveloped site, except in instances where the pre-development hydrology requirement conflicts with applicable water rights appropriation requirements. For purposes of this permit, pre-development hydrology shall be met by capturing the 90th percentile storm event runoff (consistent with any limitations on that capture) which under undeveloped natural conditions would be expected to infiltrate or evapotranspirate on-site and result in little, if any, off-site runoff. (Note: This permit does not prevent permittees from requiring additional controls for flood control purposes.) Planning documents include, but are not limited to: comprehensive or master plans, subdivision ordinances, general land use plan, zoning code, transportation master plan, specific area plans, such as sector plan, site area plans, corridor plans, or unified development ordinances.

(iv) The permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices. The assessment shall include a list of the identified impediments, necessary regulation changes, and recommendations and proposed schedules to incorporate policies and standards to relevant documents and procedures to maximize infiltration, recharge, water harvesting, habitat improvement, and hydrological management of stormwater runoff as allowed under the applicable water rights appropriation requirements. The permittee must develop a report of the assessment findings, which is to be used to provide information to the permittee, of the regulation changes necessary to remove impediments and allow implementation of these practices.

(v) Alternative Compliance for Infeasibility due to Site Constrains:

(a) Infeasibility to manage the design standard volume specified in Part I(D)(5)(b)(ii)(b), or a portion of the design standard volume, onsite may result from site constraints including the following:

A. too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils;

B. soil instability as documented by a thorough geotechnical analysis;

C. a site use that is inconsistent with capture and reuse of storm water;

D. other physical conditions; or,

E. to comply with applicable requirements for on-site flood control structures leaves insufficient area to meet the standard.

(b) A determination that it is infeasible to manage the design standard volume specified in Part I.D.5.b.(ii)(b), or a portion of the design standard volume, on site may not be based solely on the difficulty or cost of implementing onsite control measures, but must include multiple criteria that rule out an adequate combination of the practices set forth in Part I.D,5.b.(v).

(c) This permit does not prevent imposition of more stringent requirements related to flood control. Where both the permittee's site design standard ordinance or policy and local flood control requirements on site cannot be met due to site conditions, the standard may be met through a combination of on-site and off-site controls.

(d) Where applicable New Mexico water law limits the ability to fully manage the design standard volume on site, measures to minimize increased discharge consistent with requirements under New Mexico water law must still be implemented.

(e) In instances where an alternative to compliance with the standard on site is chosen, technical justification as to the infeasibility of on-site management of the entire design standard volume, or a portion of the design standard volume, is required to be documented by submitting to the permittee a site-specific hydrologic and/or design analysis conducted and endorsed by a registered professional engineer, geologist, architect, and/or landscape architect.

(f) When a Permittee determines a project applicant has demonstrated infeasibility due to site constraints specified in Part I.D.5.b.(v) to manage the design standard volume specified in Part I.D.5.b.(ii).(b) or a portion of the design standard volume on-site, the Permittee shall require one of the following mitigation options:

A. Off-site mitigation. The off-site mitigation option only applies to redevelopment sites and cannot be applied to new development. Management of the standard volume, or a portion of the volume, may be implemented at another location within the MS4 area, approved by the permittee. The permittee shall identify priority areas within the MS4 in which mitigation projects can be completed. The permittee shall determine who will be responsible for long-term maintenance on off-site mitigation projects.

B. Ground Water Replenishment Project: Implementation of a project that has been determined to provide an opportunity to replenish regional ground water supplies at an offsite location.

C. Payment in lieu. Payment in lieu may be made to the permittee, who will apply the funds to a public stormwater project. MS4s shall maintain a publicly accessible database of approved projects for which these payments may be used.

D. Other. In a situation where alternative options A through C above are not feasible and the permittee wants to establish another alternative option for projects, the permitte may submit to the EPA for approval, the alternative option that meets the standard.

(vi) The permittee must estimate the number of acres of impervious area (IA) and directly connected impervious area (DCIA). For the purpose of his part, IA includes conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops. DCIA is the portion of IA with a direct hydraulic connection to the permittee's MS4 or a waterbody via continuous paved surfaces, gutters, pipes, and other impervious features. DCIA typically does not include isolated impervious areas with an indirect hydraulic connection to the MS4 (e.g., swale or detention basin) or that otherwise drain to a pervious area.

(vii) The permittee must develop an inventory and priority ranking of MS4-owned property and infrastructure (including public right-of-way) that may have the potential to be retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges to and from its MS4. In determining the potential for retrofitting, the permittee shall consider factors such as the complexity and cost of implementation, public safety, access for maintenance purposes, subsurface geology, depth to water table, proximity to aquifers and subsurface infrastructure including sanitary sewers and septic systems, and opportunities for public use and education under the applicable water right requirements and restrictions. In determining its priority ranking, the permittee shall consider factors such as schedules for planned capital improvements to storm and sanitary sewer infrastructure and paving projects; current storm sewer level of service and control of discharges to impaired waters, streams, and critical receiving water (drinking water supply sources);

(viii) The permittee must incorporate watershed protection elements into relevant policy and/or planning documents as they come up for regular review. If a relevant planning document is not scheduled for review during the term of this permit, the permittee must identify the elements that cannot be implemented until that document is revised, and provide to EPA and NMED a schedule for incorporation and implementation not to exceed five years from the effective date of this permit. As applicable to each permittee's MS4 jurisdiction, policy and/or planning documents must include the following:

(a) A description of master planning and project planning procedures to control the discharge of pollutants to and from the MS4.

(b) Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by controlling the unnecessary creation, extension and widening of impervious parking lots, roads and associated development. The permittee may evaluate the need to add impervious surface on a case-by-case basis and seek to identify alternatives that will meet the need without creating the impervious surface.

(c) Identify environmentally and ecologically sensitive areas that provide water quality benefits and serve critical watershed functions within the MS4 and ensure requirements to preserve, protect, create and/or restore these areas are developed and implemented during the plan and design phases of projects in these identified areas. These areas may include, but are not limited to critical watersheds, floodplains, and areas with endangered species concerns and historic properties. Stakeholders shall be consulted as appropriate.

(d) Implement stormwater management practices that minimize water quality impacts to streams, including disconnecting direct discharges to surface waters from impervious surfaces such as parking lots.

(e) Implement stormwater management practices that protect and enhance groundwater recharge as allowed under the applicable water rights laws.

(f) Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges.

(g) Develop and implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.

(h) The program must be specifically tailored to address local community needs (e.g. protection to drinking water sources, reduction of water quality impacts) and must be designed to attempt to maintain pre-development runoff conditions.

(ix) The permittee must update the SWMP as necessary to include a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.b.(i) throughout Part I.D.5.b.(viii) as well as the citations and descriptions of design standards for structural and non-structural controls to control pollutants in stormwater runoff, including discussion of the methodology used during design for estimating impacts to water quality and selecting structural and non-structural controls. Description of measurable goals for each BMP (structural or non-structural) or each stormwater control must be included in the SWMP.

(x) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report. The following information must be included in each annual report:

(a) Include a summary and analysis of all maintenance, inspections and enforcement, and the number and frequency of inspections performed annually.

(b) A cumulative listing of the annual modifications made to the Post-Construction Stormwater Management Program during the permit term, and a cumulative listing of annual revisions to administrative procedures made or ordinances enacted during the permit term.

(c) According to the schedule presented in the Program Development and Implementation Schedule in Table 3, the permittee must

A. Report the number of MS4-owned properties and infrastructure that have been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges. The permittee may also include in its annual report non-MS4 owned property that has been retrofitted with control measures designed to control the frequency, volume, and peak intensity of stormwater discharges.

B. As required in Part I.D.5.b.(vi), report the tabulated results for IA and DCIA and its estimation methodology. In each subsequent annual report, the permittee shall estimate the number of acres of IA and DCIA that have been added or removed during the prior year. The permittee shall include in its estimates the additions and reductions resulting from development, redevelopment, or retrofit projects undertaken directly by the permittee; or by private developers and other parties in a voluntary manner on in compliance with the permittee's regulations.

Program Flexibility Elements:

(xi) The permittee may use storm water educational materials locally developed or provided by EPA (refer to http://water.epa.gov/polwaste/npdes/swbmp/index.cfm, http://www.epa.gov/smartgrowth/parking.htm, and http://www.epa.gov/smartgrowth/stormwater.htm); the NMED; environmental, public interest or trade organizations; and/or other MS4s.

(xii) When choosing appropriate BMPs, the permittee may participate in locally-based watershed planning efforts, which attempt to involve a diverse group of stakeholders including interested citizens. When developing a program that is consistent with this measure's intent, the permittee may adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures.

(xiii) The permittee may incorporate the following elements in the Post-Construction Stormwater Management in New Development and Redevelopment program required in Part I.D.5.b.(ii)(b):

(a) Provide requirements and standards to direct growth to identified areas to protect environmentally and ecologically sensitive areas such as floodplains and/or other areas with endangered species and historic properties concerns;

(b) Include requirements to maintain and/or increase open space/buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; and

(c) Encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure.

Table 3. Post-Construction Stormwater Management in New Development and Redevelopment - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Development of strategies as required in Part I.D.5.b.(ii).(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Twelve (12) months from effective date of permit	Twelve (12) months from effective date of permit	Fourteen (14) months from effective date of permit
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii).(b)	Twenty (24) months from effective date of permit	Thirty (30) months from effective date of permit	Thirty six (36) months from effective date of permit	Thirty six (36) months from effective date of permit	Thirty six (36) months from effective date of permit
Implementation and enforcement, via the ordinance or other regulatory mechanism, of site design standards as required in Part I.D.5.b.(ii).(b)	Within thirsty six (36) months from effective date of the permit	Within forty two (42) months from the effective date of the permit	Within forty eight (48) months from effective date of the permit	Within forty eight (48) months from effective date of the permit	Within forty eight (48) months from effective date of the permit
Ensure appropriate implementation of structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop procedures as required in Part I.D.5.b.(ii).(e), Part I.D.5.b.(ii).(f), Part I.D.5.b.(ii).(g), and Part I.D.5.b.(ii).(h)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit

Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.b.(iii)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	One (1) year from effective date of permit
As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit
As required in Part I.D.5.b.(iv), develop and submit a report of the assessment findings on GI/LID/Sustainable practices.	Eleven (11) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Twenty seven (27) months from effective date of permit
Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Inventory and priority ranking as required in section in Part I.D.5.b.(vii)	Within fifteen (15) months from effective date of the permit	Within twenty four (24) months from effective date of the permit	Within thirty six (36) months from effective date of the permit	Within thirty six (36) months from effective date of the permit	Within forty two (42) months from effective date of the permit
Incorporate watershed protection elements as required in Part I.D.5.b.(viii)	Ten (10) months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.b.(ix) and Part I.D.5.b.(x).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.b.(xi) and Part I.D.5.b.(xii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

c. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations.

(i) The permittee must develop, revise and implement an operation and maintenance program that includes a training component and the ultimate goal of preventing or reducing pollutant runoff from municipal operations. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**. The program must include:

(a) Development and implementation of an employee training program to incorporate pollution prevention and good housekeeping techniques into everyday operations and maintenance activities. The employee training program must be designed to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. The permittee must also develop a tracking procedure and ensure that employee turnover is considered when determining frequency of training;

(b) Maintenance activities, maintenance schedules, and long term inspections procedures for structural and non-structural storm water controls to reduce floatable, trash, and other pollutants discharged from the MS4.

(c) Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, snow disposal areas operated by the permittee, and waste transfer stations;

(d) Procedures for properly disposing of waste removed from the separate storm sewers and areas listed in Part I.D.5.c.(i).(c) (such as dredge spoil, accumulated sediments, floatables, and other debris); and

(e) Procedures to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices.

Note: The permittee may use training materials that are available from EPA, NMED, Tribe, or other organizations.

(ii) The Pollution Prevention/Good Housekeeping program must include the following elements:

(a) Develop or update the existing list of all stormwater quality facilities by drainage basin, including location and description;

(b) Develop or modify existing operational manual for de-icing activities addressing alternate materials and methods to control impacts to stormwater quality;

(c) Develop or modify existing program to control pollution in stormwater runoff from equipment and vehicle maintenance yards and maintenance center operations located within the MS4;

(d) Develop or modify existing street sweeping program. Assess possible benefits from changing frequency or timing of sweeping activities or utilizing different equipment for sweeping activities;

(e) A description of procedures used by permittees to target roadway areas most likely to contribute pollutants to and from the MS4 (i.e., runoff discharges directly to sensitive receiving water, roadway receives majority of de-icing material, roadway receives excess litter, roadway receives greater loads of oil and grease);

(f) Develop or revise existing standard operating procedures for collection of used motor vehicle fluids (at a minimum oil and antifreeze) and toxics (including paint, solvents, fertilizers, pesticides, herbicides,

and other hazardous materials) used in permittee operations or discarded in the MS4, for recycle, reuse, or proper disposal;

(g) Develop or revised existing standard operating procedures for the disposal of accumulated sediments, floatables, and other debris collected from the MS4 and during permittee operations to ensure proper disposal;

(h) Develop or revised existing litter source control programs to include public awareness campaigns targeting the permittee audience; and

(i) Develop or review and revise, as necessary, the criteria, procedures and schedule to evaluate existing flood control devices, structures and drainage ways to assess the potential of retrofitting to provide additional pollutant removal from stormwater. Implement routine review to ensure new and/or innovative practices are implemented where applicable.

(j) Enhance inspection and maintenance programs by coordinating with maintenance personnel to ensure that a target number of structures per basin are inspected and maintained per quarter;

(k) Enhance the existing program to control the discharge of floatables and trash from the MS4 by implementing source control of floatables in industrial and commercial areas;

(l) Include in each annual report, a cumulative summary of retrofit evaluations conducted during the permit term on existing flood control devices, structures and drainage ways to benefit water quality. Update the SWMP to include a schedule (with priorities) for identified retrofit projects;

(m) Flood management projects: review and revise, as necessary, technical criteria guidance documents and program for the assessment of water quality impacts and incorporation of water quality controls into future flood control projects. The criteria guidance document must include the following elements:

A. Describe how new flood control projects are assessed for water quality impacts.

B. Provide citations and descriptions of design standards that ensure water quality controls are incorporated in future flood control projects.

C. Include method for permittees to update standards with new and/or innovative practices.

D. Describe master planning and project planning procedures and design review procedures.

(n) Develop procedures to control the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied, by the permittee's employees or contractors, to public right-of-ways, parks, and other municipal property. The permittee must provide an updated description of the data monitoring system for all permittee departments utilizing pesticides, herbicides and fertilizers.

(iii) Comply with the requirements included in the EPA Multi Sector General Permit (MSGP) to control runoff from industrial facilities (as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi)) owned or operated by the permittees and ultimately discharge to the MS4. The permittees must develop or update:

(a) A list of municipal/permittee operations impacted by this program,

(b) A map showing the industrial facilities owned and operated by the MS4,

(c) A list of the industrial facilities (other than large construction activities defined as industrial activity) that will be included in the industrial runoff control program by category and by basin. The list must include the permit authorization number or a MSGP NOI ID for each facility as applicable.

(iv) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.c.(i) throughout Part I.D.5.c.(iii) and its corresponding measurable goal.

(v) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 4. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
-Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Eighteen (18) months from effective date of the permit
-Enhance the program to include the elements in Part I.D.5.c.(ii)	Ten (10) months from effective date of the permit	One (1) year from effective date of the permit	Two (2) years from effective date of the permit	Two (2) years from effective date of the permit	Thirty (30) months from effective date of the permit
-Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.c.(iv) and Part I.D.5.c.(v)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs (**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

d. Industrial and High Risk Runoff (Applicable only to Class A permittees)

(i) The permittee must control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi). If no such industrial activities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.

(ii) The permittee must continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report. The program shall include:

(a) A description of a program to identify, monitor, and control pollutants in stormwater discharges to the MS4 from municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.); hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee(s) determines are contributing a substantial pollutant loading to the

MS4. (Note: If no such facilities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.); and

(b) Priorities and procedures for inspections and establishing and implementing control measures for such discharges.

(iii) Permittees must comply with the monitoring requirements specified in Part III.A.4;

(iv) The permittee must modify the following as necessary:

(a) The list of the facilities included in the program, by category and basin;

(b) Schedules and frequency of inspection for listed facilities. Facility inspections may be carried out in conjunction with other municipal programs (e.g. pretreatment inspections of industrial users, health inspections, fire inspections, etc.), but must include random inspections for facilities not normally visited by the municipality;

(c) The priorities for inspections and procedures used during inspections (e.g. inspection checklist, review for NPDES permit coverage; review of stormwater pollution prevention plan; etc.); and

(d) Monitoring frequency, parameters and entity performing monitoring and analyses (MS4 permittees or subject facility). The monitoring program may include a waiver of monitoring for parameters at individual facilities based on a "no-exposure" certification;

(v) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.d.(i) throughout Part I.D.5.d.(iv) and its corresponding measurable goal.

(vi) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Program Flexibility Elements:

(vii) The permittee may:

(a) Use analytical monitoring data, on a parameter-by-parameter basis, that a facility has collected to comply with or apply for a State or NPDES discharge permit (other than this permit), so as to avoid unnecessary cost and duplication of effort;

(b) Allow the facility to test only one (1) outfall and to report that the quantitative data also apply to the substantially identical outfalls if:

A. A Type 1 or Type 2 industrial facility has two (2) or more outfalls with substantially identical effluents, and

B. Demonstration by the facility that the stormwater outfalls are substantially identical, using one (1) or all of the following methods for such demonstration. The NPDES Stormwater Sampling Guidance Document (EPA 833-B-92-001), available on EPA's website at provides detailed guidance on each of the three options: (1) submission of a narrative description and a site map; (2) submission of matrices; or (3) submission of model matrices.

(c) Accept a copy of a "no exposure" certification from a facility made to EPA under 40 CFR §122.26(g), in lieu of analytic monitoring.

Table 5: Industrial and High Risk Runoff - Program Development and Implementation Schedules:

Activity	**Permittee Class**	
	A **Phase I MS4s**	**Cooperative (*)** **Any Permittee with cooperative programs**
Ordinance (or other control method) as required in Part I.D.5.d.(i)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report as required in Part I.D.5.d.(ii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Meet the monitoring requirements in Part I.D.5.d.(iii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Include requirements in Part I.D.5.d.(iv)	Ten (10) months from permit effective date of the permit	Twelve (12) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.d.(v) and Part I.D.5.d.(vi)	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.d.(vii)	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs. Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

e. Illicit Discharges and Improper Disposal

(i) The permittee shall develop, revise, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) entering the MS4. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**. The permittee must:

(a) Develop, if not already completed, a storm sewer system map, showing the names and locations of all outfalls as well as the names and locations of all waters of the United States that receive discharges from those outfalls. Identify all discharges points into major drainage channels draining more than twenty (20) percent of the MS4 area;

(b) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into the MS4, and implement appropriate enforcement procedures and actions;

(c) Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumpling, to the MS4. The permittee must include the following elements in the plan:

A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, *E. coli*, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather;

B. Procedures for enforcement, including enforcement escalation procedures for recalcitrant or repeat offenders;

C. Procedures for removing the source of the discharge;

D. Procedures for program evaluation and assessment; and

E. Procedures for coordination with adjacent municipalities and/or state, tribal, or federal regulatory agencies to address situations where investigations indicate the illicit discharge originates outside the MS4 jurisdiction.

(d) Develop an education program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials. The permittee shall inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste.

(e) Establish a hotline to address complaints from the public.

(f) Investigate suspected significant/severe illicit discharges within forty-eight (48) hours of detection and all other discharges as soon as practicable; elimination of such discharges as expeditiously as possible; and, requirement of immediate cessation of illicit discharges upon confirmation of responsible parties.

(g) Review complaint records for the last permit term and develop a targeted source reduction program for those illicit discharge/improper disposal incidents that have occurred more than twice in two (2) or more years from different locations. (Applicable only to class A and B permittees)

(h) If applicable, implement the program using the priority ranking develop during last permit term

(ii) The permittee shall address the following categories of non-stormwater discharges or flows (e.g., illicit discharges) only if they are identified as significant contributors of pollutants to the MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(90)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

Note: Discharges or flows from fire fighting activities are excluded from the effective prohibitions against non-stormwater and need only be addressed where they are identified a significant sources of pollutants to water of the United States).

(iii) The permittee must screen the entire jurisdiction at least once every five (5) years and high priority areas at least once every year. High priority areas include any area where there is ongoing evidence of illicit discharges or dumping, or where there are citizen complaints on more than five (5) separate events within twelve (12) months. The permittee must:

(a) Include in its SWMP document a description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected.

(b) Comply with the dry weather screening program established in Table 6 and the monitoring requirements specified in Part III.A.2.

(c) If applicable, implement the priority ranking system develop in previous permit term.

(iv) Waste Collection Programs: The permittee must develop, update, and implement programs to collect used motor vehicle fluids (at a minimum, oil and antifreeze) for recycle, reuse, or proper disposal, and to collect household hazardous waste materials (including paint, solvents, fertilizers, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. Where available, collection programs operated by third parties may be a component of the programs. Permittees shall enhance these programs by establishing the following elements as a goal in the SWMP:

A. Increasing the frequency of the collection days hosted;

B. Expanding the program to include commercial fats, oils and greases; and

C. Coordinating program efforts between applicable permittee departments.

(v) Spill Prevention and Response. The permittee must develop, update and implement a program to prevent, contain, and respond to spills that may discharge into the MS4. The permittees must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit. The Spill Prevention and Response program shall include:

(a) Where discharge of material resulting from a spill is necessary to prevent loss of life, personal injury, or severe property damage, the permittee(s) shall take, or insure the party responsible for the spill takes, all reasonable steps to control or prevent any adverse effects to human health or the environment: and

(b) The spill response program may include a combination of spill response actions by the permittee (and/or another public or private entity), and legal requirements for private entities within the permittee's municipal jurisdiction.

(vi) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.e.(i) throughout Part I.D.5.e.(v) and its corresponding measurable goal. A description of the means, methods, quality assurance and controls protocols, and schedule for successfully implementing the required screening, field monitoring, laboratory analysis, investigations, and analysis evaluation of data collected

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

(viii) The permittee must expeditiously revise as necessary, within nine (9) months from the effective date of the permit, the existing permitting/certification program to ensure that any entity applying for the use of Right of Way implements controls in their construction and maintenance procedures to control pollutants entering the MS4. (Only applicable to NMDOT)

Program Flexibility Elements

(ix) The permittee may:

(a) Divide the jurisdiction into assessment areas where monitoring at fewer locations would still provide sufficient information to determine the presence or absence of illicit discharges within the larger area;

(b) Downgrade high priority areas after the area has been screened at least once and there are citizen complaints on no more than five (5) separate events within a twelve (12) month period;

(c) Rely on a cooperative program with other MS4s for detection and elimination of illicit discharges and illegal dumping;

(d) If participating in a cooperative program with other MS4s, required detection program frequencies may be based on the combined jurisdictional area rather than individual jurisdictional areas and may use assessment areas crossing jurisdictional boundaries to reduce total number of screening locations (e.g., a shared single screening location that would provide information on more than one jurisdiction); and

(e) After screening a non-high priority area once, adopt an "in response to complaints only" IDDE for that area provided there are citizen complaints on no more than two (2) separate events within a twelve (12) month period.

(f) Enhance the program to utilize procedures and methodologies consistent with those described in "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments."

Table 6. Illicit Discharges and Improper Disposal - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census ***)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Mapping as required in Part I.D.5.e.(i)(a)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Fourteen (14) months from effective date of permit
Ordinance (or other control method) as required in Part I.D.5.e.(i)(b)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop and implement a IDDE plan as required in Part I.D.5.e.(i)(c)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop an education program as required in Part I.D.5.e.(i)(d)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Establish a hotline as required in Part I.D.5.e.(i)(e)	Update as necessary	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i)(f)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i)(g)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	N/A	N/A	One (1) year from effective date of permit

Screening of system as required in Part I.D.5.e.(iii) as follows: a.) High priority areas**	1 / year	1 / year	1 / year	1 / year	1 / year
b.) Whole system	-Screen 20% of the MS4 per year	- Screen 20% of the MS4 per year	-Years 1 – 2: develop procedures as required in Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 2: develop procedures as required Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 3: develop procedures as require in Part I.D.5.e.(i)(c) -Year 4: screen 30% of the MS4 -Year 5: screen 70% of the MS4
Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv)	Ten (10) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v)	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.e.(iii), Part I.D.5.e.(vi), and Part I.D.5.e.(vii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.e.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) High priority areas include any area where there is ongoing evidence of illicit discharges or dumpling, or where there are citizen complaints on more than five (5) separate events within twelve (12) months
(***) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

f. Control of Floatables Discharges

(i) The permittee must develop, update, and implement a program to address and control floatables in discharges into the MS4. The floatables control program shall include source controls and, where necessary, structural controls. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit.** The following elements must be included in the program:

(a) Develop a schedule for implementation of the program to control floatables in discharges into the MS4 (Note: AMAFCA and the City of Albuquerque should update the schedule according to the findings of the 2005 AMAFCA/COA Floatable and Gross Pollutant Study and other studies); and

(b) Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type.

(ii) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.f.(i).

(iii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 7. Control of Floatables Discharges - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
- Develop a schedule to implement the program as required in Part I.D.5.f.(i)(a)	Ten (10) months from the effective date of the permit	Ten (10) months from the effective date of the permit	One (1) year from the effective date of the permit	One (1) year from the effective date of the permit	Eighteen (18) months from the effective date of the permit
-Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i)(b)	Ten (10) months from the effective date of the permit	One (1) year from the effective date of the permit	Two (2) years from the effective date of the permit	Two (2) years from the effective dae of the permit	Thirty (30) months from the effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.f.(ii) and Part I.D.5.f.(iii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

g. Public Education and Outreach on Stormwater Impacts

(i) The permittee shall, individually or cooperatively, develop, revise, implement, and maintain a comprehensive stormwater program to educate the community, employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater discharges on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater. **Permittees previously covered under NMS000101 and NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit**.

(ii) The permittee must implement a public education program to distribute educational knowledge to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. The permittee must:

(a) Define the goals and objectives of the program based on high priority community-wide issues;

(b) Develop or utilize appropriate educational materials, such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, and websites;

(c) Inform individuals and households about ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes;

(d) Inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups;

(e) Use tailored public education program, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed cleanups; and

(f) Use materials or outreach programs directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. The permittee may tailor the outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children. The permittee must make information available for non-English speaking residents, where appropriate.

(iii) The permittee must include the following information in the Stormwater Management Program (SWMP) document:

(a) A description of a program to promote, publicize, facilitate public reporting of the presence of illicit discharges or water quality associated with discharges from municipal separate storm sewers;

(b) A description of the education activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and

(c) A description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.g.(i) and Part I.D.5.g.(ii) and its corresponding measurable goal.

(iv) The permittee must assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the Annual Report.

Program Flexibility Elements

(v) Where necessary to comply with the Minimum Control Measures established in Part I.D.5.g.(i) and Part I.D.5.g.(ii), the permittee should develop a program or modify/revise an existing education and outreach program to:

(a) Promote, publicize, and facilitate the use of Green Infrastructure (GI)/Low Impact Development (LID)/Sustainability practices; and

(b) Include an integrated public education program (including all permittee departments and programs within the MS4) regarding litter reduction, reduction in pesticide/herbicide use, recycling and proper

disposal (including yard waste, hazardous waste materials, and used motor vehicle fluids), and GI/LID/Sustainable practices (including xeriscaping, reduced water consumption, water harvesting practices allowed by the New Mexico State Engineer Office).

(vi) The permittee may collaborate or partner with other MS4 operators to maximize the program and cost effectiveness of the required outreach.

(vii) The education and outreach program may use citizen hotlines as a low-cost strategy to engage the public in illicit discharge surveillance.

(viii) The permittee may use stormwater educational materials provided by the State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The permittee may also integrate the education and outreach program with existing education and outreach programs in the Middle Rio Grande area. Example of existing programs include:

(a) Classroom education on stormwater;

A. Develop watershed map to help students visualize area impacted.

B. Develop pet-specific education

(b) Establish a water committee/advisor group;

(c) Contribute and participate in Stormwater Quality Team;

(d) Education/outreach for commercial activities;

(e) Hold regular employee trainings with industry groups

(f) Education of lawn and garden activities;

(g) Education on sustainable practices;

(h) Education/outreach of pet waste management;

(i) Education on the proper disposal of household hazardous waste;

(j) Education/outreach programs aimed at minority and disadvantaged communities and children;

(k) Education/outreach of trash management;

(l) Education/outreach in public events;

A. Participate in local events—brochures, posters, etc.

B. Participate in regional events (i.e., State Fair, Balloon Fiesta).

(m) Education/outreach using the media (e.g. publish local newsletters);

(n) Education/outreach on water conservation practices designed to reduce pollutants in storm water for home residences.

Table 8. Public Education and Outreach on Stormwater Impacts - Program Development and Implementation Schedules

Activity	Permittee Class				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii)	Ten (10) months from the effective date of the permit	Eleven (11) months from the effective date of the permit	Twelve (12) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.g.(iii) and Part I.D.5.g.(iv)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

h. Public Involvement and Participation

(i) The permittee must provide local public notice of and make available for public review a copy of the complete NOI and attachments (see Part I.B.2). Local public notice may be made by newspaper notice, notice at a council meeting, posting on the internet, or other method consistent with state/tribal/local public notice requirements.

The permittee must consider all public comments received during the public notice period and modify the NOI, or include a schedule to modify the SWMP, as necessary, or as required by the Director modify the NOI or/and SWMP in response to such comments. The Permittees must include in the NOI any unresolved public comments and the MS4's response to these comments. Responses provided by the MS4 will be considered as part of EPA's decision-making process. See also Appendix E Providing Comments or Requesting a Public Hearing on an Operator's NOI.

(ii) The permittee shall develop, revise, implement and maintain a plan to encourage public involvement and provide opportunities for participation in the review, modification and implementation of the SWMP; develop and implement a process by which public comments to the plan are received and reviewed by the person(s) responsible for the SWMP; and, make the SWMP available to the public and to the operator of any MS4 or Tribal authority receiving discharges from the MS4. **Permittee previously covered under NMS000101 or NMR040000 must continue existing public involvement and participation programs while updating those programs, as necessary, to comply with the requirements of this permit**.

(iii) The plan required in Part I.D.5.h.(ii) shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The permittee must include the following elements in the plan:

(a) A detailed description of the general plan for informing the public of involvement and participation opportunities, including types of activities; target audiences; how interested parties may access the SWMP; and how the public was involved in development of the SWMP;

(b) The development and implementation of at least one (1) assessment of public behavioral change following a public education and/or participation event;

(c) A process to solicit involvement by environmental groups, environmental justice communities, civic organizations or other neighborhoods/organizations interested in water quality-related issues, including but not limited to the Middle Rio Grande Water Quality Work Group, the Middle Rio Grande Bosque Initiative, the Middle Rio Grande Endangered Species Act Collaborative Program, the Middle Rio Grande-Albuquerque Reach Watershed Group, the Pueblos of Santa Ana, Sandia and Isleta, Albuquerque Bernalillo County Water Utility Authority, UNM Colleges and Schools, and Chartered Student Organizations; and

(d) An evaluation of opportunities to utilize volunteers for stormwater pollution prevention activities and awareness throughout the area.

(iv) The permittee shall comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.

(v) The public participation process must reach out to all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts.

(vi) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Parts I.D.5.h.(i) throughout Part I.D.5.h.(iv) and its corresponding measurable goal.

(vii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

(viii) The permittee must provide public accessibility of the Storm Water Management Program (SWMP) document and Annual Reports online via the Internet and during normal business hours at the MS4 operator's main office, a local library, posting on the internet and/or other readily accessible location for public inspection and copying consistent with any applicable federal, state, tribal, or local open records requirements. Upon a showing of significant public interest, the MS4 operator is encouraged to hold a public meeting (or include in the agenda of in a regularly scheduled city council meeting, etc.) on the NOI, SWMP, and Annual Reports. (See Part III B)

Program Flexibility Elements

(ix) The permittee may integrate the public Involvement and participation program with existing education and outreach programs in the Middle Rio Grande area. Example of existing programs include: Adopt-A-Stream Programs; Attitude Surveys; Community Hotlines (e.g. establishment of a "311"-type number and system established to handle storm-water-related concerns, setting up a public tracking/reporting

system, using phones and social media); Revegetation Programs; Storm Drain Stenciling Programs; Stream cleanup and Monitoring program/events.

Table 9. Public Involvement and Participation - *Program Development and Implementation Schedules*

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii) and Part I.D.5.h.(iii)	Ten (10) months from effective date of the permit	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit
Comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	Twelve (12) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit
Include elements as required in Part I.D.5.h.(v)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.h.(vi), Part I.D.5.h.(vii), and Part I.D.5.h.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.h.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

6. **<u>Stormwater Management Program Review and Modification</u>**.

a. <u>Program Review</u>. Permittee shall participate in an annual review of its SWMP in conjunction with preparation of the annual report required in Part III.B. Results of the review shall be discussed in the annual report and shall include an assessment of:

(i) SWMP implementation, progress in achieving measurable goals, and compliance with program elements and other permit conditions;

(ii) the effectiveness of its SWMP, and any necessary modifications, in complying with the permit, including requirements to control the discharge of pollutants, and comply with water quality standards and any applicable approved TMDLs; and the adequacy of staff, funding levels, equipment, and support capabilities to fully implement the SWMP and comply with permit conditions.

(a) Project staffing requirements, in man hours, for the implementation of the MS4 program during the upcoming year.

(b) Staff man hours used during the previous year for implementing the MS4 program. Man hours may be estimated based on staff assigned, assuming a forty (40) hour work week.

b. Program Modification. The permittee(s) may modify its SWMP with prior notification or request to the EPA and NMED in accordance with this section.

(i) Modifications adding, but not eliminating, replacing, or jeopardizing fulfillment of any components, controls, or requirements of its SWMP may be made by the permittee(s) at any time upon written notification to the EPA.

(ii) Modifications replacing or eliminating an ineffective or unfeasible component, control or requirement of its SWMP, including monitoring and analysis requirements described in Parts III.A and V, may be requested in writing at any time. If request is denied, the EPA will send a written explanation of the decision. Modification requests shall include the following:

(a) a description of why the SWMP component is ineffective, unfeasible (including cost prohibitions), or unnecessary to support compliance with the permit;

(b) expectations on the effectiveness of the proposed replacement component; and

(c) an analysis of how the proposed replacement component is expected to achieve the goals of the component to be replaced.

(iii) Modifications resulting from schedules contained in Part VI may be requested following completion of an interim task or final deadline.

(iv) Modification requests or notifications shall be made in writing, signed in accordance with Part IV.H.

c. Program Modifications Required by EPA. Modifications requested by EPA shall be made in writing, set forth the time schedule for the permittee(s) to develop the modifications, and offer the permittee(s) the opportunity to propose alternative program modifications to meet the objective of the requested modification. The EPA may require changes to the SWMP as needed to:

(i) Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;

(ii) Include more stringent requirements necessary to comply with new State or Federal statutory or regulatory requirements;

(iii) Include such other conditions deemed necessary by the EPA to comply with the goals and requirements of the Clean Water Act; or

(iv) If, at any time, EPA determines that the SWMP does not meet permit requirements.

d. Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation: The permittee(s) shall implement the SWMP:

(i) On all new areas added to their portion of the MS4 (or for which they become responsible for implementation of stormwater quality controls) as expeditiously as possible, but not later than one (1) year from addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately;

(ii) Within ninety (90) days of a transfer of ownership, operational authority, or responsibility for SWMP implementation, the permittee(s) shall have a plan for implementing the SWMP on all affected areas. The plan may include schedules for implementation; and information on all new annexed areas and any resulting updates required to the SWMP shall be submitted in the annual report.

7. **Retention of Program Records**. The permittee shall retain SWMP records developed in accordance with Part I.D, Part IV.P, and Part VI for at least five (5) years after coverage under this permit terminates.

8. **Qualifying State, Tribal or Local Program**. The permittee may substitute the BMPs and measurable goals of an existing storm water pollution control program to qualify for compliance with one or more of the minimum control measures if the existing measure meets the requirements of the minimum control measure as established in Part I.D.5

PART II. NUMERIC DISCHARGE LIMITATIONS

A. DISCHARGE LIMITATIONS. Reserved

PART III. MONITORING, ASSESSMENT, AND REPORTING REQUIREMENTS:

A. MONITORING AND ASSESSMENT

The permittee must develop, in consultation with NMED and EPA (and affected Tribes if monitoring locations would be located on Tribal lands), and implement a comprehensive monitoring and assessment program designed to meet the following objectives:

- Assess compliance with this permit;
- Assess the effectiveness of the permittee's stormwater management program;
- 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 MS4; and
- Assess the overall health and evaluate long-term trends in receiving water quality.

The permittee shall be select specific monitoring locations sufficient to assess effects of storm water discharges on receiving waters. The monitoring program may take advantage of monitoring stations/efforts utilized by the permittees or others in previous stormwater monitoring programs or other water quality monitoring efforts. Data collected by others at such stations may be used to satisfy part, or all, of the permit monitoring requirements provided the data collection by that party meets the requirements established in Part III.A.1 throughout Part III.A.5. The comprehensive monitoring and assessment program shall be described in the SWMP document and the results must be provided in each annual report.

Implementation of the comprehensive monitoring and assessment program may be achieved through participation with other permittees to satisfy the requirements of Part III.A.1 throughout Part III.A.5 below in lieu of creating duplicate program elements for each individual permittee.

1. **Wet Weather Monitoring**: The permittees shall conduct wet weather monitoring to gather information on the response of receiving waters to wet weather discharges from the MS4 during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Wet Weather Monitoring shall be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations at each water of the US that runs in each entity or entities' jurisdiction(s). Permittees may choose either Option A or Option B below:

   a. *Option A*: Individual monitoring

      (i) Class A: Perform wet weather monitoring at a location coming into the MS4 jurisdictional area (upstream) and leaving the MS4 jurisdictional area (downstream), see Appendix D. Monitor for TSS, TDS, COD, BOD_5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Phase I permittees must include additional parameters from monitoring conducted under permit NMS000101 (from last 10 years) whose mean values are at or above a WQS. Permittee must sample these pollutants a minimum of 10 events during the permit term with at least 5 events in wet season and 4 events in dry season.

      (ii) Class B, C, and D: Perform wet weather monitoring at a location coming into the MS4 jurisdictional area (upstream) and leaving the MS4 jurisdictional area (downstream), see Appendix D. Monitor for TSS, TDS, COD, BOD_5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and gross alpha. Monitoring of temperature shall be also

conducted at outfalls and/or Rio Grande monitoring locations. If applicable, include additional parameters from monitoring conducted under permits NMR040000 or/and NMR04000I whose mean values are at or above a WQS; sample these pollutants a minimum of 8 events per location during the permit term with at least 4 events in wet season and 2 events in dry season.

b. *Option B*: Cooperative Monitoring Program

Develop a cooperative wet weather monitoring program with other permittees in the Middle Rio Grande watershed (see map in Appendix A). The program will monitor waters coming into the watershed (upstream) and leaving the watershed (downstream), see suggested sampling locations in Appendix D. The program must include sampling for TSS, TDS, COD, BOD5, DO, oil and grease, *E.coli*, pH, total kjeldahl nitrogen, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, total phosphorus, PCBs and Gross alpha. Monitoring of temperature shall be also conducted at outfalls and/or Rio Grande monitoring locations. Permittees must include additional parameters from monitoring conducted under permits NMS000101, NMR040000 or/and NMR04000I whose mean values are at or above a WQS. The monitoring program must sample the pollutants for a minimum of 7 storm events per location during the permit term with at least 3 events wet season and 2 events in dry season.

Note: Seasonal monitoring periods are: Wet Season: July 1 through October 31; Dry Season: November 1 through June 30.

c. Wet weather monitoring shall be performed only when the predicted (or actual) rainfall magnitude of a storm event is greater than 0.25 inches and an antecedent dry period of at least forty-eight (48) hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology will consist of collecting a minimum of four (4) grab samples spaced at a minimum interval of fifteen (15) minutes each (or a flow weighted automatic composite, see Part III.A.5.a.(i)). Individual grab samples shall be preserved and delivered to the laboratory where samples will be combined into a single composite sample from each monitoring location.

d. Monitoring methodology at each MS4 monitoring location shall be collected during any portion of the monitoring location's discharge hydrograph (i.e. first flush, rising limb, peak, and falling limb) after a discernible increase in flow at the tributary inlet.

e. The permittee must comply with the schedules contained in Table 10. The results of the Wet Weather Monitoring must be provided in each annual report.

f. DO, pH, conductivity, and temperature shall be analyzed in the field within fifteen (15) minutes of sample collection.

g. Alternate wet weather monitoring locations established in Part III.A.1.a or Part III.A.1.b may be substituted for just cause during the term of the permit. Requests for approval of alternate monitoring locations shall 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 (except for those with numeric effluent limitations) may commence thirty (30) days from the date of the request. For monitoring locations where numeric effluent limitations have been established, the permit must be modified prior to substitution of alternate monitoring locations. At least six (6) samples shall be collected during the first year of monitoring at substitute monitoring locations. If there are less than six sampleable events, this should be document for reporting purposes.

h. Response to monitoring results: The monitoring program must include a contingency plan for collecting additional monitoring data within the MS4 or at additional appropriate instream locations should monitoring results indicate that MS4 discharges may be contributing to instream exceedances of WQS. The purpose of this additional monitoring effort would be to identify sources of elevated pollutant loadings so they could be addressed by the SWMP.

Table 10. Wet Weather Monitoring Program Implementation Schedules:

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Submit wet weather monitoring preference to EPA (i.e., individual monitoring program vs. cooperative monitoring program) with NOI submittals	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)	NOI submittal Deadline (see Table 1)
Submit a detailed description of the monitoring scheme to EPA and NMED for approval. The monitoring scheme should include: a list of pollutants; a description of monitoring sites with an explanation of why those sites were selected; and a detailed map of all proposed monitoring sites	Ten (10) months from effective date of permit	Ten (10) months from effective date of permit	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Twelve (12) months from effective date of permit
Submit certification that all wet weather monitoring sites are operational and begin sampling	Eleven (11) months from effective date of permit	Eleven (11) months from effective date of permit	Thirteen (13) months from effective date of permit	Thirteen (13) months from effective date of permit	Fourteen (14) months from effective date of permit
Update SWMP document and submit annual reports	Annually	Annually	Annually	Annually	Annually

(**) or MS4s designated by the Director

Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

2. **Dry Weather Discharge Screening of MS4**: Each permittee shall identify, investigate, and address areas within its jurisdiction that may be contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System as a result of dry weather discharges (i.e., discharges from separate storm sewers that occur without the direct influence of runoff from storm events, e.g. illicit discharges, allowable non-stormwater, groundwater infiltration, etc.). Due to the arid and semi-arid conditions of the area, the dry weather discharges screening program may be carried out during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Results of the assessment

shall be provided in each annual report. This program may be coordinated with the illicit discharge detection and elimination program required in Part I.D.5.e. The dry weather screening program shall be described in the SWMP and comply with the schedules contained in Part I.D.5.e.(iii). The permittee shall

a. Include sufficient screening points to adequately assess pollutant levels from all areas of the MS4.

b. Screen for, at a minimum, BOD_5, sediment or a parameter addressing sediment (e.g., TSS or turbidity), E. coli, Oil and Grease, nutrients, any pollutant that has been identified as cause of impairment of a waterbody receiving discharges from that portion of the MS4, including temperature.

c. Specify the sampling and non-sampling techniques to be issued for initial screening and follow-up purposes. Sample collection and analysis need not conform to the requirements of 40 CFR Part 136; and

d. Perform monitoring only when an antecedent dry period of at least seventy-two (72) hours after a rain event greater than 0.1 inch in magnitude is satisfied. Monitoring methodology shall consist of collecting a minimum of four (4) grab samples spaced at a minimum interval of fifteen (15) minutes each. Grab samples will be combined into a single composite sample from each station, preserved, and delivered to the laboratory for analysis. A flow weighted automatic composite sample may also be used.

3. **Floatable Monitoring:** The permittees shall establish locations for monitoring/assessing floatable material in discharges to and/or from their MS4. Floatable material shall be monitored at least twice per year at priority locations and at minimum of two (2) stations except as provided in Part III.A.3. below. The amount of collected material shall be estimated in cubic yards.

a. One (1) station should be located in the North Diversion (only applicable to the COA and AMAFCA).

b. Non-traditional MS4 as defined in Part VII shall sample/assess at one (1) station.

c. Phase II MS4s shall sample/assess at one (1) station within their jurisdiction or participate in a cooperative floatable monitoring plan addressing impacts on perennial waters of the US on a larger watershed basis.

A cooperative monitoring program may be established in partnership with other MS4s to monitor and assess floatable material in discharges to and/or from a joint jurisdictional area or watershed basis.

4. **Industrial and High Risk Runoff Monitoring** (Applicable only to Class A permittees): The permittees shall monitor stormwater discharges from Type 1 and 2 industrial facilities which discharge to the MS4 provided such facilities are located in their jurisdiction. (Note: if no such facilities are in the permittee's jurisdiction, the permittee must certify that this program element does not apply). The permittee shall:

a. Conduct analytical monitoring of Type 1 facilities that discharge to the MS4. Type 1 facilities are municipal landfills; hazardous waste treatment, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and industrial facilities the permittee(s) determines are contributing a substantial pollutant loading to the MS4.

(i) The following parameters shall be monitored:
- any pollutants limited in an existing NPDES permit to a subject facility;

- oil and grease;
- chemical oxygen demand (COD);
- pH;
- biochemical oxygen demand, five-day (BOD_5);
- total suspended solids (TSS);
- total phosphorous;
- total Kjeldahl nitrogen (TKN);
- nitrate plus nitrite nitrogen;
- any discharge information required under 40 CFR §122.21(g)(7)(iii) and (iv);
- total cadmium;
- total chromium;
- total copper;
- total lead;
- total nickel;
- total silver;
- total zinc; and,
- PCBs.

(ii) Frequency of monitoring shall be established by the permittee(s), but may not be less than once per year;

(iii) In lieu of the above parameter list, the permittee(s) may alter the monitoring requirement for any individual Type 1 facility:

(a) To coincide with the corresponding industrial sector-specific monitoring requirements of the 2008 Multi-Sector General Stormwater Permit or any applicable general permit issued after September 2008. This exception is not contingent on whether a particular facility is actually covered by the general permit; or

(b) To coincide with the monitoring requirements of any individual permit for the stormwater discharges from that facility, and

(c) Any optional monitoring list must be supplemented by pollutants of concern identified by the permittee(s) for that facility.

b. Conduct appropriate monitoring (e.g. analytic, visual), as determined by the permittee(s), at Type 2 facilities that discharge to the MS4. Type 2 facilities are other municipal waste treatment, storage, or disposal facilities (e.g. POTWs, transfer stations, incinerators) and industrial or commercial facilities the permittee(s) believed contributing pollutants to the MS4. The permittee shall include in each annual report, a list of parameters of concern and monitoring frequencies required for each type of facility.

c. May use analytical monitoring data, on a parameter-by-parameter basis, that a facility has collected to comply with or apply for a State or NPDES discharge permit (other than this permit), so as to avoid unnecessary cost and duplication of effort;

d. May allow the facility to test only one (1) outfall and to report that the quantitative data also apply to the substantially identical outfalls if:

(i) A Type 1 or Type 2 industrial facility has two (2) or more outfalls with substantially identical effluents, and

(ii) Demonstration by the facility that the stormwater outfalls are substantially identical, using one (1) or all of the following methods for such demonstration. The NPDES Stormwater Sampling Guidance Document (EPA 833-B-92-001), available on EPA's website at provides detailed guidance on each of the three options: (1) submission of a narrative description and a site map; (2) submission of matrices; or (3) submission of model matrices.

b. May accept a copy of a "no exposure" certification from a facility made to EPA under 40 CFR §122.26(g), in lieu of analytic monitoring.

5. **Additional Sample Type, Collection and Analysis**:

a. Wet Weather (or Storm Event) Discharge Monitoring: If storm event discharges are collected to meet the objectives of the Comprehensive Monitoring and Assessment Program required in Part III.A (e.g., assess compliance with this permit; assess the effectiveness of the permittee's stormwater management program; assess the impacts to receiving waters resulting from stormwater discharges), the following requirements apply:

(i) Composite Samples: Flow-weighted composite samples shall be collected as follows:

(a) Composite Method – Flow-weighted composite samples may be collected manually or automatically. For both methods, equal volume aliquots may be collected at the time of sampling and then flow-proportioned and composited in the laboratory, or the aliquot volume may be collected based on the flow rate at the time of sample collection and composited in the field.

(b) Sampling Duration – Samples shall be collected for at least the first three (3) hours of discharge. Where the discharge lasts less than three (3) hours, the permittee should report the value. .

(c) Aliquot Collection – A minimum of three (3) aliquots per hour, separated by at least fifteen (15) minutes, shall be collected. Where more than three (3) aliquots per hour are collected, comparable intervals between aliquots shall be maintained (e.g. six aliquots per hour, at least seven (7) minute intervals).

(ii) Grab Samples: Grab samples shall be taken during the first two (2) hours of discharge.

b. Analytical Methods: Analysis and collection of samples shall be done in accordance with the methods specified at 40 CFR §136. Where an approved 40 CFR §136 method does not exist, any available method may be used unless a particular method or criteria for method selection (such as sensitivity) has been specified in the permit. The minimum quantification levels (MQLs) in Appendix F are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

Screening level tests may utilize less expensive "field test kits" using test methods not approved by EPA under 40 CFR 136, provided the manufacturers published detection ranges are adequate for the illicit discharge detection purposes.

EPA Method 1668 shall be utilized when PCB water column monitoring is conducted to determine compliance with permit requirements. For purposes of sediment sampling in dry weather as part of a screening program to identify area(s) where PCB control/clean-up efforts may need to be focused, either the Arochlor test (EPA Method 8082) or USGS test method (8093) may be utilized, but must use EPA Method 1668 (latest revision) for confirmation and determination of specific PCB levels at that location.

EPA Method 900.0 shall be utilized when gross alpha water column monitoring is conducted to determine compliance with permit requirements.

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B. ANNUAL REPORT

The permittees shall submit an annual report to be submitted by no later than **December 1st.** See suggested form at http://epa.gov/region6/water/npdes/sw/ms4/index.htm**.** The report shall cover the previous year from **July 1st to June 30rd** and include the below separate sections. Additionally, the year one (1) and year four (4) annual report shall include submittal of a complete SWMP revision.

At least forty five (45) days prior to submission of each Annual Report, the permittee must provide public notice of and make available for public review and comment a draft copy of the Annual Report. All public input must be considered in preparation of the final Annual Reports and any changes to the SWMP.

Note: A complete copy of the signed Annual Report should be maintained on site.

1. **SWMP(s) status of implementation**: shall include the status of compliance with all schedules established under this permit and the status of actions required in Parts I, III, and VI.

2. **SWMP revisions**: shall include revisions, if necessary, to the assessments of controls or BMPs reported in the permit application (or NOI for coverage under this permit) under 40 CFR §122.26(d)(2)(v) and §122.34(d)(1)(i) are to be included, as well as a cumulative list of all SWMP revisions during the permit term.

   Class A permittees shall include revisions, if necessary, to the fiscal analysis reported in the permit application (or NOI for coverage under this permit) under §122.26(d)(2)(vi).

3. **Performance assessment**: shall include:

   a. an assessment of performance in terms of measurable goals, including, but not limited to, a description of the number and nature of enforcement actions and inspections, public education and public involvement efforts;

   b. a summary of the data, including monitoring data, that is accumulated throughout the monitoring year (July 1 to June 30); actual values of representative monitoring results shall be included, if results are above minimum quantification level (MQL); and

   c. an identification of water quality improvements or degradation.

4. **Annual expenditures**: for the reporting period, with a breakdown for the major elements of the stormwater management program and the budget for the year following each annual report. (Applicable only to Class A permittees)

5. **Annual Report Responsibilities for Cooperative Programs:** preparation of a system-wide report with cooperative programs may be coordinated among cooperating MS4s and then used as part of individual Annual Reports. The report of a cooperative program element shall indicate which, if any, permittee(s) have failed to provide the required information on the portions of the MS4 for which they are responsible to the cooperation permittees.

   a. Joint responsibility for reports covering cooperative programs elements shall be limited to participation in preparation of the overview for the entire system and inclusion of the identity of any permittee who failed to provide input to the annual report.

b. Individual permittees shall be individually responsible for content of the report relating to the portions of the MS4 for which they are responsible and for failure to provide information for the system-wide annual report no later than July 31st of each year.

6. **Public Review and Comment**: a brief summary of any issues raised by the public on the draft Annual Report, along with permittee's responses to the public comments.

7. **Signature on Certification of Annual Reports**: The annual report shall be 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. Annual report shall be due no later than December 1st of each year. A complete copy of the signed Annual Report should be maintained on site.

C. CERTIFICATION AND SIGNATURE OF RECORDS.

All reports required by the permit and other information requested by the EPA shall be signed and certified in accordance with Part IV.H.

D. REPORTING: WHERE AND WHEN TO SUBMIT

1. Monitoring results (Part III.A.1, Part III.A.3, Part III.A.5.a) obtained during the reporting period running from July 1st to June 30th shall be submitted on discharge monitoring report (DMR) forms along with the annual report required by Part III.B. A separate DMR form is required for each monitoring period (season) specified in Part III.A.1. If any individual analytical test result is less than the minimum quantification level (MQL) listed for that parameter, then a value of zero (0) may be used for that test result for the discharge monitoring report (DMR) calculations and reporting requirements. The annual report shall include the actual value obtained, if test result is less than the MQL (See Appendix F).

2. Signed copies of DMRs required under Part III, the Annual Report required by Part III.B, and all other reports required herein, shall be submitted in electronic form to R6_MS4Permits@epa.gov (note: there is an underscore between R6 and MS4).

   Copy of a suggested Annual Report Format is located in EPA R6 website: http://epa.gov/region6/water/npdes/sw/ms4/index.htm.

   Electronic submittal of the documents required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

3. Requests for SWMP updates, modifications in monitoring locations, or application for an individual permit shall, be submitted to,:

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

4. Additional Notification. Permittee(s) shall also provide copies of NOIs, DMRs, annual reports, NOTs, requests for SWMP updates, items for compliance with permit requirements for Compliance with Water Quality Standards in Part I.C.1, TMDL's reports established in Part I.C.2, monitoring scheme, reports, and certifications required in Part III.A.1, programs or changes in monitoring locations, and all other reports required herein, to:

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

Pueblo of Sandia Environment Department
Attn: Scott Bulgrin, Water Quality Manager
481 Sandia Loop
Bernalillo, NM 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Sandia: AMAFCA, Sandoval County, Village of Corrales, City of Rio Rancho, Town of Bernalillo, SSCAFCA, and ESCAFCA)

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

(Notes: Only the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), New Mexico Department of Transportation (NMDOT) District 3, KAFB (Kirtland Air Force Base), Sandia Labs (DOE), and Bernalillo County). All parties submitting an NOI or NOT shall notify the Pueblo of Isleta in writing that a NOI or NOT has been submitted to EPA

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Santa Ana)

PART IV. STANDARD PERMIT CONDITIONS

A. DUTY TO COMPLY.

The permittee(s) must comply with all conditions of this permit insofar as those conditions are applicable to each permittee, either individually or jointly. Any permit noncompliance constitutes a violation of the Clean Water Act (The Act) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

B. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS.

The EPA will adjust the Civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (Federal Register: Dec. 31, 1996, Volume 61, No. 252, pages 69359-69366, as corrected, March 20, 1997, Volume 62, No. 54, pages 13514-13517) as mandated by the Debt Collection Improvement Act of 1996 for inflation on a periodic basis. This rule allows EPA's penalties to keep pace with inflation. The Agency is required to review its penalties at least once every four years thereafter and to adjust them as necessary for inflation according to a specified formula. The civil and administrative penalties listed below were adjusted for inflation starting in 1996.

1. **Criminal Penalties**.
   a. Negligent Violations: The Act provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one (1) year, or both.

   b. Knowing Violations: The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than three (3) years, or both.

   c. Knowing Endangerment: The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than fifteen (15) years, or both.

   d. False Statement: The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two (2) years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both. (See Section 309(c)(4) of the Act).

2. **Civil Penalties**. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $27,500 per day for each violation.

3. **Administrative Penalties**. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

   a. Class I penalty: Not to exceed $11,000 per violation nor shall the maximum amount exceed $27,500.

b. Class II penalty: Not to exceed $11,000 per day for each day during which the violation continues nor shall the maximum amount exceed $137,500.

C. DUTY TO REAPPLY. If the permittee wishes to continue an activity regulated by this permit after the permit expiration date, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days prior to expiration of this permit. The EPA may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR §122.6 and any subsequent amendments.

D. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

E. DUTY TO MITIGATE. The permittee(s) shall take all reasonable steps to control or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. DUTY TO PROVIDE INFORMATION. The permittee(s) shall furnish to the EPA, within a time specified by the EPA, any information which the EPA may request to determine compliance with this permit. The permittee(s) shall also furnish to the EPA upon request copies of records required to be kept by this permit.

G. OTHER INFORMATION. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in any report to the EPA, he or she shall promptly submit such facts or information.

H. SIGNATORY REQUIREMENTS. For a municipality, State, or other public agency, all DMRs, SWMPs, reports, certifications or information either submitted to the EPA or that this permit requires be maintained by the permittee(s), shall be signed by either a:

1. Principal executive officer or ranking elected official; or

2. Duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the EPA.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

3. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new written authorization satisfying the requirements of this paragraph must be submitted to the EPA prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification: Any person signing documents under this section shall make the following certification: "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."

I. PENALTIES FOR FALSIFICATION OF MONITORING SYSTEMS. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the Act.

J. OIL AND HAZARDOUS SUBSTANCE LIABILITY. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the Act or section 106 of CERCLA.

K. PROPERTY RIGHTS. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

L. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

M. REQUIRING A SEPARATE PERMIT.

1. The EPA may require any permittee authorized by this permit to obtain a separate NPDES permit. Any interested person may petition the EPA to take action under this paragraph. The Director may require any permittee authorized to discharge under this permit to apply for a separate NPDES permit only if the permittee has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form (as necessary), a statement setting a deadline for the permittee to file the application, and a statement that on the effective date of the separate NPDES permit, coverage under this permit shall automatically terminate. Separate permit applications shall be submitted to the address shown in Part III.D. The EPA may grant additional time to submit the application upon request of the applicant. If an owner or operator fails to submit, prior to the deadline of the time extension, a separate NPDES permit application as required by the EPA, then the applicability of this permit to the permittee is automatically terminated at the end of the day specified for application submittal.

2. Any permittee authorized by this permit may request to be excluded from the coverage of this permit by applying for a separate permit. The permittee shall submit a separate application as specified by 40 CFR §122.26(d) for Class A permittees and by 40 CFR §122.33(b)(2) for Class B, C, and D permittees, with reasons supporting the request to the Director. Separate permit applications shall be submitted to the address shown in Part III.D.3. The request may be granted by the issuance of a separate permit if the reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the permittee is authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the permitting authority.

N. STATE / ENVIRONMENTAL LAWS.

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the Act.

2. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

O. PROPER OPERATION AND MAINTENANCE. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of stormwater management programs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

P. MONITORING AND RECORDS.

1. The permittee must retain records of all monitoring information, including, all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, copies of Discharge Monitoring Reports (DMRs), a copy of the NPDES permit, and records of all data used to complete the NOI for this permit, for a period of at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. This period may be extended by request of the permitting authority at any time.

2. The permittee must submit its records to the permitting authority only when specifically asked to do so. The permittee must retain a description of the SWMP required by this permit (including a copy of the permit language) at a location accessible to the permitting authority. The permittee must make its records, including the NOI and the description of the SWMP, available to the public if requested to do so in writing.

3. Records of monitoring information shall include:
   a. The date, exact place, and time of sampling or measurements;
   b. The initials or name(s) of the individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The time(s) analyses were initiated;
   e. The initials or name(s) of the individual(s) who performed the analyses;
   f. References and written procedures, when available, for the analytical techniques or methods used; and
   g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

4. The permittee must maintain, for the term of the permit, copies of all information and determinations used to document permit eligibility under Parts I.A.5.f and Part I.A.3.b.

Q. MONITORING METHODS. Monitoring must be conducted according to test procedures approved under 40 CFR §136, unless other test procedures have been specified in this permit. The minimum quantification levels (MQLs) in Appendix F are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

R. INSPECTION AND ENTRY. The permittee shall allow the EPA or an authorized representative of EPA, or the State, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Act, any substance or parameters at any location.

S. PERMIT ACTIONS. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

T. ADDITIONAL MONITORING BY THE PERMITTEE(S). If the permittee monitors more frequently than required by this permit, using test procedures approved under 40 CFR §136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.

U. ARCHEOLOGICAL AND HISTORIC SITES (Applicable to areas within the corporate boundary of the City of Albuquerque and Tribal lands). This permit does not authorize any stormwater discharges nor require any controls to control stormwater runoff which are not in compliance with any historic preservation laws.

1. In accordance with the Albuquerque Archaeological Ordinance (Section 2-12-2, 14-16-5, and 14-14-3-4), an applicant for either:

   a. A preliminary plan for any subdivision that is five acres or more in size; or

   b. A site development plan or master development plan for a project that is five acres or more in size on property that is zoned SU-1 Special Use, IP Industrial Park, an SU-2 zone that requires site plan review, PC Planned Community with a site, or meets the Zoning Code definition of a Shopping Center must first obtain either a Certificate of No Effect or a Certificate of Approval from the City Archaeologist. Details of the requirements for a Certificate of No Effect or a Certificate of Approval are described in the ordinance. Failure to obtain a certificate as required by ordinance shall subject the property owner to the penalties of §1-1-99 ROA 1994.

2. If municipal excavation and/or construction projects implementing requirements of this permit will result in the disturbance of previously undisturbed land, and the project is not required to have a separate NPDES permit (e.g. general permit for discharge of stormwater associated with construction activity), then the permittee may seek authorization for stormwater discharges from such sites of disturbance by:

   a. Submitting, thirty (30) days prior to commencing land disturbance, the following to the State Historic Preservation Officer (SHPO) and to appropriate Tribes and Tribal Historic Preservation Officers for evaluation of possible effects on properties listed or eligible for listing on the National Register of Historic Places:

      (i) A description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground, and

      (ii) A copy of a USGS topographic map outlining the location of the project and other ancillary impact areas.

      (iii) The addresses of the SHPO. Sandia Pueblo, and Isleta Pueblo are:

State Historic Preservation Officer
New Mexico Historic Preservation Division

Bataan Memorial Building
407 Galisteo Street, Ste. 236
Santa Fe, New Mexico 87501

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Daniel Waseta, Director
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

3. If the permittee receives a request for an archeological survey or notice of adverse effects from the SHPO, the permittee shall delay such activity until:

   a. A cultural resource survey report has been submitted to the SHPO for a review and a determination of no effect or no adverse effect has been made, and

   b. If an adverse effect is anticipated, measures to minimize harm to historic properties have been agreed upon between the permittee and the SHPO.

4. If the permittee does not receive notification of adverse effects or a request for an archeological survey from the SHPO within thirty (30) days, the permittee may proceed with the activity.

5. Alternately, the permittee may obtain authorization for stormwater discharges from such sites of disturbance by applying for a modification of this permit. The permittee may apply for a permit modification by submitting the following information to the Permitting Authority 180 days prior to commencing such discharges:

   a. A letter requesting a permit modification to include discharges from activities subject to this provision, in accordance with the signatory requirements in Part IV.H.

   b. A description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground; County in which the facility will be constructed; type of facility to be constructed; size area (in acres) that the facility will encompass; expected date of construction; and whether the facility is located on land owned or controlled by any political subdivision of New Mexico; and

   c. A copy of a USGS topographic map outlining the location of the project and other ancillary impact areas.

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.

W. **PERMIT TRANSFERS**: This permit is not transferable to any person except after notice to the permitting authority. The permitting authority may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

X. **ANTICIPATED NONCOMPLIANCE**. The permittee must give advance notice to the permitting authority of any planned changes in the permitted small MS4 or activity which may result in noncompliance with this permit. (see

Y. **PROCEDURES FOR MODIFICATION OR REVOCATION**: Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5.

PART V. PERMIT MODIFICATION

A. MODIFICATION OF THE PERMIT. The permit may be reopened and modified, in accordance with 40 CFR §122.62, §122.63, and §124.5, during the life of the permit to address:

1. Changes in the State's Water Quality Management Plan, including Water Quality Standards;
2. Changes in applicable water quality standards, statutes or regulations;
3. A new permittee who is the owner or operator of a portion of the MS4;
4. Changes in portions of the SWMP that are considered permit conditions;
5. Construction activities implementing requirements of this permit that will result in the disturbance of previously undisturbed land and not required to have a separate NPDES permit; or
6. Other modifications deemed necessary by the EPA to meet the requirements of the Act.

B. MODIFICATION OF THE SWMP(s). Only those portions of the SWMPs specifically required as permit conditions shall be subject to the modification requirements of 40 CFR §124.5. Addition of components, controls, or requirements by the permittee(s); replacement of an ineffective or infeasible control implementing a required component of the SWMP with an alternate control expected to achieve the goals of the original control; and changes required as a result of schedules contained in Part VI shall be considered minor changes to the SWMP and not modifications to the permit. (See also Part I.D.6)

C. CHANGES IN REPRESENTATIVE MONITORING SITES. Changes in monitoring sites, other than those with specific numeric effluent limitations (as described in Part III.A.1.g), shall be considered minor modifications to the permit and shall be made in accordance with the procedures at 40 CFR §122.63.

PART VI. SCHEDULES FOR IMPLEMENTATION AND COMPLIANCE.

A. IMPLEMENTATION AND AUGMENTATION OF THE SWMP(s). The permittee(s) shall comply with all elements identified in Parts I and III for SWMP implementation and augmentation, and permit compliance. The EPA shall have sixty (60) days from receipt of a modification or augmentation made in compliance with Part VI to provide comments or request revisions. During the initial review period, EPA may extend the time period for review and comment. The permittee(s) shall have thirty (30) days from receipt of the EPA's comments or required revisions to submit a response. All changes to the SWMP or monitoring plans made to comply with schedules in Parts I and III must be approved by EPA prior to implementation.

B. COMPLIANCE WITH EFFLUENT LIMITATIONS. Reserved.

C. REPORTING COMPLIANCE WITH SCHEDULES. No later than fourteen (14) days following a date for a specific action (interim milestone or final deadline) identified in the Part VI schedule(s), the permittee(s) shall submit a written notice of compliance or noncompliance to the EPA in accordance with Part III.D.

D. MODIFICATION OF THE SWMP(s). The permittee(s) shall modify its SWMP, as appropriate, in response to modifications required in Part VI.A. Such modifications shall be made in accordance with Part V.B.

PART VII. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Unless otherwise specified, additional definitions of words or phrases used in this permit are as follows:

(1) **Baseline Load** means the load for the pollutant of concern which is present in the waterbody before BMPs or other water quality improvement efforts are implemented.

(2) **Best Management Practices (BMPs)** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(3) **Bioretention** means the water quality and water quantity stormwater management practice using the chemical, biological and physical properties of plants, microbes and soils for the removal of pollution from stormwater runoff.

(4) **Canopy Interception** means the interception of precipitation, by leaves and branches of trees and vegetation that does not reach the soil.

(5) **Contaminated Discharges:** The following discharges are considered contaminated:
- Has had a discharge resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at any time since November 16, 1987; or
- Has had a discharge resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or
- Contributes to a violation of an applicable water quality standard**.**

(6) **Controls** or **Control Measures** or **Measures** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or control the pollution of waters of the United States. Controls also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(7) **Controllable Sources**: Sources, private or public, which fall under the jurisdiction of the MS4.

(8) **CWA** or **The Act** means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

(9) **Co-permittee** means a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator.

(10) **Composite Sample** means a sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

(11) **Core Municipality** means, for the purpose of this permit, the municipality whose corporate boundary (unincorporated area for counties and parishes) defines the municipal separate storm sewer system. (ex. City of Dallas for the Dallas Municipal Separate Storm Sewer System, Harris County for unincorporated Harris County).

(12) **Direct Connected Impervious Area (DCIA)** means the portion of impervious area with a direct hydraulic connection to the permitee's municipal separate storm sewer system or a waterbody via continuous paved surfaces, gutters, pipes, and other impervious features. Direct connected impervious area typically does not include isolated impervious areas with an indirect hydraulic connection to the municipal separate storm sewer system (e.g., swale or detention basin) or that otherwise drain to a pervious area.

(13) **Director** means the Regional Administrator or an authorized representative.

(14) **Discharge** for the purpose of this permit, unless indicated otherwise, means discharges from the municipal separate storm sewer system.

(15) **Discharge-related activities"** include: activities which cause, contribute to, or result in storm water point source pollutant discharges; and measures to control storm water discharges, including the sitting, construction and operation of best management practices (BMPs) to control, reduce or prevent storm water pollution.

(16) **Engineered Infiltration** means an underground device or system designed to accept stormwater and slowly exfiltrates it into the underlying soil. This device or system is designed based on soil tests that define the exfiltration rate.

(17) **Evaporation** means rainfall that is changed or converted into a vapor.

(18) **Evapotranspiration** means the sum of evaporation and transpiration of water from the earth's surface to the atmosphere. It includes evaporation of liquid or solid water plus the transpiration of plants.

(19) **Extended Filtration** means a structural stormwater practice which filters stormwater runoff through vegetation and engineered soil media. A portion of the stormwater runoff drains into an underdrain system which slowly releases it after the storm is over.

(20) **Facility** means any NPDES "point source" or any other facility (including land or appurtenances thereto) that is subject to regulation under the NPDES program.
(21) **Flood Control Projects** mean major drainage projects developed to control water quantity rather than quality, including channelization and detention.
(22) **Flow-weighted composite sample** means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.
(23) **Grab Sample** means a sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time.
(24) **Green Infrastructure** means an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. As a general principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff. When used as components of a stormwater management system, Green Infrastructure practices such as green roofs, porous pavement, rain gardens, and vegetated swales can produce a variety of environmental benefits. In addition to effectively retaining and infiltrating rainfall, these technologies can simultaneously help filter air pollutants, reduce energy demands, mitigate urban heat islands, and sequester carbon while also providing communities with aesthetic and natural resource benefits.
(25) **Hydromodification** means the alteration of the natural flow of water through a landscape, and often takes the form of channel straightening, widening, deepening, or relocating existing, natural stream channels. It also can involve excavation of borrow pits or canals, building of levees, streambank erosion, or other conditions or practices that change the depth, width or location of waterways. Hydromodification usually results in water quality and habitat impacts.
(26) **Illicit connection** means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.
(27) **Illicit discharge** means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.
(28) **Impervious Area (IA)** means conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops.
(29) **Indian Country** means:
   a. All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation;
   b. All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and
   c. All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.
(30) **Individual Residence** means, for the purposes of this permit, single or multi-family residences. (e.g. single family homes and duplexes, town homes, apartments, etc.)
(31) **Infiltration** means the process by which stormwater penetrates the soil.
(32) **Land application unit** means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
(33) **Landfill** means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
(34) **Land Use** means the way in which land is used, especially in farming and municipal planning.
(35) **Large or medium municipal separate storm sewer system** means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendix F of 40 CFR §122); or (ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR §122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.
(36) **MEP** means maximum extent practicable, the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges. A discussion of MEP as it applies to small MS4s is found at 40 CFR 122.34. CWA section 402(p)(3)(B)(iii) requires that a municipal permit "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system design, and engineering methods, and other provisions such as the Administrator or the State determines appropriate for the control of such pollutants.
(37) **Measurable Goal** means a quantitative measure of progress in implementing a component of storm water management program.

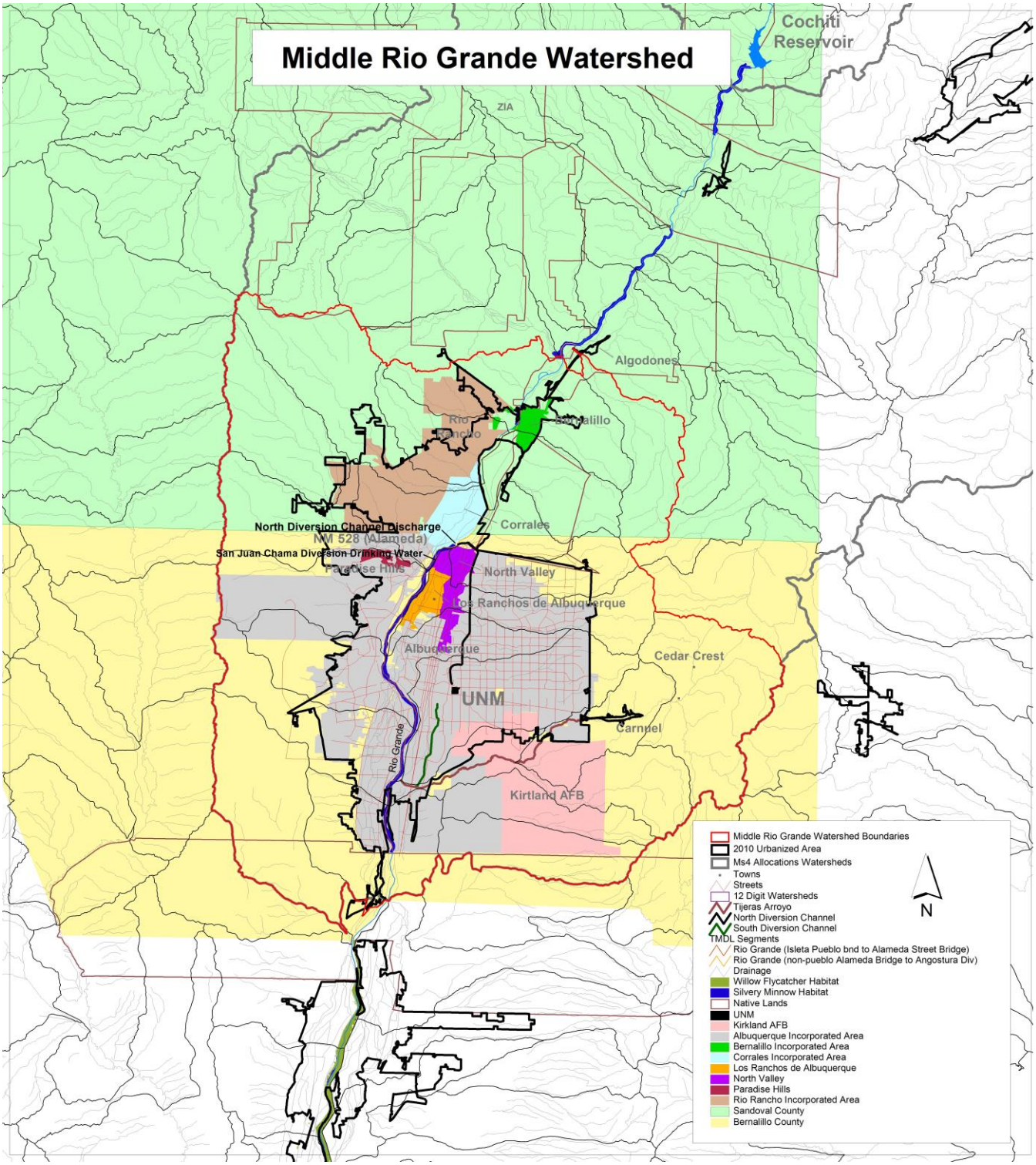
(38) **Municipal Separate Storm Sewer (MS4)** means all separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to paragraphs 40 CFR §122.26(b)(4), (b)(7), and (b)(16), or designated under paragraph 40 CFR §122.26(a)(1)(v).
(39) **Non-traditional 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).
(40) **NOI** means Notice of Intent to be covered by this permit (see Part I.B of this permit)
(41) **NOT** means Notice of Termination.
(42) **Outfall** means a *point source* as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.
(43) **Percent load reduction** means the difference between the baseline load and the target load divided by the baseline load.
(44) **Owner or operator** means the owner or operator of any "facility or activity" subject to regulation under the NPDES program.
(45) **Permittee** refers to any person (defined below) authorized by this NPDES permit to discharge to Waters of the United States.
(46) **Permitting Authority** means EPA, Region 6.
(47) **Person** means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.
(48) **Point Source** means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.
(49) **Pollutant** is defined at 40 CFR 122.2. Pollutant means dredged spoil, solid waste, incinerator residue, filter back-wash, sewage, garbage, sewage sludge. Munitions, chemical waste, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011), heat, wrecked or discarded equipment, rock sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.
(50) **Pre-development Hydrology**, Predevelopment hydrology is generally the rain volume at which runoff would be produced when a site or an area is in its natural condition, prior to development disturbances. For the Middle Rio Grande area, EPA considers predevelopment conditions to be a mix of woods and desert shrub.
(51) **Rainfall and Rainwater Harvesting** means the collection, conveyance, and storage of rainwater. The scope, method, technologies, system complexity, purpose, and end uses vary from rain barrels for garden irrigation in urban areas, to large-scale collection of rainwater for all domestic uses.
(52) **Soil amendment** means adding components to in-situ or native soils to increase the spacing between soil particles so that the soil can absorb and hold more moisture. The amendment of soils changes various other physical, chemical and biological characteristics so that the soils become more effective in maintaining water quality.
(53) **Storm drainage projects** include stormwater inlets, culverts, minor conveyances and a host of other structures or devices.
(54) **Storm sewer**, unless otherwise indicated, means a municipal separate storm sewer.
(55) **Stormwater** means stormwater runoff, snow melt runoff, and surface runoff and drainage.
(56) **Stormwater Discharge Associated with Industrial Activity** means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant (See 40 CFR §122.26(b)(14) for specifics of this definition).
(57) **Target load** means the load for the pollutant of concern which is necessary to attain water quality goals (e.g. applicable water quality standards).
(58) **Stormwater Management Program (SWMP)** means a comprehensive program to manage the quality of stormwater discharged from the municipal separate storm sewer system. For the purposes of this permit, the Stormwater Management Program is considered a single document, but may actually consist of separate programs (e.g. "chapters") for each permittee.
(59) **Targeted controls** means practices implemented to address particular pollutant of concern. For example litter program targets floatables.
(60) **Time-weighted composite** means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
(61) **Total Maximum Daily Load (TMDL)** means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. A TMDL is the sum of individual wasteload allocations for point sources (WLA), load allocations for non-point sources and natural background (LA), and must consider seasonal variation and include a margin of safety. The TMDL comes in the form of a technical document or plan.

(62) **Toxicity** means an LC50 of <100% effluent.
(63) **Waste load allocation (WLA)** means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation.
(64) **Wetlands** means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
(65) **Whole Effluent Toxicity (WET)** means the aggregate toxic effect of an effluent measured directly by a toxicity test.

PART VIII PERMIT CONDITIONS APPLICABLE TO SPECIFIC AREAS OR INDIAN COUNTY LANDS

Reserved

Appendix A - Middle Rio Grande Watershed Jurisdictions and Potential Permittees



Middle Rio Grande Watershed Jurisdictions and Potential Permittees

Class A:
City of Albuquerque
AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Authority)
UNM (University of New Mexico)
NMDOT (New Mexico Department of Transportation District 3)

Class B:
Bernalillo County
Sandoval County
Village of Corrales
City of Rio Rancho
Los Ranchos de Albuquerque
KAFB (Kirtland Air Force Base)
Town of Bernalillo
EXPO (State Fairgrounds/Expo NM)
SSCAFCA (Southern Sandoval County Arroyo Flood Control Authority)
NMDOT (New Mexico Department of Transportation District 3)

Class C:
ESCAFCA (Eastern Sandoval County Arroyo Flood Control Authority)
Sandia Labs (DOE)

Class D:
Pueblo of Sandia
Pueblo of Isleta
Pueblo of Santa Ana

Note: There could be additional potential permittees.
NMDOT Dist. 3 falls into the Class A type permittee, if an individual program is developed or/and implemented. The timelines for cooperative programs should be used, if NMDOT Dist. 3 cooperates with other permittees.

Appendix B - Total Maximum Daily Loads (TMDLs)

B.1. Approved Total Maximum Daily Loads (TMDLs) Tables

A bacteria TMDL for the Middle Rio Grande was approved by the New Mexico Water Quality Control Commission on April 13, 2010, and by EPA on June 30, 2010. The new TMDL modifies: 1) the indicator parameter for bacteria from fecal coliform to *E. coli*, and 2) the way the WLAs are assigned

Discharges to Impaired Waters – TMDL Waste Load Allocations (WLAs)[2] for *E. coli*: Rio Grande[1]

Stream Segment	Stream Name	Permittee Class	FLOW CONDITIONS & ASSOCIATED WLA (cfu/day)[3]				
			High	Moist	Mid-Range	Dray	Low
2105_50	Isleta Pueblo boundary to Alameda Street Bridge (based on flow at USGS Station NM08330000)	Class A [4]	3.36×10^{10}	8.41×10^{10}	5.66×10^{10}	2.09×10^{10}	4.67×10^{9}
		Class B[5] Class C[6]	3.73×10^{9}	9.35×10^{9}	6.29×10^{9}	2.32×10^{9}	5.19×10^{8}
2105.1_00	non-Pueblo Alameda Bridge to Angostura Diversion (based on flow at USGS Station NM08329928)	Class A	5.25×10^{10}	1.52×10^{10}	_	5.43×10^{9}	2.80×10^{9}
		Class B Class C	2.62×10^{11}	7.59×10^{10}	_	2.71×10^{10}	1.40×10^{10}

1 Total Maximum Daily Load for the Middle Rio Grande Watershed, NMED, 2010.
2 The WLAs for the stormwater MS4 permit was based on the percent jurisdiction area approach. Thus, the MS4 WLAs are a percentage of the available allocation for each hydrologic zone, where the available allocation = TMDL – WLA – MOS.
3 Flow conditions relate to percent of days the flow in the Rio Grande at a USGS Gauge exceeds a particular level: High 0-10%; Moist 10-40%; Mid-Range 40-60%; Dry 60-90%; and Low 90-100%. (Source: Figures 4.3 and 4.4 in 2010 Middle Rio Grande TMDL)
4 Phase I MS4s
5 Phase II MS4s (2000 Census)
6 New Phase II MS4s (2010 Census or MS4s designated by the Director)

Estimating Target Loadings for Particular Monitoring Location:

The Table in B.2 below provides a mechanism to calculate, based on acreage within a drainage area, a target loading value for a particular monitoring location.

B.2. Calculating Alternative Sub-measurable Goals

Individual permittees or a group of permittees seeking alternative sub-measureable goals under C.2.b.(i).(c).B should consult NMED. Preliminary proposals should be submitted with the Notice of Intent (NOI) under Part I.B.2.k according to the due dates specified in Part I.B.1.a of the permit. This proposal shall include, but is not limited to, the following items

B.2.1 **Determine base loading for subwatershed areas consistent with TMDL**

a. Using the table below, the permittee must develop a target load consistent with the TMDL for any sampling point in the watershed (even if it includes area outside the jurisdictional area of the permit).

E. coli loading on a per area basis (cfu/sq mi/day)

	high	moist	mid	dry	low
Alameda to Isleta	1.79E+09	4.48E+08	3.02E+08	1.11E+08	2.58E+07
Angostura to Alameda	3.25E+09	9.41E+08	5.19E+08	3.37E+08	1.74E+08

b. An estimation of the pertinent, subwatershed area that the permittee is responsible for and the basis for determining that area, including the means for excluding any tributary inholdings;

c. Using the total loading for the watershed (from part a) and the percentage of the watershed area that is part of the permitee(s) jurisdiction (part b) to calculate a base WLA for this subwatershed.

B.2.2 Set Alternative subwatershed targets

a. Permittee(s) may reallocate WLA within and between subwatershed based on factors including:

- Population density within the pertinent watershed area;
- Slope of the waterway;
- Percent impervious surface and how that value was determined;
- Stormwater treatment, installation of green infrastructure for the control or treatment of stormwater and stormwater pollution prevention and education programs within specific watersheds

b. A proposal for an alternative subwatershed target must include the rationale for the factor(s) used

B.2.3 Ensure overall compliance with TMDL WLA allocation

The permitee(s) will provide calculations demonstrating the total WLA under the alternative proposed in (Part II) is consistent with the baseline calculated in (Part I) based on their total jurisdictional area. Permittee(s) will not be allowed to allocate more area within the watershed than is accorded to them under their jurisdictional area. For permittees that work cooperatively, WLA calculations may be combined and used where needed within the sub-watershed amongst the cooperating parties.

WLA calculations must be sent as part of the Notice of Intent to EPA via e-mail at R6_MS4Permits@epa.gov. These calculations must also be sent to:

Sarah Holcomb
Industrial and Stormwater Team Leader
NMED Surface Water Quality Bureau
P.O. Box 5469,

Appendix C - Historic Properties Eligibility Procedures

MS4 operators must determine whether their MS4's storm water discharges, allowable non-storm water discharges, or construction of best management practices (BMPs) to control such discharges, have potential to affect a property that is either listed or eligible for listing on the National Register of Historic Places.

For existing dischargers who do not need to construct BMPs for permit coverage, a simple visual inspection may be sufficient to determine whether historic properties are affected. However, for MS4s which are new storm water dischargers and for existing MS4s which are planning to construct BMPs for permit eligibility, MS4 operators should conduct further inquiry to determine whether historic properties may be affected by the storm water discharge or BMPs to control the discharge. In such instances, MS4 operators should first determine whether there are any historic properties or places listed on the National Register or if any are eligible for listing on the register (e.g., they are “eligible for listing”).

Due to the large number of entities seeking coverage under this permit and the limited number of personnel available to State and Tribal Historic Preservation Officers nationwide to respond to inquiries concerning the location of historic properties, EPA suggests that MS4 operators first access the “National Register of Historic Places” information listed on the National Park Service's web page (www.nps.gov/nr/). Addresses for State Historic Preservation Officers and Tribal Historic Preservation Officers are listed in Parts II and III of this appendix, respectively. In instances where a Tribe does not have a Tribal Historic Preservation Officer, MS4 operators should contact the appropriate Tribal government office when responding to this permit eligibility condition. MS4 operators may also contact city, county or other local historical societies for assistance, especially when determining if a place or property is eligible for listing on the register. Tribes that do not currently reside in an area may also have an interest in cultural properties in areas they formerly occupied. Tribal contact information is available at http://www.epa.gov/region06/6dra/oejta/tribalaffairs/index.html

The following three scenarios describe how MS4 operators can meet the permit eligibility criteria for protection of historic properties under this permit:

(1) If historic properties are not identified in the path of an MS4's storm water and allowable non-storm water discharges or where construction activities are planned to install BMPs to control such discharges (e.g., diversion channels or retention ponds), then the MS4 operator has met the permit eligibility criteria under Part I.A.3.b.(i).

(2) If historic properties are identified but it is determined that they will not be affected by the discharges or construction of BMPs to control the discharge, the MS4 operator has met the permit eligibility criteria under Part.I.A.3.b.(ii).

(3) If historic properties are identified in the path of an MS4's storm water and allowable non-storm water discharges or where construction activities are planned to install BMPs to control such discharges, and it is determined that there is the potential to adversely affect the property, the MS4 operator can still meet the permit eligibility criteria under Part I.A.3.b.(ii) if he/she obtains and complies with a written agreement with the appropriate State or Tribal Historic Preservation Officer which outlines measures the MS4 operator will follow to mitigate or prevent those adverse effects. The operator should notify EPA before exercising this option.

The contents of such a written agreement must be included in the MS4's Storm Water Management Program.

In situations where an agreement cannot be reached between an MS4 operator and the State or Tribal Historic Preservation Officer, MS4 operators should contact EPA for assistance.

The term “adverse effects” includes but is not limited to damage, deterioration, alteration or destruction of the historic property or place. EPA encourages MS4 operators to contact the appropriate State or Tribal Historic Preservation Officer as soon as possible in the event of a potential adverse effect to a historic property.

MS4 operators are reminded that they must comply with applicable State, Tribal and local laws concerning the protection of historic properties and places.

I. Internet Information on the National Register of Historic Places
An electronic listing of the ``National Register of Historic Places," as maintained by the National Park Service on its National Register Information System (NRIS), can be accessed on the Internet at www.nps.gov/nr/.

II. State Historic Preservation Officers (SHPO)
SHPO List for areas covered by the permit:

NEW MEXICO
Historic Preservation Div, Office of Cultural Affairs
Bataan Memorial Building, 407 Galisteo Street, Suite 236
Santa Fe, NM 87501
505-827-6320 FAX: 505-827-6338

III. Tribal Historic Preservation Officers
(THPO)
In instances where a Tribe does not have a Tribal Historic Preservation Officer, please contact the appropriate Tribal government office when responding to this permit eligibility condition.

Tribal Historic Preservation Officers:
Mescalero Apache Tribe
P.O. Box 227
Mescalero, New Mexico 88340

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

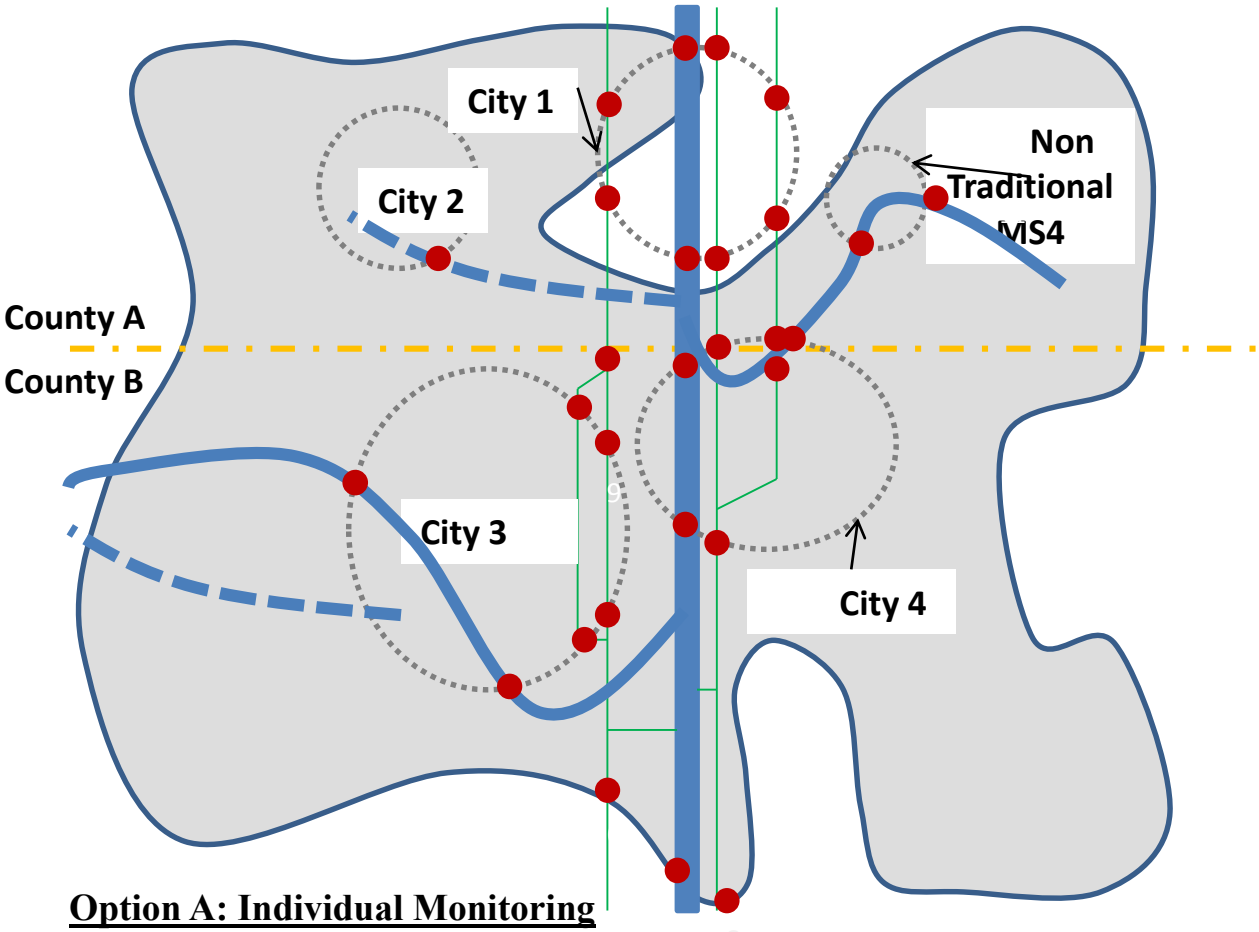
Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Dr. Henry Walt, THPO
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

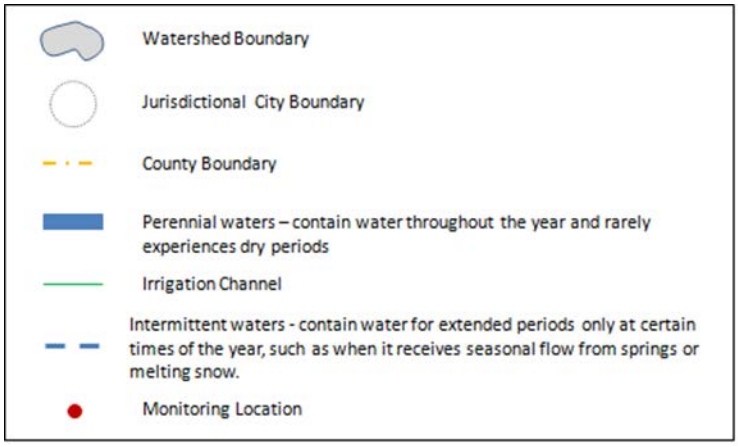
For more information:
National Association of Tribal Historic
Preservation Officers
P.O. Box 19189
Washington, DC 20036-9189
Phone: (202) 628-8476
Fax: (202) 628-2241

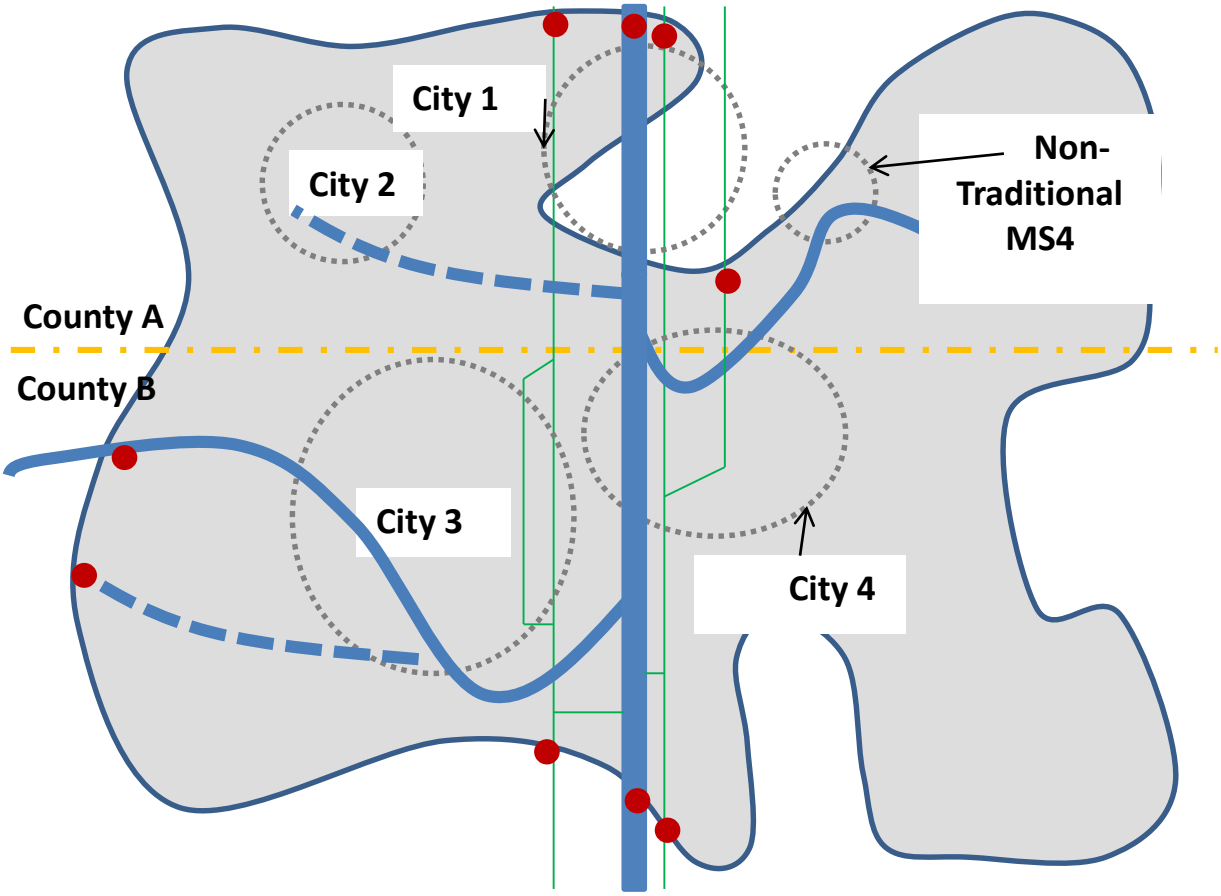
IV. Advisory Council on Historic Preservation
Advisory Council on Historic Preservation, 1100 Pennsylvania Avenue, NW., Suite 803, Washington, DC 20004 Telephone: (202) 606-8503, Fax: (202) 606-8647/8672, E-mail: achp@achp.gov

Appendix D - Suggested Initial Phase Sampling Location Concepts – Wet Weather Monitoring

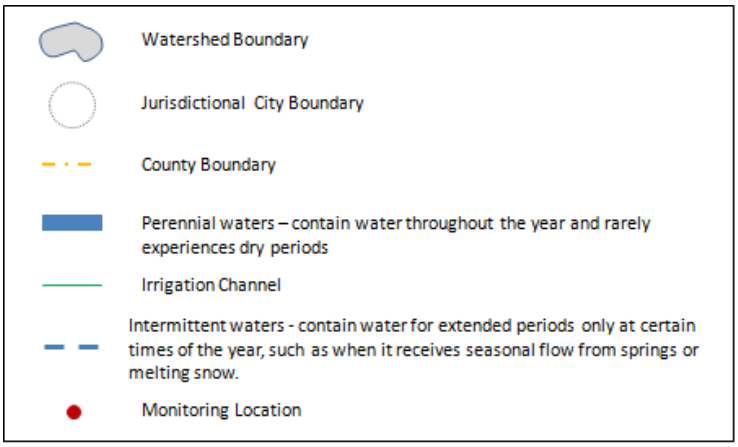


Option A: Individual Monitoring





Option B: Cooperative Monitoring



Appendix E - Providing Comments or Requesting a Public Hearing on an MS4 Operator's NOI

NOTE: Appendix E is for public information only and does not impose conditions on the permittee.

Any interested person may provide comments or request a public hearing on a Notice of Intent (NOI) submitted under this general permit. The general permit itself is not reopened for comment during the period an NOI is available for review and comment.

A. How Will I Know A MS4 is Filing an NOI and How Can I Get a Copy?
The permittee is required to provide a local public notice that they are filing an NOI and make a copy of the draft NOI submittal available locally. EPA will put basic information from all NOIs received on the Internet at: **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm .** You may contact the listed MS4 representative for local access to the NOI. You may also request a copy from EPA by contacting Ms. Dorothy Brown at 214-665-8141 or **brown.dorothy@epa.gov** or via mail at the Address in Item D below, attention Dorothy Brown.

B. When Can I File Comments or a Hearing Request?
You can file comments and/or request a hearing as soon as a NOI is filed, but your request must be postmarked or physically received by EPA within thirty (30) calendar days of the date the NOI is posted on the web site in Section A.

C. How Do I File Comments or Make My Hearing Request?
Your comments and/or hearing request must be in writing and must state the nature of the issues proposed to be raised in the hearing. You should be as specific as possible and include suggested remedies where possible. You should include any data supporting your position(s). If you are submitting the request on behalf of a group or organization, you should describe the nature and membership of the group or organization. Electronic format comments in MS-WORD or PDF format are preferred.

D. Where Do I Send Copies of My Comments or Hearing Request?
Electronic Format: Submit one copy of your comments or hearing request via e-mail to Ms. Dorothy Brown at **brown.dorothy@epa.gov** and copy the Operator of the MS4 at the address on the NOI (send hard copy to MS4 Operator if no e-mail address provided). You may also submit via compact disk or diskette formatted for PCs to addresses for hard copy below. (Hard Copy: You must send an original and one copy of your comments or hearing request to EPA at the address below and a copy to the Operator of the MS4 at the address provided on the NOI)

U.S. EPA Region 6
Water Quality Protection Division (6WQ-NP)
Attn: Dorothy Brown
1445 Ross Ave., Suite 1200
Dallas, TX 75202

E. How Will EPA Determine Whether or Not To Hold a Public Hearing?
EPA will evaluate all hearing requests received on an NOI to determine if a significant degree of public interest exists and whether issues raised may warrant clarification of the MS4 Operator's NOI submittal. EPA will hold a public hearing if a significant amount of public interest is evident. EPA may also, at the Agency's discretion, hold either a public hearing or an informal public meeting to clarify issues related to the NOI submittal. EPA may hold a single public hearing or public meeting covering more than one MS4 (e.g., for all MS4s in an Urbanized Area, etc.).

F. How Will EPA Announce a Pubic Hearing or Public Meeting?
EPA will provide public notice of the time and place for any public hearing or public meeting in a major newspaper with local distribution and via the Internet at **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm**.

G. What Will EPA Do With Comments on an NOI?
EPA will take all comments made directly or in the course of a public hearing or public meeting into consideration in determining whether or not the MS4 that submitted the NOI is appropriately covered under the general permit. The MS4 operator will have the opportunity to provide input on issues raised. The Director may require the MS4 operator to supplement or amend the NOI submittal in order to be authorized under the general permit or may direct the MS4 Operator to submit an individual permit application. A summary of issues raised and EPA's responses will be made available online at **http://www.epa.gov/region6/6wq/npdes/sw/sms4/index.htm.** A hard copy may also be requested by contacting Ms. Dorothy Brown (see paragraph D)

Appendix F - Minimum Quantification Levels (MQL's)

The following Minimum Quantification Levels (MQL's) are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
METALS, RADIOACTIVITY, CYANIDE and CHLORINE			
Aluminum	2.5	Molybdenum	10
Antimony	60	Nickel	0.5
Arsenic	0.5	Selenium	5
Barium	100	Silver	0.5
Beryllium	0.5	Thalllium	0.5
Boron	100	Uranium	0.1
Cadmium	1	Vanadium	50
Chromium	10	Zinc	20
Cobalt	50	Cyanide	10
Copper	0.5	Cyanide, weak acid dissociable	10
Lead	0.5	Total Residual Chlorine	33
Mercury (*)	0.0005		
	0.005		
DIOXIN			
2,3,7,8-TCDD	0.00001		
VOLATILE COMPOUNDS			
Acrolein	50	1,3-Dichloropropylene	10
Acrylonitrile	20	Ethylbenzene	10
Benzene	10	Methyl Bromide	50
Bromoform	10	Methylene Chloride	20
Carbon Tetrachloride	2	1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10	Tetrachloroethylene	10
Clorodibromomethane	10	Toluene	10
Chloroform	50	1,2-trans-Dichloroethylene	10
Dichlorobromomethane	10	1,1,2-Trichloroethane	10
1,2-Dichloroethane	10	Trichloroethylene	10
1,1-Dichloroethylene	10	Vinyl Chloride	10
1,2-Dichloropropane	10		
ACID COMPOUNDS			
2-Chlorophenol	10	2,4-Dinitrophenol	50
2,4-Dichlorophenol	10	Pentachlorophenol	5
2,4-Dimethylphenol	10	Phenol	10
4,6-Dinitro-o-Cresol	50	2,4,6-Trichlorophenol	10

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
		BASE/NEUTRAL	
Acenaphthene	10	Dimethyl Phthalate	10
Anthracene	10	Di-n-Butyl Phthalate	10
Benzidine	50	2,4-Dinitrotoluene	10
Benzo(a)anthracene	5	1,2-Diphenylhydrazine	20
Benzo(a)pyrene	5	Fluoranthene	10
3,4-Benzofluoranthene	10	Fluorene	10
Benzo(k)fluoranthene	5	Hexachlorobenzene	5
Bis(2-chloroethyl)Ether	10	Hexachlorobutadiene	10
Bis(2-chloroisopropyl)Ether	10	Hexachlorocyclopentadiene	10
Bis(2-ethylhexyl)Phthalate	10	Hexachloroethane	20
Butyl Benzyl Phthalate	10	Indeno(1,2,3-cd)Pyrene	5
2-Chloronapthalene	10	Isophorone	10
Chrysene	5	Nitrobenzene	10
Dibenzo(a,h)anthracene	5	n-Nitrosodimethylamine	50
1,2-Dichlorobenzene	10	n-Nitrosodi-n-Propylamine	20
1,3-Dichlorobenzene	10	n-Nitrosodiphenylamine	20
1,4-Dichlorobenzene	10	Pyrene	10
3,3'-Dichlorobenzidine	5	1,2,4-Trichlorobenzene	10
Diethyl Phthalate	10		
		PESTICIDES AND PCBS	
Aldrin	0.01	Beta-Endosulfan	0.02
Alpha-BHC	0.05	Endosulfan sulfate	0.02
Beta-BHC	0.05	Endrin	0.02
Gamma-BHC	0.05	Endrin Aldehyde	0.1
Chlordane	0.2	Heptachlor	0.01
4,4'-DDT and derivatives	0.02	Heptachlor Epoxide	0.01
Dieldrin	0.02	PCBs **	0.2
Alpha-Endosulfan	0.01	Toxaphene	0.3

(MQL's Revised November 1, 2007)

(*) Default MQL for Mercury is 0.005 unless Part I of your permit requires the more sensitive Method 1631 (Oxidation / Purge and Trap / Cold vapor Atomic Fluorescence Spectrometry), then the MQL shall be 0.0005.

(**) EPA Method 1668 should be utilized when PCB water column monitoring is conducted to determine compliance with permit requirements. Either the Arochlor test (EPA Method 8082) or USGS test method (8093) may be utilized for purposes of sediment sampling as part of a screening program, but must use EPA Method 1668 (latest revision) for confirmation and determination of specific PCB levels at that location.

Appendix G – Oxygen Saturation and Dissolved Oxygen Concentrations North Diversion Channel Area

Concentrations of dissolved oxygen in water at various atmospheric pressures and temperatures with 100 percent oxygen saturation, 54.3 percent oxygen saturation (associated with hypoxia and harassment of silvery minnows), and 8.7 percent oxygen saturation (associated with anoxia and lethality of silvery minnows) at the North Diversion Channel (NDC) (based on USGS DO website <http://water.usgs.gov/software/DOTABLES/> for pressures between 628 to 648 millimeters of mercury (Hg)). Source: Biological Consultation Cons. #22420-2011-F-0024-R001

Water temp.	100°/o Oxygen Saturation at NDC			54.3% saturation = Harassmen			8.7% saturation= 50%Lethality		
("C)	628mmHg	638mmHg	648mmHg	628mmHg	638mmHg	648mmHg	628mmHg	638mmHg	64BmmHg
0	12.1	12.3	12.5	66	6.7	6.8	1.1	1.1	1.1
1	11.7	11.9	12.1	64	6.5	6.6	1.0	1.0	11
2	11.4	11.6	11.8	6.2	6.3	8.4	1.0	1.0	1.0
▼	11.1	11.3	11.5	6.0	6.1	6.2	1.0	1.0	1.0
4	10.8	11	11.2	5.9	6.0	6.1	0.9	1.0	1.0
5	10.5	10.7	10.9	5.7	5.8	59	0.9	0.9	0.9
6	10.3	10.4	10.6	5.6	5.8	5.0	0.9	0.9	0.9
7	10	10.2	10.3	5.4	5.5	5.6	0.9	09	0.9
8	9.8	9.9	10.1	5.3	5.4	5.5	0.9	0.9	0.9
8	9.5	9.7	9.6	52	53	5.3	08	0.8	0.9
▼▼	93	9.5	96	50	5.2	5.2	0.0	0.8	0.8
11	9.1	9.2	9.4	4.9	5.0	5.1	0.8	0.8	08
12	8.9	9	9.2	4.8	4.9	5.0	0.8	0.8	08
13	8.7	8.8	9	4.7	4.8	4.9	0.8	0.8	0.8
14	8.5	8.6	8.8	4.8	4.7	4.8	0.7	0.7	0.0
15	8.3	8.4	8.8	4.5	4.6	4.7	0.7	0.7	0.7
16	0.1	83	0.4	4.4	4.5	4.6	07	0.7	0.7
17	8	8.1	8.2	4.3	4.4	4.5	0.7	0.7	0.7
16	7.8	7.9	8	4.2	43	43	07	0.7	0.7
19	76	7.8	7.9	4.1	4.2	4.3	0.7	07	0.7
20	7.5	76	7.7	4.1	4.1	42	07	07	0.7
21	7.3	7.4	7.6	4.0	4.0	4.1	0.6	0.6	0.7
22	7.2	7.3	7.4	3.9	4.0	4.0	0.6	0.6	0.6
23	7	72	7.3	3.8	3.9	4.0	0.6	0.6	0.6
24	6.9	7	7.1	3.7	3.8	3.9	0.6	0.6	0.6
25	6.8	69	7	3.7	3.7	3.6	0.6	0.6	0.6
26	6.7	68	6.9	3.6	3.7	3.7	0.6	0.6	06
27	6.5	8.6	8.8	3.5	3.6	3.7	06	0.6	0.8
26	6.4	8.5	8.6	3.5	3.5	3.6	0.6	0.8	08
29	6.3	8.4	6.5	3.4	3.5	3.5	0.5	06	0.8
20	82	8.3	6.4	3.4	3.4	3.5	0.5	0.5	0.8
31	6.1	6.2	6.3	3.3	3.4	3.4	0.5	0.5	OS
32	6	6.1	6.2	3.3	3.3	34	0.5	0.5	0.5
33	5.0	6	6.1	3.2	3.3	3.3	0.5	0.5	0.5
34	5.8	5.9	6	3.1	3.2	3.3	0.5	0.5	0.5
	5.7	5.6	5.9	31	3.1	3.2	0.5	0.5	0.5

Appendix A-2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202 - 2733

APR 0 9 2015

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (See Attachment 1)

Addressees: Middle Rio Grande Watershed Municipal Separate Storm Sewer Systems Operators
(See Attachment 1)

Re: NPDES Permit No. NMR04A000
Notice of Minor Permit Modification

Dear (See Attachment 1):

Following regulations listed at 40 CFR 122.63(a) and CFR 122.63 (c), the following minor permit modifications are made to the NPDES Permit No. NMR04A000:

- To allow more time to review and approve NOIs, and remove schedule conflicts, certain interim compliance dates in the compliance schedules included in Activity Tables 1.a through 10, except Table 1.c entitled "Measurable Goals of Anoxic and Hypoxia Levels Measured by Permit Year" have been extended. The corrected pages are enclosed in Attachment 2. The new compliance schedules dates are in bold and underlined text.

- The point of contact and address for the Pueblo of Isleta in Part III, Part IV, and Appendix C has been updated. The updated page(s) are enclosed in Attachment 3.

The version of the permit on the EPA R6 website is also being updated. See http://epa.gov/region6/water/npdes/sw/ms4/index.htm

If you have any questions on any aspect of these minor permit modifications, please feel free to contact the permit writer, Nelly Smith, by telephone at:214-665-7109 or via E-mail at Nelly.smith@epa.gov.

Sincerely yours,

for Stacey B. Dwyer, P.E.
Associate Director
NPDES Permits & TMDLs Branch

Enclosures

cc w/Enclosure: New Mexico Environment Department

Attachment 1

Attachment 1

MS4	Address	City	State	Zip Code	Contact Name	Return Receipt Requested
City of Albuquerque	Dept. Municipal Development P.O. Box 1293	Albuquerque	NM	87103	Kevin Daggett	7014015000002452 6650
AMAFCA	2600 Prospect Ave NE	Albuquerque	NM	87107	Jerry Lovato	7014015000002452 6643
NMDOT District 3	7500 Pan American Blvd	Albuquerque	NM	87199	Timothy R, Trujillo	7014015000002452 6636
University of New Mexico	1801 Tucker St NE	Albuquerque	NM	87131	Chemanji (Che) Shu-Nyamboli	7014015000002452 6629
SSCAFCA	1041 Commercial Dr SE	Rio Rancho	NM	87124	Chuck Thomas	7014015000002452 6612
Town of Bernalillo	829 Camino del Pueblo	Bernalillo	NM	87004	Maria Rinaldi	7014015000002452 6605
Sandoval County	2708 Iris NE	Rio Rancho	NM	87144	Fred Marquez	7014015000002452 6599
Village of Corrales	4324 Corrales Rd	Corrales	NM	87048	Mayor Jack Torres	7014015000002452 6582
Los Ranchos de Albuquerque	6718 Rio Grande Blvd NW	Los Ranchos de Albuquerque	NM	87107	Tim McDonough	7014015000002452 6575
City of Rio Rancho	3200 Civic Center Circle NE Ste 200	Rio Rancho	NM	87144	Xavier Pettes	7014015000002452 6568
Bernalillo County	2400 Broadway SE, Bldg N	Albuquerque	NM	87102	Anita Stead	7014015000002452 6551

Attachment 1

Kirtland AFB	377 ABW/CC 200 Wyoming Blvd SE	Kirtland AFB	NM	87117	Chris Segura	7014015000002452 6544
EXPO	P.O. Box 8456	Albuquerque	NM	87198	John C. Jaramillo	7014015000002452 6537
Sandia Laboratories, DOE	P.O. Box 5400, KAFB	Albuquerque	NM		Karen Agogino	7014015000002452 6520
ESCAFCA	829 Camino del Pueblo, Bernalillo, NM	Bernalillo	NM		Jack Torres	7014015000002452 6513
						7014015000002452 6506
Pueblo of Sandia	481 Sandia Loop	Bernalillo	NM	87004	Scott Bulgrin	7014015000002452 6490
Pueblo of Isleta	PO Box 1270	Isleta	NM	87022	Ramona Montoya	7014015000002453 0657

Attachment 2

schedules described in Table 1.a of Part I.C.2.(iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

Note: Probable pollutant sources identified by permittees should be submitted to NMED on the following form: ftp://ftp.nmenv.state.nm.us/www/swqb/Surveys/PublicProbableSourceIDSurvey.pdf

(c) Impairment for Nutrients: Where the impairment is for nutrients (e.g., nitrogen or phosphorus), the permittee shall identify potential significant sources and develop and implement targeted BMPs to control nutrients from potential sources. The permittee must, at minimum comply with the activities and schedules described in Table 1.b of Part I.C,2, (iii). The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

(d) Impairment for Dissolved Oxygen: See Endangered Species Act (ESA) Requirements in Part I.C.3. These program elements may be coordinated with the monitoring required in Part III.A.

(iii) Program Development and Implementation Schedules: Where the impairment is for nutrient constituent (e.g., nitrogen or phosphorus) or bacteria, the permittee must at minimum comply with the activities and schedules in Table 1.a and Table 1.b.

Table 1.a. Pre-TMDL Bacteria Program Development and Implementation Schedules

Activity	Class Permittee				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Identify potential significant sources of the pollutant of concern entering your MS4	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of bacteria in municipal storm water contributed by (if applicable) by pets, recreational and exhibition livestock, and zoos.	**Twelve (12)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Fourteen (14) months** from effective date of permit	**Fourteen (14) months** from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by areas within your MS4 served by on-site wastewater treatment systems.	**Fourteen (14) months** from effective date of permit	**Fourteen (14) moths** from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Review results to date from the Illicit Discharge Detection and Elimination program (see Part I.D.5.e) and modify as necessary to prioritize the detection and elimination of discharges contributing bacteria to the MS4	**Fourteen (14) months** from effective date of permit	**Fourteen (14) months** from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of bacteria in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	**Sixteen (16) months** from effective date of permit	**Sixteen (16)** months from effective date of permit	**Eighteen (18)** months from effective date of permit	**Eighteen (18)** months from effective date of permit	**Twenty (20)** months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the bacteria and updates their measurable goals as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

Table 1.b. Pre-TMDL Nutrient Program Development and Implementation Schedules

Activity	**Class Permittee**				
	A Phase I MS4s	**B Phase II MS4s (2000 Census)**	**C New Phase II MS4s (2010 Census **)**	**D MS4s within Indian Lands**	**Cooperative (*) Any Permittee with cooperative programs**
Identify potential significant sources of the pollutant of concern entering your MS4	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a public education program to reduce the discharge of pollutant of concern in municipal storm water contributed by residential and commercial use of fertilizer	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by fertilizer use at municipal operations (e.g., parks, roadways, municipal facilities)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit

Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by municipal and private golf courses within your jurisdiction	One (1) year from effective date of permit	One (1)year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Develop (or modify an existing program ***) and implement a program to reduce the discharge of the pollutant of concern in municipal storm water contributed by other significant source identified in the Illicit Discharge Detection and Elimination program (see Part I.D.5.e)	One (1) year from effective date of permit	One (1) year from effective date of permit	Sixteen (16) months from effective date of permit	Sixteen (16) months from effective date of permit	Eighteen (18) months from effective date of permit
Include in the Annual Reports progress on program implementation and reducing the nutrient pollutant of concern and updates their measurable goals	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
(***) Permittees previously covered under permit NMS000101 or NMR040000
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

These program elements may be coordinated with the monitoring required in Part III.A.

3. **Endangered Species Act (ESA) Requirements**. Consistent with U.S. FWS Biological Opinion dated August 21, 2014 to ensure actions required by this permit are not likely to jeopardize the continued existence of any currently listed as endangered or threatened species or adversely affect its critical habitat, permittees shall meet the following requirements and include them in the SWMP:

   a. Dissolved Oxygen Strategy in the Receiving Waters of the Rio Grande:

      (i) The permittees must identify (or continue identifying if previously covered under permit NMS000101) structural controls, natural or man-made topographical and geographical formations, MS4 operations, or oxygen demanding pollutants contributing to reduced dissolved oxygen in the receiving waters of the Rio Grande. The permittees shall implement controls, and update/revise as necessary, to eliminate discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality standards for dissolved oxygen in waters of the Rio Grande. The permittees shall submit a summary of findings and a summary of activities undertaken under Part I.C.3.a.(i) with each Annual Report. The SWMP submitted with the first and fourth annual reports must include a detailed description of controls implemented (or/and proposed control to be implemented) along with corresponding measurable goals. (Applicable to all permittees).

      (ii) As required in Part I.C.1.d, the COA and AMAFCA shall revise the May 1, 2012 Strategy for dissolved oxygen to address dissolved oxygen at the North Diversion Channel Embayment and/or other MS4 locations. The permittees shall submit the revised strategy to FWS and EPA for approval within a year of permit issuance and progress reports with the subsequent Annual Reports (see also Part I.C.1.d.(iv)). The permittees shall ensure that actions to reduce pollutants or remedial activities selected for the North Diversion Channel Embayment and its watershed are implemented such that there is a reduction in

Table 2. Construction Site Stormwater Runoff Control - Program Development and Implementation Schedules

Activity	Permittee Class				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of the permit
Develop requirements and procedures as required in Part I.D.5.a.(ii)(b) through in Part I.D.5.a.(ii)(h)	**Ten (10)** months from effective date of permit	**Thirteen (13)** months from effective date of permit	**Sixteen (16) months** from effective date of permit	**Sixteen (16) months** from effective date of permit	Eighteen (18) months from effective date of permit
Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.5.a.(iii)	**Ten (10)** months from effective date of permit	Start **Thirteen (13)** months from effective date of permit and annually thereafter	Start **Sixteen (16) months** from effective date of permit and annually thereafter	Start eighteen (18) months from effective date of permit and thereafter	Start two (2) years from effective date of permit and thereafter
Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.a.(iv)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Fourteen (14) months** from effective date of permit
Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.5.a.(v)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Fourteen (14) months** from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.a.(vi) and in Part I.D.5.a.(vii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(x)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(xiii) The permittee may incorporate the following elements in the Post-Construction Stormwater Management in New Development and Redevelopment program required in Part I.D.5.b.(ii)(b):

(a) Provide requirements and standards to direct growth to identified areas to protect environmentally and ecologically sensitive areas such as floodplains and/or other areas with endangered species and historic properties concerns;

(b) Include requirements to maintain and/or increase open space/buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; and

(c) Encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure.

Table 3. Post-Construction Stormwater Management in New Development and Redevelopment - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Development of strategies as required in Part I.D.5.b.(ii).(a)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Twelve (12)** months from effective date of permit	**Fourteen (14) months** from effective date of permit
Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii).(b)	**Twenty (24)** months from effective date of permit	**Thirty (30)** months from effective date of permit	**Thirty six (36)** months from effective date of permit	**Thirty six (36)** months from effective date of permit	**Thirty six (36)** months from effective date of permit
Implementation and enforcement, via the ordinance or other regulatory mechanism, of site design standards as required in Part I.D.5.b.(ii).(b)	Within **thirsty six** (36) months from effective date of the permit	Within **forty two** (42) months from the effective date of the permit	Within **forty eight** (48) months from effective date of the permit	Within **forty eight** (48) months from effective date of the permit	Within **forty eight** (48) months from effective date of the permit
Ensure appropriate implementation of structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d)	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop procedures as required in Part I.D.5.b.(ii).(e), Part I.D.5.b.(ii).(f), Part I.D.5.b.(ii).(g), and Part I.D.5.b.(ii).(h)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit

Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.b.(iii)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Eleven (11)** months from effective date of permit	One (1) year from effective date of permit
As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit
As required in Part I.D.5.b.(iv), develop and submit a report of the assessment findings on GI/LID/Sustainable practices.	**Eleven (11)** months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Twenty seven (27) months from effective date of permit
Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi)	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Inventory and priority ranking as required in section in Part I.D.5.b.(vii)	Within fifteen (15) months from effective date of the permit	Within **twenty four** (24) months from effective date of the permit	Within **thirty six** (36) months from effective date of the permit	Within **thirty six** (36) months from effective date of the permit	Within **forty two** (42) months from effective date of the permit
Incorporate watershed protection elements as required in Part I.D.5.b.(viii)	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.b.(ix) and Part I.D.5.b.(x).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include program elements in Part I.D.5.b.(xi) and Part I.D.5.b.(xii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

(iv) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.c.(i) throughout Part I.D.5.c.(iii) and its corresponding measurable goal.

(v) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 4. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations - Program Development and Implementation Schedules

Activity	Permittee Class				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
-Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i)	Ten (10) montbs from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Fourteen (14) months from effective date of the permit	Eighteen (18) months from effective date of the permit
-Enhance the program to include the elements in Part I.D.5.c.(ii)	Ten (10) months from effective date of the permit	One (1) year from effective date of the permit	Two (2) years from effective date of the permit	Two (2) years from effective date of the permit	Thirty (30) months from effective date of the permit
-Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii)	Ten (10) months from effective date of the permit	Eleven (11) months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.c.(iv) and Part I.D.5.c.(v)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

d. Industrial and High Risk Runoff (Applicable only to Class A permittees)

(i) The permittee must control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity as defined in 40 CFR 122.26(b)(14)(i)-(ix) and (xi). If no such industrial activities are in a permittees jurisdiction, that permittee may certify that this program element does not apply.

(ii) The permittee must continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report. The program shall include:

(a) A description of a program to identify, monitor, and control pollutants in stormwater discharges to the MS4 from municipal landfills; other treatment, storage, or disposal facilities for municipal waste (e.g. transfer stations, incinerators, etc.); hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee(s) determines are contributing a substantial pollutant loading to the

Table 5: Industrial and High Risk Runoff - Program Development and Implementation Schedules:

Activity	Permittee Class	
	A **Phase I MS4s**	**Cooperative (*)** **Any Permittee with cooperative programs**
Ordinance (or other control method) as required in Part I.D.5.d.(i)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report as required in Part I.D.5.d.(ii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Meet the monitoring requirements in Part I.D.5.d.(iii)	Ten (10) months from effective date of the permit	Twelve (12) months from effective date of the permit
Include requirements in Part I.D.5.d.(iv)	Ten (10) months from permit effective date of the permit	Twelve (12) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.d.(v) and Part I.D.5.d.(vi)	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.d.(vii)	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs. Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

e. Illicit Discharges and Improper Disposal

(i) The permittee shall develop, revise, implement, and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) entering the MS4. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit.** The permittee must:

(a) Develop, if not already completed, a storm sewer system map, showing the names and locations of all outfalls as well as the names and locations of all waters of the United States that receive discharges from those outfalls. Identify all discharges points into major drainage channels draining more than twenty (20) percent of the MS4 area;

(b) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into the MS4, and implement appropriate enforcement procedures and actions;

(c) Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumpling, to the MS4. The permittee must include the following elements in the plan:

A. Procedures for locating priority areas likely to have illicit discharges including field test for selected pollutant indicators (ammonia, boron, chlorine, color, conductivity, detergents, *E. coli*, enterococci, total coliform, fluoride, hardness, pH, potassium, conductivity, surfactants), and visually screening outfalls during dry weather;

(d) If participating in a cooperative program with other MS4s, required detection program frequencies may be based on the combined jurisdictional area rather than individual jurisdictional areas and may use assessment areas crossing jurisdictional boundaries to reduce total number of screening locations (e.g., a shared single screening location that would provide information on more than one jurisdiction); and

(e) After screening a non-high priority area once, adopt an "in response to complaints only" IDDE for that area provided there are citizen complaints on no more than two (2) separate events within a twelve (12) month period.

(f) Enhance the program to utilize procedures and methodologies consistent with those described in "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments."

Table 6. Illicit Discharges and Improper Disposal - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census ***)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
Mapping as required in Part I.D.5.e.(i)(a)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Fourteen (14) months** from effective date of permit
Ordinance (or other control method) as required in Part I.D.5.e.(i)(b)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop and implement a IDDE plan as required in Part I.D.5.e.(i)(c)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop an education program as required in Part I.D.5.e.(i)(d)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Establish a hotline as required in Part I.D.5.e.(i)(e)	Update as necessary	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i)(f)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i)(g)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	N/A	N/A	One (1) year from effective date of permit

Screening of system as required in Part I.D.5.e.(iii) as follows: a.) High priority areas**	1 / year	1 / year	1 / year	1 / year	1 / year
b.) Whole system	-Screen 20% of the MS4 per year	- Screen 20% of the MS4 per year	-Years 1 – 2: develop procedures as required in Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 2: develop procedures as required Part I.D.5.e.(i)(c) -Year 3: screen 30% of the MS4 -Year 4: screen 20% of the MS4 -Year 5: screen 50% of the MS4	-Years 1 – 3: develop procedures as require in Part I.D.5.e.(i)(c) -Year 4: screen 30% of the MS4 -Year 5: screen 70% of the MS4
Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv)	**Ten (10)** months from effective date of permit	Eighteen (18) months from effective date of permit	Two (2) years from effective date of permit	Two (2) years from effective date of permit	Thirty (30) months from effective date of permit
Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v)	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	One (1) year from effective date of permit	One (1) year from effective date of permit	Eighteen (18) months from effective date of permit
Update the SWMP document and annual report as required in Part I.D.5.e.(iii), Part I.D.5.e.(vi), and Part I.D.5.e.(vii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.e.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) High priority areas include any area where there is ongoing evidence of illicit discharges or dumpling, or where there are citizen complaints on more than five (5) separate events within twelve (12) months
(***) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

f. Control of Floatables Discharges

(i) The permittee must develop, update, and implement a program to address and control floatables in discharges into the MS4. The floatables control program shall include source controls and, where necessary, structural controls. **Permittees previously covered under NMS000101 or NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit.** The following elements must be included in the program:

(a) Develop a schedule for implementation of the program to control floatables in discharges into the MS4 (Note: AMAFCA and the City of Albuquerque should update the schedule according to the findings of the 2005 AMAFCA/COA Floatable and Gross Pollutant Study and other studies); and

(b) Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type.

(ii) The permittee must include in the SWMP a description of the mechanism(s) utilized to comply with each of the elements required in Part I.D.5.f.(i).

(iii) The permittee shall assess the overall success of the program, and document the program effectiveness in the annual report.

Table 7. Control of Floatables Discharges - Program Development and Implementation Schedules

Activity	**Permittee Class**				
	A **Phase I MS4s**	**B** **Phase II MS4s (2000 Census)**	**C** **New Phase II MS4s (2010 Census **)**	**D** **MS4s within Indian Lands**	**Cooperative (*)** **Any Permittee with cooperative programs**
- Develop a schedule to implement the program as required in Part I.D.5.f.(i)(a)	**Ten (10)** months from the effective date of the permit	**Ten (10)** months from the effective date of the permit	One (1) year from the effective date of the permit	One (1) year from the effective date of the permit	Eighteen (18) months from the effective date of the permit
-Estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i)(b)	**Ten (10)** months from the effective date of the permit	One (1) year from the effective date of the permit	Two (2) years from the effective date of the permit	Two (2) years from the effective dae of the permit	Thirty (30) months from the effective date of the permit
Update the SWMP doeument and annual report as required in Part I.D.5.f.(ii) and Part I.D.5.f.(iii).	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

g. Public Education and Outreach on Stormwater Impacts

(i) The permittee shall, individually or cooperatively, develop, revise, implement, and maintain a comprehensive stormwater program to educate the community, employees, businesses, and the general public of hazards associated with the illegal discharges and improper disposal of waste and about the impact that stormwater diseharges on local waterways, as well as the steps that the public can take to reduce pollutants in stormwater. **Permittees previously covered under NMS000101 and NMR040000 must continue existing programs while updating those programs, as necessary, to comply with the requirements of this permit.**

(ii) The permittee must implement a public education program to distribute educational knowledge to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff. The permittee must:

Table 8. Public Education and Outreach on Stormwater Impacts - Program Development and Implementation Schedules

Activity	Permittee Class				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii)	Ten (10) months from the effective date of the permit	Eleven (11) months from the effective date of the permit	Twelve (12) months from effective date of the permit	Twelve (12) months from effective date of the permit	Fourteen (14) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.g.(iii) and Part I.D.5.g.(iv)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

h. Public Involvement and Participation

(i) The permittee must provide local public notice of and make available for public review a copy of the complete NOI and attachments (see Part I.B.2). Local public notice may be made by newspaper notice, notice at a council meeting, posting on the internet, or other method consistent with state/tribal/local public notice requirements.

The permittee must consider all public comments received during the public notice period and modify the NOI, or include a schedule to modify the SWMP, as necessary, or as required by the Director modify the NOI or/and SWMP in response to such comments. The Permittees must include in the NOI any unresolved public comments and the MS4's response to these comments. Responses provided by the MS4 will be considered as part of EPA's decision-making process. See also Appendix E Providing Comments or Requesting a Public Hearing on an Operator's NOI.

(ii) The permittee shall develop, revise, implement and maintain a plan to encourage public involvement and provide opportunities for participation in the review, modification and implementation of the SWMP; develop and implement a process by which public comments to the plan are received and reviewed by the person(s) responsible for the SWMP; and, make the SWMP available to the public and to the operator of any MS4 or Tribal authority receiving discharges from the MS4. **Permittee previously covered under NMS000101 or NMR040000 must continue existing public involvement and participation programs while updating those programs, as necessary, to comply with the requirements of this permit.**

system, using phones and social media); Revegetation Programs; Storm Drain Stenciling Programs; Stream cleanup and Monitoring program/events.

Table 9. Public Involvement and Participation - *Program Development and Implementation Schedules*

Activity	Permittee Class				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii) and Part I.D.5.h.(iii)	**Ten (10)** months from effective date of the permit	**Ten (10)** months from effective date of the permit	**Eleven (11)** months from effective date of the permit	**Eleven (11)** months from effective date of the permit	One (1) year from effective date of the permit
Comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv)	**Ten (10)** months from effective date of the permit	**Eleven (11)** months from effective date of the permit	**Twelve (12)** months from effective date of the permit	**Twelve (12)** months from effective date of the permit	**Fourteen (14) months** from effective date of the permit
Include elements as required in Part I.D.5.h.(v)	**Ten (10)** months from effective date of the permit	**Eleven (11)** months from effective date of the permit	One (1) year from effective date of the permit	One (1) year from effective date of the permit	Eighteen (18) months from effective date of the permit
Update the SWMP document and annual report as required in Part I.D.5.h.(vi), Part I.D.5.h.(vii), and Part I.D.5.h.(viii)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary
Enhance the program to include requirements in Part I.D.5.h.(ix)	Update as necessary	Update as necessary	Update as necessary	Update as necessary	Update as necessary

(*) During development of cooperative programs, the permittee must continue to implement existing programs.
(**) or MS4s designated by the Director
Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

6. **Stormwater Management Program Review and Modification**.

a. Program Review. Permittee shall participate in an annual review of its SWMP in conjunction with preparation of the annual report required in Part III.B. Results of the review shall be discussed in the annual report and shall include an assessment of:

(i) SWMP implementation, progress in achieving measurable goals, and compliance with program elements and other permit conditions;

(ii) the effectiveness of its SWMP, and any necessary modifications, in complying with the permit, including requirements to control the discharge of pollutants, and comply with water quality standards and any applicable approved TMDLs; and the adequacy of staff, funding levels, equipment, and support capabilities to fully implement the SWMP and comply with permit conditions.

h. Response to monitoring results: The monitoring program must include a contingency plan for collecting additional monitoring data within the MS4 or at additional appropriate instream locations should monitoring results indicate that MS4 discharges may be contributing to instream exceedances of WQS. The purpose of this additional monitoring effort would be to identify sources of elevated pollutant loadings so they could be addressed by the SWMP.

Table 10. Wet Weather Monitoring Program Implementation Schedules:

Activity	**Permittee Class**				
	A Phase I MS4s	**B** Phase II MS4s (2000 Census)	**C** New Phase II MS4s (2010 Census **)	**D** MS4s within Indian Lands	**Cooperative (*)** Any Permittee with cooperative programs
Submit wet weather monitoring preference to EPA (i.e., individual monitoring program vs. cooperative monitoring program) with NOI submittals	**NOI submittal Deadline (see Table 1)**	**NOI submittal Deadline (see Table 1)**	**NOI submittal Deadline (see Table 1)**	**NOI submittal Deadline (see Table 1)**	**NOI submittal Deadline (see Table 1)**
Submit a detailed description of the monitoring scheme to EPA and NMED for approval. The monitoring scheme should include: a list of pollutants; a description of monitoring sites with an explanation of why those sites were selected; and a detailed map of all proposed monitoring sites	**Ten (10)** months from effective date of permit	**Ten (10)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Twelve (12)** months from effective date of permit
Submit certification that all wet weather monitoring sites are operational and begin sampling	**Eleven (11)** months from effective date of permit	**Eleven (11)** months from effective date of permit	**Thirteen (13)** months from effective date of permit	**Thirteen (13)** months from effective date of permit	**Fourteen (14)** months from effective date of permit
Update SWMP document and submit annual reports	Annually	Annually	Annually	Annually	Annually

(**) or MS4s designated by the Director

Note: The deadlines established in this table may be extended by the Director for any MS4 designated as needing a permit after issuance of this permit to accommodate expected date of permit coverage.

2. **Dry Weather Discharge Screening of MS4**: Each permittee shall identify, investigate, and address areas within its jurisdiction that may be contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System as a result of dry weather discharges (i.e., discharges from separate storm sewers that occur without the direct influence of runoff from storm events, e.g. illicit discharges, allowable non-stormwater, groundwater infiltration, etc.). Due to the arid and semi-arid conditions of the area, the dry weather discharges screening program may be carried out during both wet season (July 1 through October 31) and dry Season (November 1 through June 30). Results of the assessment

Attachment 3

Attachment 3

Page 9 of Part III.D

Pueblo of Isleta
Attn: Ramona M. Montoya, Environment Division Manager
PO Box 1270
Isleta NM 87022

Page 6 of Part IV.U

Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Daniel Waseta, Director
PO Box 1270
Isleta NM 87022

Appendix C

Tribal Historic Preservation Officers (THPO)
Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Dr. Henry Walt, THPO
PO Box 1270
Isleta NM 87022

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

Pueblo of Sandia Environment Department
Attn: Scott Bulgrin, Water Quality Manager
481 Sandia Loop
Bernalillo, NM 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Sandia: AMAFCA, Sandoval County, Village of Corrales, City of Rio Rancho, Town of Bernalillo, SSCAFCA, and ESCAFCA)

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

(Notes: Only the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), New Mexico Department of Transportation (NMDOT) District 3, KAFB (Kirtland Air Force Base), Sandia Labs (DOE), and Bernalillo County). All parties submitting an NOI or NOT shall notify the Pueblo of Isleta in writing that a NOI or NOT has been submitted to EPA

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004
(Note: Only those MS4s with discharges upstream of or to waters under the jurisdictional of the Pueblo of Santa Ana)

Bataan Memorial Building
407 Galisteo Street, Ste. 236
Santa Fe, New Mexico 87501

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Daniel Waseta, Director
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

3. If the permittee receives a request for an archeological survey or notice of adverse effects from the SHPO, the permittee shall delay such activity until:

   a. A cultural resource survey report has been submitted to the SHPO for a review and a determination of no effect or no adverse effect has been made, and

   b. If an adverse effect is anticipated, measures to minimize harm to historic properties have been agreed upon between the permittee and the SHPO.

4. If the permittee does not receive notification of adverse effects or a request for an archeological survey from the SHPO within thirty (30) days, the permittee may proceed with the activity.

5. Alternately, the permittee may obtain authorization for stormwater discharges from such sites of disturbance by applying for a modification of this permit. The permittee may apply for a permit modification by submitting the following information to the Permitting Authority 180 days prior to commencing such discharges:

   a. A letter requesting a permit modification to include discharges from activities subject to this provision, in accordance with the signatory requirements in Part IV.H.

   b. A description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground; County in which the facility will be constructed; type of facility to be constructed; size area (in acres) that the facility will encompass; expected date of construction; and whether the facility is located on land owned or controlled by any political subdivision of New Mexico; and

   c. A copy of a USGS topographic map outlining the location of the project and other ancillary impact areas.

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:

II. State Historic Preservation Officers (SHPO)
SHPO List for areas covered by the permit:

NEW MEXICO
Historic Preservation Div, Office of Cultural Affairs
Bataan Memorial Building, 407 Galisteo Street, Suite 236
Santa Fe, NM 87501
505-827-6320 FAX: 505-827-6338

III. Tribal Historic Preservation Officers
(THPO)
In instances where a Tribe does not have a Tribal Historic Preservation Officer, please contact the appropriate Tribal government office when responding to this permit eligibility condition.

Tribal Historic Preservation Officers:
Mescalero Apache Tribe
P.O. Box 227
Mescalero, New Mexico 88340

Pueblo of Sandia Environment Department
Attn: Frank Chaves, Environment Director
481 Sandia Loop
Bernalillo, New Mexico 87004

Pueblo of Isleta
Department of Cultural and Historic Preservation
Attn: Dr. Henry Walt, THPO
P.O. Box 1270
Isleta NM 87022

Water Resources Division Manager
Pueblo of Santa Ana
2 Dove Road
Santa Ana Pueblo, New Mexico 87004

For more information:
National Association of Tribal Historic
Preservation Officers
P.O. Box 19189
Washington, DC 20036-9189
Phone: (202) 628-8476
Fax: (202) 628-2241

IV. Advisory Council on Historic Preservation
Advisory Council on Historic Preservation, 1100 Pennsylvania Avenue, NW., Suite 803, Washington, DC 20004 Telephone: (202) 606-8503, Fax: (202) 606-8647/8672, E-mail: achp@achp.gov

Appendix B: SNL Site Maps

No.	Description
B-1	Figure 1 – SNL MS4 Area
B-2	Figure 2 – Northern SNL MS4 and Southern SNL MS4
B-3	Figure 3 - Northern SNL MS4
B-4	Figure 4 - Southern SNL MS4
B-5	Figure 5 - Northern MS4 Drainage Areas and Monitoring Locations

Appendix B-1

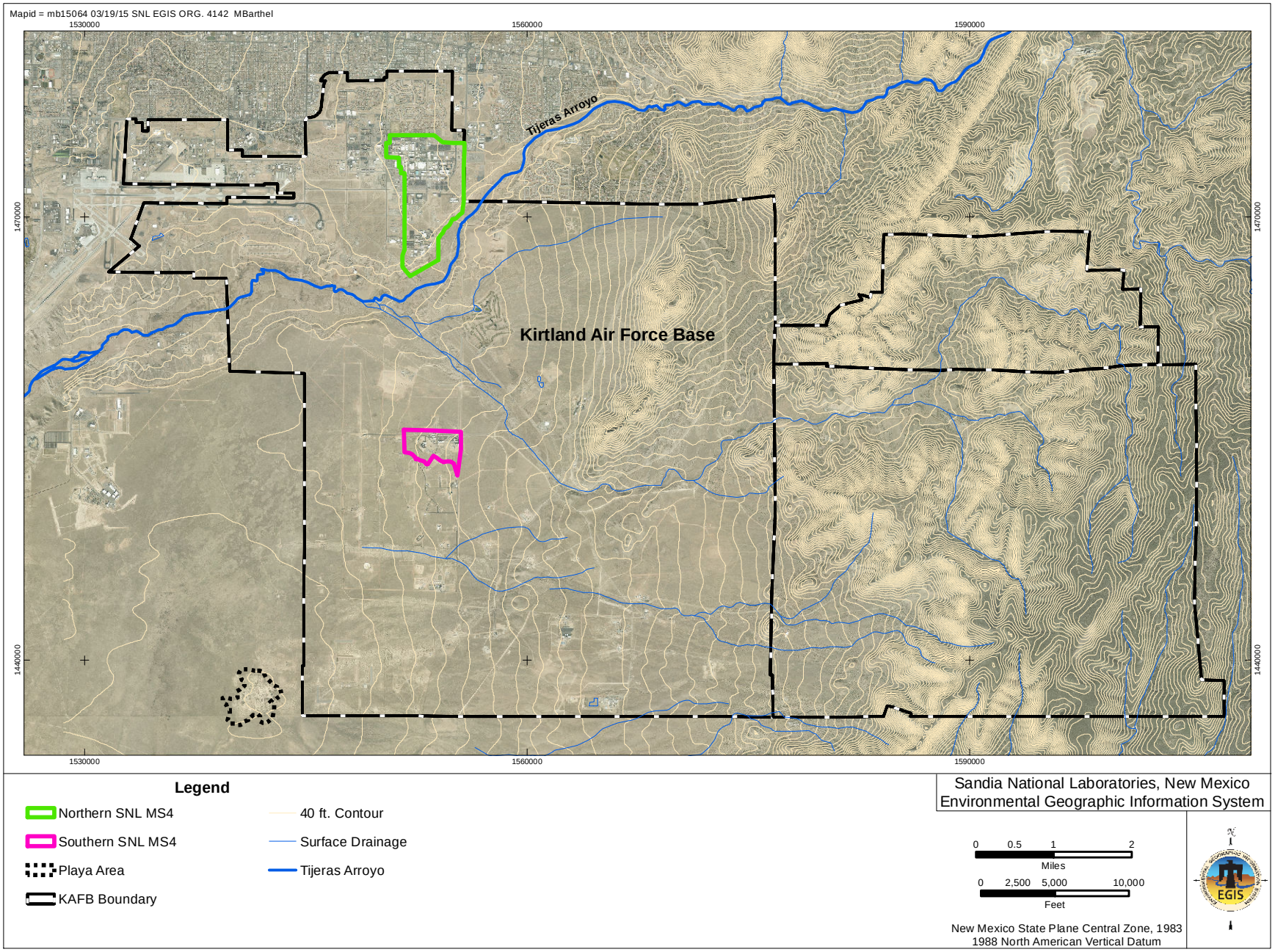


Figure 1
SNL MS4 Areas

Appendix B-2

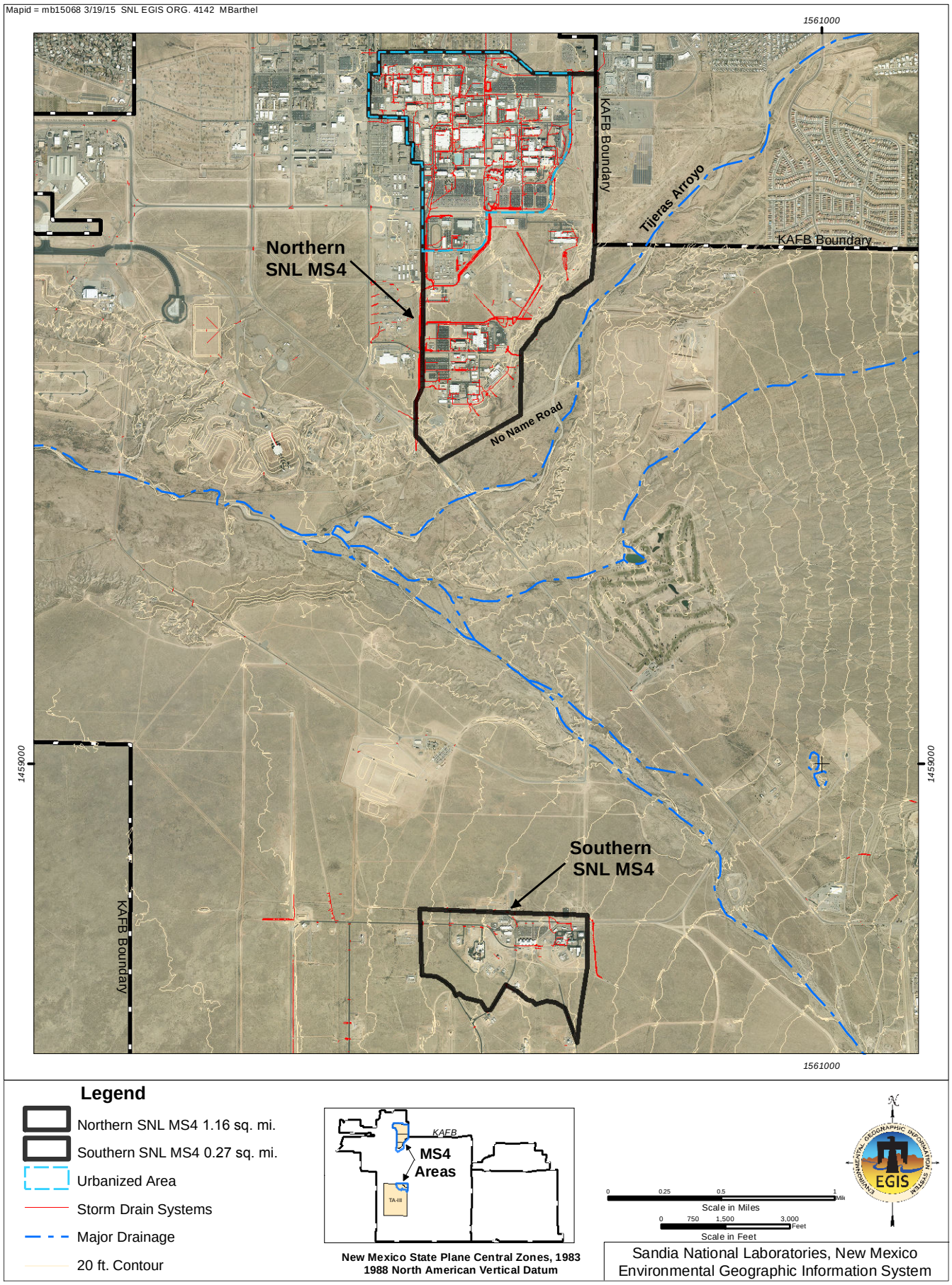
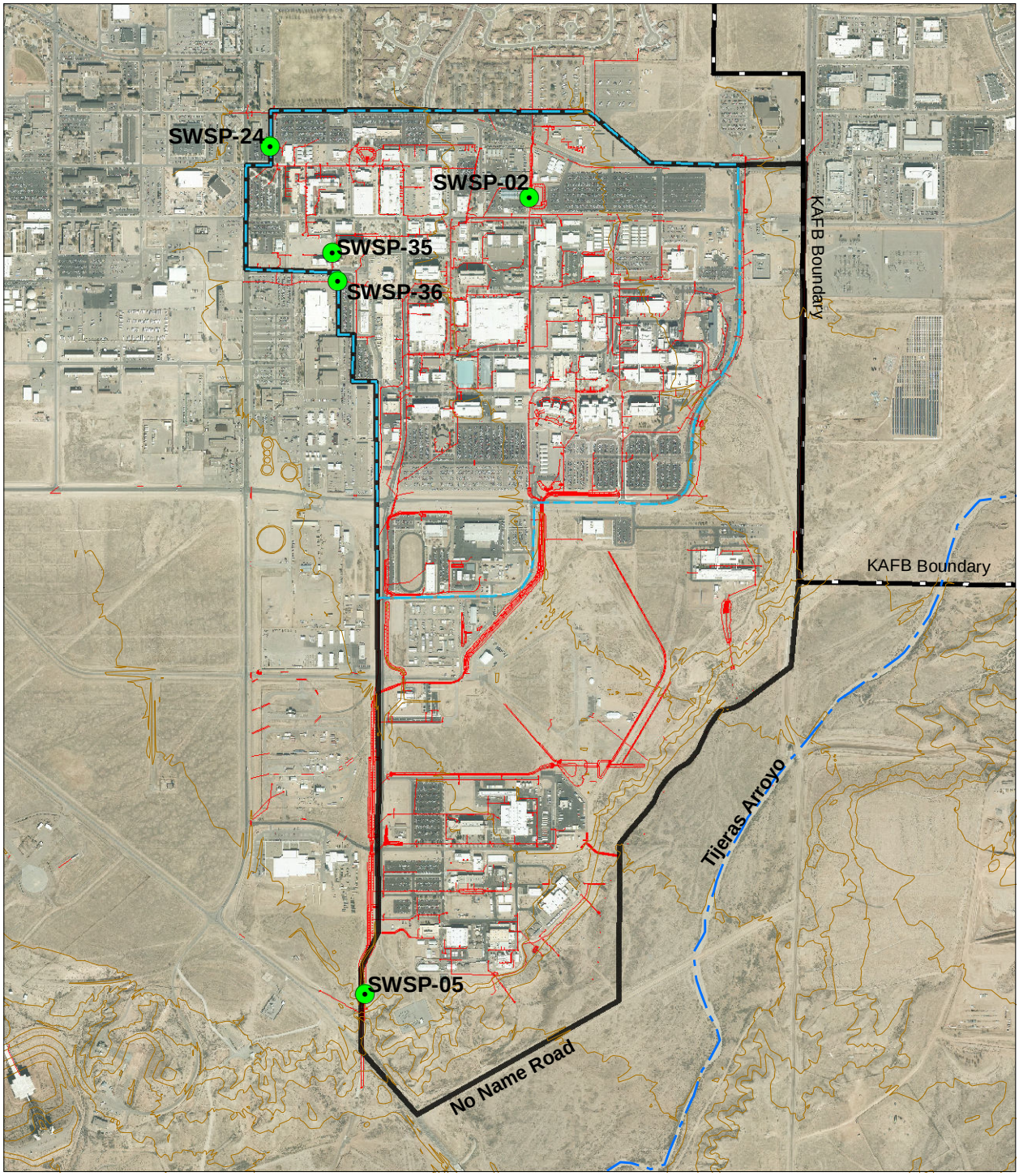


Figure 2
Northern SNL MS4 and Southern SNL MS4

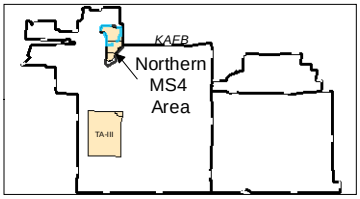
Appendix B-3

Mapid = mb15066 3/19/15 SNL EGIS ORG. 4142 MBarthel



Legend

- Water Quality Monitoring Locations
- Northern SNL MS4 1.6 sq. mi.
- Urbanized Area
- Storm Drain Systems
- Major Drainage
- 20 ft. Contour



New Mexico State Plane Central Zones, 1983
1988 North American Vertical Datum

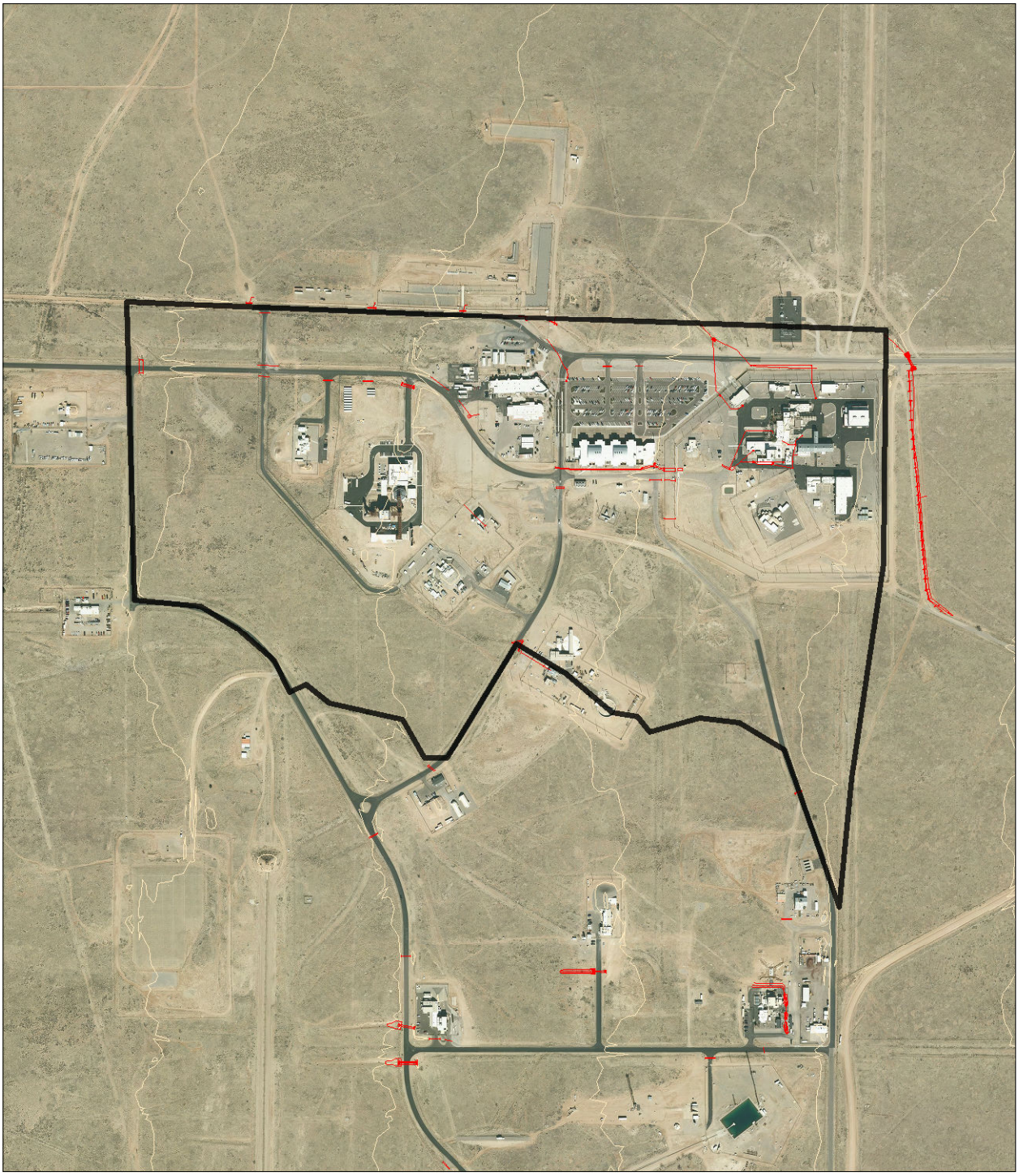
0 487.5 975 1,950
Scale in Feet
0 145 290 580
Scale in Meters

Sandia National Laboratories, New Mexico
Environmental Geographic Information System

Figure 3
Northern SNL MS4

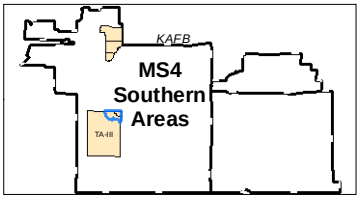
Appendix B-4

Mapid = mb15067 3/19/15 SNL EGIS ORG. 4142 MBarthel



Legend

- Southern SNL MS4 0.27 sq. mi.
- Storm Drain Systems
- 20 ft. Contour



New Mexico State Plane Central Zones, 1983
1988 North American Vertical Datum

0 0.05 0.1 0.2
Scale in Miles

0 190 380 760 Feet
Scale in Feet

Sandia National Laboratories, New Mexico
Environmental Geographic Information System

Figure 4
Southern SNL MS4

Appendix B-5

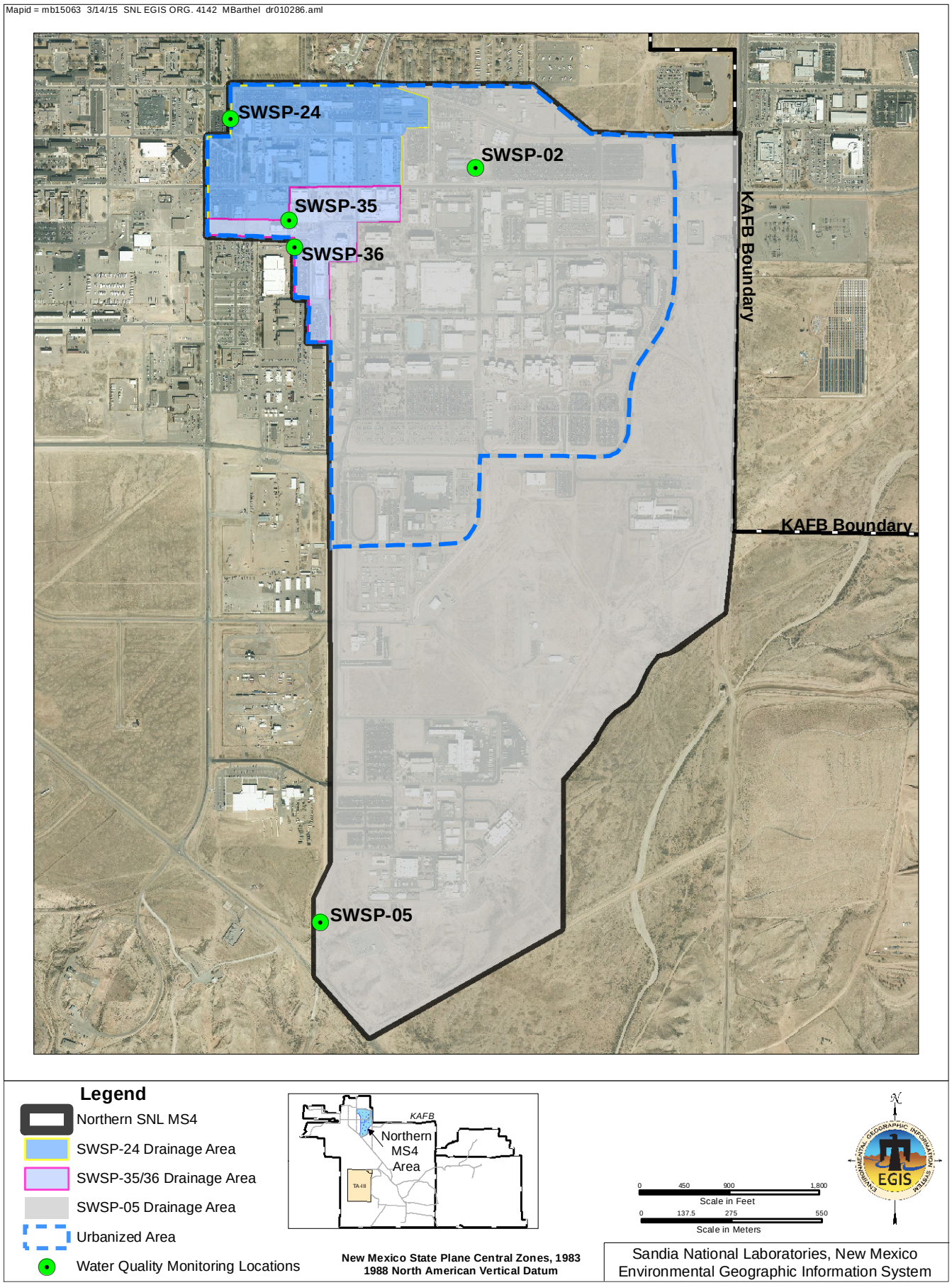


Figure 5
Northern MS4 Drainage Areas and Monitoring Locations

Appendix C: Notice of Intents and Public Notice

No.	Description
C-1	Notice of Intent for DOE
C-2	Notice of Intent for Sandia Corporation
C-3	Legal Notice
C-4	Mailing Notice

Appendix C-1

NOTICE OF INTENT

National Pollutant Discharge Elimination System Stormwater Program
MS4 Notice of Intent Format

Check box if you are submitting an individual NOI with one or more cooperative program elements. ☐

Check box if you are submitting an individual NOI with individual program elements only. ☒

Check box if your municipality or organization was previously covered under a MS4 permit. ☐

Please indicate the permittee class type: (Note: The definition of the permittee class type is located in Table 1 of Part I.B.1.)

☐ A (Phase I) ☐ B (Phase II) ☒ C (New Phase II) ☐ D (MS4s within Indian Lands)

I. MS4(s) Information

A. General Information

Department of Energy/Sandia National Laboratories (DOE/SNL)

Name of MS4

Karen | Agogino | Water Prg. Mgr.

Name of Contact Person (First) (Last) (Title)

(505) 845-6100 | karen.agogino@nnsa.doe.gov

Telephone (including area code) Email

U. S. Department of Energy, National Nuclear Security Administration, Sandia Field Office, P.O. Box 5400

Mailing Address

Albuquerque | NM | 87185

City State ZIP code

What size population does your MS4(s) serve? Approx. 9,500

The operator is: ☒ Federal ☐ State ☐ Tribal ☐ other public (check one)

B. In what urbanized area (UA), the MS4 is located in:

Farmington UA	☐
Santa Fe UA	☐
Albuquerque UA	☒
Los Lunas UA	☐
Las Cruces UA	☐
El Paso UA	☐

C. If not located in an UA, the MS4 is located in:

Core Municipality	
Indian Reservation/Pueblo	
County(ies)	
Cluster	

D. Is this a Phase I MS4? ☐ Yes ☒ No

Is this a Non-traditional MS4? ☒ Yes ☐ No

If so, Check one: ☐ Dept. of Transportation ☐ Flood Control Authority ☐ University

Other - Specify Federal Facility

What is the Latitude and longitude of the approximate center of the MS4?

Latitude 1553568.97 Longitude 1471853.93

II. Eligibility Determination

A. Receiving Water(s) Information

Does the MS4 discharge to any waters for which an TMDL applicable to discharges from the MS4 has been approved? (See Part I.A.5.f) ☒ Yes ☐ No ☐ NA

The receiving water(s) are:	*State or Tribal Segment ID*	*Approved TMDL*	*TMDL assigns WLA to MS4*
Tijeras Arroyo (SNL MS4 discharge point)	NM-9000.A_070	☐ Yes ☒ No	☐ Yes ☒ No
Middle Rio Grande (via Tijeras Arroyo)	NM-2105_50	☒ Yes ☐ No	☒ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No

Is the MS4 (or a group of MS4s) seeking an alternative sub-measureable goal for TMDL controls under Part I.C.2.b.(i).(c).B? ☐ Yes ☒ No ☐ NA

If so, the MS4 or a group of MS4s must submit a preliminary proposal with the NOI to EPA and NMED (see Part I.B.2.k, Section B.2 in Appendix B and Part III.D.4). This proposal should include, but is not limited to, the elements included in Appendix B under Section B.2 of the permit

If the MS4 discharges to a receiving water for which EPA has approved or developed a TMDL, describe how the eligibility requirements of Part I.A.5.f and Part I.C.2. have been met :

DOE and Sandia will implement measures or controls that are consistent with the EPA-approved TMDL through the SWMP, as documented in the SWMP Plan.
TMDL requirements will be complied with through the development of targeted controls, measurable goals, monitoring, and reporting as described in Section 2.4 of the SWMP Plan.
Sandia has calculated a waste load allocation (WLA) based on the permit-assigned MS4 WLA, which will serve as a quantitative measurable goal.
DOE and Sandia will monitor all SNL MS4 inflows and outflows and determine waste loads for each. A total MS4 WL will be determined and evaluated against the WLA.

B. Is the MS4 partially located on Indian Country lands? ☐ Yes ☒ No

If so, the Indian Country Lands include the following: (NOTE: MS4s straddling State and Indian Country land boundaries will be issued authorization under all applicable permits and may have additional State or Tribal-specific requirements applicable to different areas of the MS4 - see Part VIII and initial notification under Part III.D.4)

C. Is the permit in compliance with the National Historic Preservation Act (NHPA)? ☒ Yes ☐ No

In order to be eligible for coverage under this permit, the MS4 operator must meet one of the following criteria: (Please check which criterion the MS4 is eligible under)

Criterion A: 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. ☒

Criterion B: the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) (or equivalent tribal authority) that outlines all measures the MS4 operator will undertake to mitigate or prevent adverse effect to the historic property. ☐

Provide a brief summary of the basis for the criterion selected above:

There are no DOE-owned SNL properties listed on the National Register of Historic Places. The requirements of Part IV.U of the MS4 Permit do not apply to SNL.
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.
Construction and stormwater management/sampling activities proposed in the SWMP Plan are not anticipated to impact any known archaeological or cultural resources.
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.

III. Preliminary Description of the Proposed Stormwater Program

As applicable, use Sections 1 through 8 below to describe the storm water management program (SWMP), including best management practices (BMPs) or storm water controls that will be implemented and the measurable goals for each of the storm water minimum control measures specified in Part I.D.5 of this permit, the month and year in which the MS4 operator will start and fully implement each of the minimum control measures or the frequency of the action, the name of the person(s) or position(s) responsible for implementing or coordinating the SWMP.

If the MS4 operator is participating in cooperative programs with other parties (or is relying on another governmental entity) to satisfy one or more permit obligations (see Part I.D.3), use the space provided under ***Cooperative Elements*** to identify the partners and briefly describe roles and responsibilities.

NOTE:

The space provided in the fields below (255 characters) should be used to briefly describe proposed BMPs and corresponding measurable goals. Individual boxes should be used to describe individual target activities. If additional space is required to describe target activities, the MS4(s) should attach such as information with the NOI using the format provided.

Section 1. Construction Site Stormwater Runoff Control – Proposed BMPS, Stormwater Controls, and Measurable Goals

1.1. Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)

Sandia's Environmental Programs Department currently maintains Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges to address stormwater discharges at SNL.

Revisions to the procedure are in progress to meet all of the MS4 Permit requirements, and to specifically require compliance with the CGP, including the installation of erosion and sediment controls at construction sites.

Sandia can enforce corporate procedures with disciplinary action up to and including termination of employment. Enforcement of the SWMP will be addressed through the protocol discussed in Section 1.6 of the SWMP Plan.

DOE can enforce on Sandia through contract DE-AC04-94AL85000, which requires Sandia to comply with applicable Federal, State, and local laws and regulations.

Cooperative Elements

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

1.2. Develop requirements and procedures as required in Part I.D.5.a.(ii)(b) through in Part I.D.5.a.(ii)(h)

DOE and Sandia currently comply with the CGP and the majority of the requirements of these Parts of the MS4 Permit. See Section 5.2.2.1 of the SWMP Plan for details.

DOE and Sandia have a process in place for educating personnel and construction contractors involved in the planning, review, permitting, and/or approval of construction activities. See Section 5.2.2.2 of the SWMP Plan for details.

In addition to maintaining a rigorous CGP process, DOE and Sandia will revise Corporate Procedure ESH.100.2. ENV10 to include all requirements of the MS4 Permit. See Section 5.2.2.3 of the SWMP Plan for details.

Cooperative Elements

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

1.3. Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.5.a.(iii)

Construction site inspections are routinely performed by the Sandia Stormwater Team in accordance with the CGP and SWPPP requirements.

100 percent of all construction projects cumulatively disturbing one or more acres within the MS4 jurisdiction will be inspected many 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 Notice of Termination, to verify proper final stabilization. See 5.2.3 of the SWMP Plan.

Cooperative Elements

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

1.4. Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.a.(iv)

Currently, when a construction SWPPP is developed, the Environmental Programs Department promotes coordination with many departments that have responsibilities associated with construction projects/ activities. See SWMP Plan Section 5.2.4.

As the SMWP evolves, the Stormwater Team identified in Section 1.7 of the SWMP Plan will expand to include subject matter experts and points of contacts in multiple organizations including Environmental and Facilities Programs.

Cooperative Elements

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

1.5. Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.5.a.(v)

SNL buildings (new/renovations) must comply with the Guiding Principles for Federal Leadership in High Performance Sustainable Building. Over $5M, they must achieve the U.S. Green Building Council's certification of LEED Gold for New Construction.

DOE and Sandia currently review projects in the construction planning stages to demonstrate compliance GI/LID/Sustainable Practices.

A summary of the annual construction projects (one acre or more) that incorporated GI/LID/Sustainable Practices will be included with the SWMP Plan revisions associated with the Annual Report.

More details on the SNL's compliance with GI/LID/Sustainable Practices are included in Section 6 of the SWMP Plan.

Cooperative Elements

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

1.6. Enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(x)

DOE and Sandia use stormwater educational material and training courses to educate personnel about how their job duties may impact stormwater quality.

Stormwater regulation is and will continue to be considered in the development and revision of construction guidelines and manuals at SNL.

Cooperative Elements

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

1.7. Describe other proposed activities to address the Construction Site Stormwater Runoff Control Measure:

Although not required, in 2014 Sandia began requiring the installation of stormwater controls and pollution prevention measures to address the most critical pollutant sources at construction sites less than one acre in size.

Sediment controls for any storm drains or drop inlets within the boundary of the project area are required. Portable toilets must be secured to prevent tipping (e.g., stake with rebar or bolt to trailer).

Chemicals stored outdoors must be covered/containerized and on secondary containment to prevent contact with stormwater. Containers and trucks containing paint, concrete or other building products must be washed into an appropriate waste container.

Section 2. Post-Construction Stormwater Management in New Development and Redevelopment – Proposed BMPs, Stormwater Controls, and Measurable Goals

2.1. Development of strategies as required in Part I.D.5.b.(ii).(a)

A combination of structural and/or non-structural best management practices (BMPs) will be implemented to control pollutants in stormwater runoff on new development and redevelopment projects within the SNL MS4.

Details of the strategies are discussed in Section 6.2 of the SWMP Plan.

Cooperative Elements

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

2.2. Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii).(b)

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include requirements of the MS4 Permit, EISA and 19.26.2.15 NMAC to address post-construction runoff from new development and redevelopment projects.

Cooperative Elements

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

2.3. Implementation and enforcement, via the ordinance or other regulatory mechanism, of site design standards as required in Part I.D.5.b.(ii).(b).

SNL is a Federal facility and currently complies with the EISA, Section 438 of the CWA, for the purposes of preserving or restoring predevelopment hydrology for all development and redevelopment projects with a footprint that exceeds 5,000 square feet.

DOE and Sandia manage post-construction runoff by either retaining stormwater from a 95th percentile storm (1.0 inch) onsite (most common); or retaining the calculated volume of the difference between predevelopment and postdevelopment runoff.

SNL will be constructing detention basins for post-construction stormwater management (pursuant to Section 438 and the MS4 Permit) and may be constructing basins as sediment control BMPs that are compliant with Office of the State Engineer requirements.

See SWMP Plan Section 6.2.3 for additional detail.

Cooperative Elements

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

2.4. Ensure appropriate implementation of structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d)

Pre-construction reviews of BMP designs will be completed during development of construction SWPPPs, as described in Section 5.2.2 of the SWMP Plan.

Inspections will be performed during construction to verify post-construction stormwater management BMPs are being built as designed.

An inspection will be performed upon completion of construction to verify post-construction stormwater management BMPs are completed as designed, and once per year thereafter to verify proper maintenance.

Non-compliance will be addressed through the enforcement protocol discussed in Section 1.6 of the SWMP Plan.

Cooperative Elements

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

2.5. Develop procedures as required in Part I.D.5.b.(ii).(e), Part I.D.5.b.(ii).(f), Part I.D.5.b.(ii).(g), and Part I.D.5.b.(ii).(h)

Sandia Corporate Training (SW100) Stormwater Pollution Prevention Training will be revised to address the awareness of site design techniques and controls, including GI/LID/Sustainability Practices, and the SNL SSP.

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include the elements listed in Section 6.2.5 of the SWMP Plan such as requiring training, site inspections, as-built plans and revision of the procedure, as necessary.

Corporate Procedure ESH.100.2.ENV10 and the Sandia Integrated Pest Management Plan will be revised to include controls for pesticides, herbicides, and fertilizers with respect to application, storage, and training. See Section 6.2.5 of the SWMP Plan.

Cooperative Elements

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

2.6. Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.b.(iii)

As the SMWP develops, the Stormwater Team identified in Section 1.7 of this SWMP Plan will evolve to include subject matter experts and points of contacts in multiple organizations including Environmental Programs and Facilities.

DOE and Sandia will coordinate with all departments that have responsibilities associated with the planning, review, permitting, or approval of new development and redevelopment projects/activities within the SNL MS4.

The requirement to ensure the hydrology associated with new development and redevelopment sites mimics the pre-development hydrology of the previously undeveloped site will be discussed prior to the development of a CGP SWPPP (Section 5.2.2 of SWMP Plan).

Cooperative Elements

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

2.7. As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices

SNL is a federal facility and therefore DOE and Sandia are required to comply with numerous Executive Orders, the EISA and other Acts, as well as other federal mandates regarding sustainability.

Sandia prepares the SNL Site Sustainability Plan (SSP; see the SWMP Plan Appendix) annually in support of DOE's Strategic Sustainability Performance Plan (SSPP). As part of this process, GI/LID/Sustainable Practices are evaluated.

See Section 6.2.7 of the SWMP Plan for additional details.

Cooperative Elements

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

2.8. As required in Part I.D.5.b.(iv), describe the plan to report the assessment findings on GI/LID/ Sustainable practices

DOE and Sandia will review the initiatives of the SSP on an annual basis and summarize the notable GI/LID/ Sustainable Practices in the Annual Report.

See Section 6.2.7 of the SWMP Plan for details.

Cooperative Elements

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

2.9. Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi)

The number of acres of impervious area (IA; including conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops) will be estimated for the SNL MS4 and included in the SWMP Plan submitted with the first Annual Report.

The 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) will be estimated for the SNL MS4.

Cooperative Elements

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

2.10. Inventory and priority ranking as required in section in Part I.D.5.b.(vii)

DOE and Sandia will conduct an inventory and 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.

Cooperative Elements

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

2.11. Incorporate watershed protection elements as required in Part I.D.5.b.(viii)

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include the watershed protection elements listed in Section 6.2.10 of the SWMP Plan such as recommendations:

to identify environmentally and ecologically sensitive areas that serve critical watershed functions; for disconnecting direct discharges from impervious surfaces; for implementing stormwater management practices that protect groundwater quality;

to avoid or prevent hydromodification of water bodies; to protect native soils, prevent topsoil stripping, and prevent compaction of soils; and to maintain pre-development runoff conditions.

Cooperative Elements

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

2.12. Enhance the program to include program elements in Part I.D.5.b.(xi) and Part I.D.5.b.(xii)

DOE and Sandia use stormwater educational material and training courses to educate personnel about how their job duties may impact stormwater quality.

DOE and Sandia participate in local stakeholder groups, including the Technical Advisory Group (TAG) that was formed to help local MS4s understand, collaborate, and comply with Permit NMR04A000.

Cooperative Elements

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

2.13. Describe other proposed activities to address the Post-Construction Stormwater Management in New Development and Redevelopment Measure:

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

An annual 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 ninety days of construction completion.

A log will be maintained to summarize any additional measures that have been implemented to decrease impervious areas, decrease stormwater discharges, and/or improve water quality. The log will be updated annually.

Section 3. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations – Proposed BMPs, Stormwater Controls, and Measurable Goals

3.1. Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i)

DOE and Sandia already require annual stormwater pollution prevention training for personnel with job duties that have the potential to impact stormwater quality.

Waste is managed through the Solid Waste Collection and Recycling Center (a facility designed to manage solid waste and recyclable materials generated by SNL).

As needed, DOE and Sandia will clean debris, floatables, and sediment from basins, ditches, and other conveyance infrastructure.

An assessment of technical guidance documents will be performed to determine water quality impacts and the potential for incorporation of water quality controls into new flood control projects. See Section 7.2.1 of the SWMP Plan.

Cooperative Elements

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

3.2. Enhance the program to include the elements in Part I.D.5.c.(ii)

DOE and Sandia will evaluate the successfulness of the program and modify the SWMP with respect to each of the elements of Part I.D.5.c.(ii) as described in Section 7.2.1.6 of the SWMP Plan, including but not limited to the items listed below:

- Develop a list of all stormwater quality facilities, including location and description
- Develop an operational model for de-icing activities, including methods to protect water quality
- Update plan to decrease runoff of vehicle related pollutants

- A review and revision of the existing street sweeping plan and schedule
- A list of the roadways most likely contributing to pollution in runoff
- A review and revision of existing plan for collecting used motor vehicle fluids

- A review and revision of the existing procedures and schedule for cleaning debris and sediment from the stormwater drainage system
- A review and revision of the existing litter control program, including public awareness campaigns

Cooperative Elements

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

3.3. Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii)

DOE and Sandia discharge industrial stormwater at SNL in accordance with the provisions of the Multi-Sector General Permit (MSGP) as authorized by NMR05GP29 (DOE) and NMR05GQ63 (Sandia), as discussed in Sections 1.2.4 and 1.4.6 of the SWMP Plan.

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.

Cooperative Elements

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

3.4. Describe other proposed activities to address the Pollution Prevention/Good Housekeeping for Municipal/permittee Operations Measure:

Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges, and Corporate Training SW100 - Stormwater Pollution Prevention Training, will be reviewed and updated annually, at a minimum.
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.
The chemicals and application methods associated with deicing operations and storage at SNL will be reviewed and procedures revised (as necessary) by December 22, 2016.
DOE and Sandia will prepare a cumulative summary of retrofit evaluations conducted during the Permit term on existing flood control devices, structures and drainage ways to benefit water quality.

Section 4: Industrial and High Risk Runoff – Proposed BMPs, Stormwater Controls, and Measurable Goals (APPLICABLE ONLY TO CLASS A PERMITTTEES)

4.1. Ordinance (or other control method) as required in Part I.D.5.d.(i)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.2. Continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report as required in Part I.D.5.d.(ii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.3. Meet the monitoring requirements in Part I.D.5.d.(iii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.4. Include requirements in Part I.D.5.d.(iv)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.5. Enhance the program to include requirements in Part I.D.5.d.(vii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.6. Describe other proposed activities to address the Industrial and High Risk Runoff Measure:

DOE and Sandia are Class C permittees; Section 4 does not apply.

Section 5. Illicit Discharges and Improper Disposal – Proposed BMPs, Stormwater Controls, and Measurable Goals

5.1. Mapping as required in Part I.D.5.e.(i)(a)

A map of the SNL MS4 stormwater drainage system, indicating all outfalls and the names and locations of all waters of the U.S. that receive discharges from those outfalls is provided in Appendix B of the SWMP Plan.

Cooperative Elements

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

5.2. Ordinance (or other control method) as required in Part I.D.5.e.(i)(b)

Sandia currently has a corporate procedure that prohibits discharges to the surface without prior approval from the Environmental Programs Department (Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges).

Corporate Procedure ESH100.2.ENV.10 is presented to personnel as a component of annual mandatory corporate training materials, and other safety and environmental screening processes. ESH100.2.ENV.10 is summarized in SWMP Plan Section 8.2.2.

Cooperative Elements

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

5.3. Develop and implement a IDDE plan as required in Part I.D.5.e.(i)(c)

The Sandia workforce is trained to prevent and report activities or events with the potential to cause environmental harm.

If an illicit discharge is observed, the Stormwater Team will perform or coordinate visual screening, employee interviews, field parameters and sample collection to identify possible sources.

Enforcement of the IDDEP will be addressed through Corporate Policy and the protocol discussed in Section 1.6 of the SWMP Plan.

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. Additional details are provided in Section 8.2.3 of the SWMP Plan.

Cooperative Elements

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

5.4. Develop an education program as required in Part I.D.5.e.(i)(d)

Sandia will be debuting a stormwater awareness campaign in 2015, "Stormwater - Keep it Clean" to include educational brochures, posters and a publication in The Porcelain Press (discussed in more detail in Section 10 of the SWMP Plan).

The campaign will target Members of the Workforce to raise stormwater quality awareness and advertise training, and will occur during each wet season (July 1 through October 31).

The corporate stormwater pollution prevention training is offered online at any time and is also given in a live presentation to keys groups of employees that have the greatest potential to impact stormwater quality.

Copies of the most recent editions of these materials will be included as an appendix to the SWMP Plan.

Cooperative Elements

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

5.5. Establish a hotline as required in Part I.D.5.e.(i)(e)

Using any landline at SNL, 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 Sandia Emergency Operations Center (EOC) is available at 844-6515 for spill response and cleanup.

Sandia is the primary recipient of calls from these numbers. DOE and various departments within Sandia are in the chain of notification and response.

Cooperative Elements

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

5.6. Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i)(f)

All illicit discharges at SNL are taken seriously by DOE and Sandia. Should an illicit discharge be detected, it will be investigated within 48 hours, and the sources identified as soon as possible.

Any additional controls (administrative and/or engineered) necessary to prevent future discharges will be implemented as soon as practicable.

Cooperative Elements

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

5.7. Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i)(g)

Part I.D.5.e.(i)(g) is applicable to class A and B Permittees only; as a class C permittee this requirement does not apply to DOE and Sandia.

Cooperative Elements

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

5.8. Screening of system as required in Part I.D.5.e.(iii) as follows:

The SNL MS4 has no identified high priority areas at this time.

Screening of the SNL MS4 is informally conducted on on-going basis by field personnel 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 illicit discharge.

Any illicit discharge encountered will be sampled, tracked to its source, and corrected through administrative or engineered control measures.

Cooperative Elements

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

5.9. Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv)

Sandia has a well developed waste management and recycling program. The program is described in Section 8.2.9 of the SWMP Plan. The program includes education and involvement of all workforce members.

The SNL Solid Waste Collection & Recycling Center (SWCRC) has three purposes:
1. Screen the SNL's collected solid waste and recyclables for prohibited materials.
2. Bale, store, and ship solid waste to an approved landfill.

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/demolition scrap metals.

Hazardous waste generated at SNL is handled under Corporate Procedure ESH100.2.ENV.22. This procedure provides detailed instructions for using, labeling, storing, accumulating, managing, and transporting waste to disposal facilities.

Cooperative Elements

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

5.10. Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v)

Sandia has a detailed Spill Prevention Control and Countermeasure Plan that includes prevention measures including inspections, testing, records, security, operational procedures, best management practices, and personnel.

In the event of a release, Sandia maintains a sophisticated system of containment facilities, trained response staff, and emergency equipment to prevent pollutants from entering the stormwater drainage system.

Cooperative Elements

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

5.11. Enhance the program to include requirements in Part I.D.5.e.(ix)

Sandia will utilize ideas from the manual "Illicit Discharge Detection and Elimination, A Guidance Document for Program Development and Technical Assessments" to enhance the IDDE Program as needed.

Cooperative Elements

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

5.12. Describe other proposed activities to address the Illicit Discharges and Improper Disposal Measure:

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

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.

An annual summary of solid waste management will be included in the SWMP Plan revision included with each Annual Report.

Section 6. Control of Floatables Discharges – Proposed BMPs, Stormwater Controls, and Measurable Goals

6.1. Develop a schedule to implement the program as required in Part I.D.5.f.(i)(a)

SNL's smoke-free campus and the culture of the workforce foster an environment such that solid waste dumping (i.e., littering) is uncommon.

Additionally, on a larger scale, Sandia manages floatables through administrative and source controls, through robust waste management and pollution prevention programs. These programs are described in detail in Section 8.2 of the SWMP Plan.

For the reasons stated above, DOE and Sandia do not anticipate there to be a significant amount of floatables generated within the SNL MS4.

Cooperative Elements

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

6.2. Describe the plan to estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i)(b)

Sandia operates an aggressive waste management and pollution prevention programs that include education and a recycling facility. During FY 2014 approximately 70 percent of the solid waste generated by Sandia was recycled.

There is an insignificant litter or refuse presence within the SNL MS4.

DOE and Sandia 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.

Cooperative Elements

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

6.3. Describe other proposed activities to address the Control of Floatables Discharges Measure:

The Floatables 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.

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

The main SNL MS4 outfall measured by stormwater sampling point SWSP-05 will be inspected quarterly for the presence of floatable debris. Inspection reports will be maintained with the SWMP Plan.

An annual assessment of the Floatables Program will be conducted to evaluate the need for structural controls.

Section 7. Public Education and Outreach on Stormwater Impacts – proposed BMPs, Stormwater Controls, and Measurable Goals

7.1. Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii)

The Stormwater Quality Program has a website for access by personnel containing basic regulatory requirements pertaining to the protection of stormwater quality, training information and contacts for the Stormwater Team.

Corporate Training (SW100) Stormwater Pollution Prevention Training is available online to personnel, and performed as a live presentation upon request.

A stormwater pollution prevention informational brochure is distributed at the cafeteria during environmental events and other events such as Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day.

Sandia owns educational models for stormwater/watershed, groundwater, and drinking water/wastewater and performs demonstrations to students in the classroom, during Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day.

Cooperative Elements

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

7.2. Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii)

DOE and Sandia may utilize educational materials and program elements as needed to improve the public outreach program.

Educational elements for proper septic system maintenance, proper use and disposal of fertilizers and pesticides, and proper disposal of motor oil and household hazardous wastes will be incorporated into DOE's and Sandia's educational program.

Information about litter reduction, recycling, reduction of pesticide/herbicide use, xeriscaping and reduced water consumption, pet waste and solid waste management will be incorporated into DOE's and Sandia's educational program.

Cooperative Elements

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

7.3. Describe other proposed activities to address the Public Education and Outreach on Stormwater Impacts Measure:

The corporate online training system that disseminates Stormwater Pollution Prevention Training (SW100) is equipped to track completion. DOE's and Sandia's goal is to maintain a minimum of 90 percent annual participation in SW100 training.

The informational brochures and campaign posters will be reviewed and updated annually to ensure regulatory and contact information is current, and to respond to the educational and training needs of the workforce.

Starting in 2016, the Stormwater Team will hold a minimum of three events per reporting period (July 1 - June 30) to perform demonstrations of the educational models to grade-school children and personnel.

Section 8. Public Involvement and Participation – Proposed BMPs, Stormwater Controls, and Measurable Goals

8.1. Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii) and Part I.D.5.h.(iii)

The Public Involvement and Participation Program (PIPP) will include a comprehensive planning process which involves public participation and, where necessary, intergovernmental coordination. The PIPP is described in Section 11 of the SWMP Plan.

DOE and Sandia will notify the public via legal notice in the Albuquerque Journal for a period of 30 days, prior to the submission of the NOI (and associated SWMP Plan) and each Annual Report (and associated SWMP Plan revision).

A copy of the MS4 Permit and the applicable documents (i.e., NOI, Annual Report, SWMP Plan, etc.) will be maintained up-to-date through the University of New Mexico (UNM) LoboVault online database (https://repository.unm.edu/handle/1928/26737).

A functional behavioral assessment will be performed at DOE/DoD Semi-Annual Public Meeting, where the topic of "stormwater" is presented. The public's antecedent (before), present (during), and consequence (after) behavior will be observed and recorded.

Cooperative Elements

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

8.2. Describe the plan to comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv)

DOE and Sandia will comply with State, Tribal, and local public notice requirements when implementing a public involvement/ participation program.

Cooperative Elements

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

8.3. Describe a plan to include elements as required in Part I.D.5.h.(v)

Public notices will be printed in a newspaper of general circulation in the Albuquerque area (i.e., The Albuquerque Journal) and be available online.

The DOE/DoD Semi-Annual Public Meetings are open to all citizens and the public is encouraged to attend. The meetings will be used as a mechanism to discuss stormwater permitting at SNL.

The MS4 Permit (specifically Appendix E), NOIs and SWMP Plan will be available at https://repository.unm.edu/handle/1928/26737 through the University of New Mexico (UNM) LoboVault on-line database.

Physical copies of documents posted to the UNM LoboVault will be available at the UNM Zimmerman Library. Contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment.

Cooperative Elements

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

8.4. As required in Part I.D.5.h.(viii) provide the internet site (or website) where the SWMP document, Annual Reports, and other documents will be available to the public.

8.5. Enhance the program to include requirements in Part I.D.5.h.(ix)

DOE and Sandia will consider options for enhancing the PIPP as needed based on the results of the previous year(s).

Cooperative Elements

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

8.6. Describe other proposed activities to address the Public Involvement and Participation Measure:

Comments received by the public in response to any and all public notices will be considered and maintained with the SWMP Plan for the duration of the Permit term.

DOE and Sandia will perform one functional behavioral assessment during the Permit team at DOE/DoD Semi-Annual Public Meeting, before, during and after the topic of "stormwater" is presented.

IV. Proposed Monitoring Program

Indicate wet weather monitoring program preference:

Individual Monitoring Program ☒

Cooperative Monitoring Program ☐

Provide a general description of the propose monitoring program.

Wet weather and dry weather monitoring will be conducted in compliance with the location, frequency, constituent, and method requirements described in Part III of the Permit. Monitoring is described in more detail in Section 12 of the SWMP Plan.

DOE and Sandia will collect samples at all SNL MS4 inlets and outlets. This will include 1 inlet location and 4 outlet locations. Flow will be measured at the inlet and main outlet of the MS4.

A map of monitoring locations is provided in Appendix B of the SWMP Plan. E. coli waste loads will be determined for each monitoring location and evaluated for compliance with TMDL's.

V. Public Participation

Include a Summary of issues raised in any local public comments received by the MS4 Operator on the draft NOI/SWMP and MS4 operator's responses.

Public comments and responses to them will be provided to EPA and NMED at the time the NOI and SWMP Plan are submitted (on or before June 20, 2015).

VI. Attachments

Attach a location map showing the boundaries of the MS4 under the applicant's jurisdiction. The map must include streets or other demarcations so that the exact boundaries can be located.

Are other attachments included with the NOI? If so, indicate the title of the document(s).

SWMP Plan v.0, dated May 4, 2015 (https://repository.unm.edu/handle/1928/26737)

Maps are included as Appendix B of the SWMP Plan.

VII. Certification

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 gathered and evaluated 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.

Signature: [signature]

Printed Name: Jeffrey P. Harrell

Date: 5/5/2015

Appendix C-2

NOTICE OF INTENT

National Pollutant Discharge Elimination System Stormwater Program
MS4 Notice of Intent Format

Check box if you are submitting an individual NOI with one or more cooperative program elements. ☐

Check box if you are submitting an individual NOI with individual program elements only. ☒

Check box if your municipality or organization was previously covered under a MS4 permit. ☐

Please indicate the permittee class type: (Note: The definition of the permittee class type is located in Table 1 of Part I.B.1.)

☐ A (Phase I) ☐ B (Phase II) ☒ C (New Phase II) ☐ D (MS4s within Indian Lands)

I. MS4(s) Information

A. General Information

Department of Energy/Sandia National Laboratories (DOE/SNL)

Name of MS4

Kathie — Name of Contact Person (First)

Deal — (Last)

Stormwater Lead — (Title)

(505) 844-8503 — Telephone (including area code)

kjdeal@sandia.gov — Email

P.O. Box 5800, MS-0730

Mailing Address

Albuquerque — City

NM — State

87185-0730 — ZIP code

What size population does your MS4(s) serve? Approx. 9,500

The operator is: ☒ Federal ☐ State ☐ Tribal ☐ other public (check one)

B. In what urbanized area (UA), the MS4 is located in:

Farmington UA	☐
Santa Fe UA	☐
Albuquerque UA	☒
Los Lunas UA	☐
Las Cruces UA	☐
El Paso UA	☐

C. If not located in an UA, the MS4 is located in:

Core Municipality	
Indian Reservation/Pueblo	
County(ies)	
Cluster	

D. Is this a Phase I MS4? ☐ Yes ☒ No

Is this a Non-traditional MS4? ☒ Yes ☐ No

If so, Check one: ☐ Dept. of Transportation ☐ Flood Control Authority ☐ University

Other - Specify Federal Facility

What is the Latitude and longitude of the approximate center of the MS4?

Latitude 1553568.97 Longitude 1471853.93

II. Eligibility Determination

A. Receiving Water(s) Information

Does the MS4 discharge to any waters for which an TMDL applicable to discharges from the MS4 has been approved? (See Part I.A.5.f) ☒ Yes ☐ No ☐ NA

The receiving water(s) are:	*State or Tribal Segment ID*	*Approved TMDL*	*TMDL assigns WLA to MS4*
Tijeras Arroyo (SNL MS4 discharge point)	NM-9000.A_070	☐ Yes ☒ No	☐ Yes ☒ No
Middle Rio Grande (via Tijeras Arroyo)	NM-2105_50	☒ Yes ☐ No	☒ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No

Is the MS4 (or a group of MS4s) seeking an alternative sub-measureable goal for TMDL controls under Part I.C.2.b.(i).(c).B? ☐ Yes ☒ No ☐ NA

If so, the MS4 or a group of MS4s must submit a preliminary proposal with the NOI to EPA and NMED (see Part I.B.2.k, Section B.2 in Appendix B and Part III.D.4). This proposal should include, but is not limited to, the elements included in Appendix B under Section B.2 of the permit

If the MS4 discharges to a receiving water for which EPA has approved or developed a TMDL, describe how the eligibility requirements of Part I.A.5.f and Part I.C.2. have been met :

DOE and Sandia will implement measures or controls that are consistent with the EPA-approved TMDL through the SWMP, as documented in the SWMP Plan.
TMDL requirements will be complied with through the development of targeted controls, measurable goals, monitoring, and reporting as described in Section 2.4 of the SWMP Plan.
Sandia has calculated a waste load allocation (WLA) based on the permit-assigned MS4 WLA, which will serve as a quantitative measurable goal.
DOE and Sandia will monitor all SNL MS4 inflows and outflows and determine waste loads for each. A total MS4 WL will be determined and evaluated against the WLA.

B. Is the MS4 partially located on Indian Country lands? ☐ Yes ☒ No

If so, the Indian Country Lands include the following: (NOTE: MS4s straddling State and Indian Country land boundaries will be issued authorization under all applicable permits and may have additional State or Tribal-specific requirements applicable to different areas of the MS4 - see Part VIII and initial notification under Part III.D.4)

C. Is the permit in compliance with the National Historic Preservation Act (NHPA)? ☒ Yes ☐ No

In order to be eligible for coverage under this permit, the MS4 operator must meet one of the following criteria: (Please check which criterion the MS4 is eligible under)

Criterion A: 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. ☒

Criterion B: the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) (or equivalent tribal authority) that outlines all measures the MS4 operator will undertake to mitigate or prevent adverse effect to the historic property. ☐

Provide a brief summary of the basis for the criterion selected above:

There are no DOE-owned SNL properties listed on the National Register of Historic Places. The requirements of Part IV.U of the MS4 Permit do not apply to SNL.
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.
Construction and stormwater management/sampling activities proposed in the SWMP Plan are not anticipated to impact any known archaeological or cultural resources.
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.

III. Preliminary Description of the Proposed Stormwater Program

As applicable, use Sections 1 through 8 below to describe the storm water management program (SWMP), including best management practices (BMPs) or storm water controls that will be implemented and the measurable goals for each of the storm water minimum control measures specified in Part I.D.5 of this permit, the month and year in which the MS4 operator will start and fully implement each of the minimum control measures or the frequency of the action, the name of the person(s) or position(s) responsible for implementing or coordinating the SWMP.

If the MS4 operator is participating in cooperative programs with other parties (or is relying on another governmental entity) to satisfy one or more permit obligations (see Part I.D.3), use the space provided under ***Cooperative Elements*** to identify the partners and briefly describe roles and responsibilities.

NOTE:

The space provided in the fields below (255 characters) should be used to briefly describe proposed BMPs and corresponding measurable goals. Individual boxes should be used to describe individual target activities. If additional space is required to describe target activities, the MS4(s) should attach such as information with the NOI using the format provided.

Section 1. Construction Site Stormwater Runoff Control – Proposed BMPS, Stormwater Controls, and Measurable Goals

1.1. Development of an ordinance or other regulatory mechanism as required in Part I.D.5.a.(ii)(a)

Sandia's Environmental Programs Department currently maintains Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges to address stormwater discharges at SNL.

Revisions to the procedure are in progress to meet all of the MS4 Permit requirements, and to specifically require compliance with the CGP, including the installation of erosion and sediment controls at construction sites.

Sandia can enforce corporate procedures with disciplinary action up to and including termination of employment. Enforcement of the SWMP will be addressed through the protocol discussed in Section 1.6 of the SWMP Plan.

DOE can enforce on Sandia through contract DE-AC04-94AL85000, which requires Sandia to comply with applicable Federal, State, and local laws and regulations.

Cooperative Elements

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

1.2. Develop requirements and procedures as required in Part I.D.5.a.(ii)(b) through in Part I.D.5.a.(ii)(h)

DOE and Sandia currently comply with the CGP and the majority of the requirements of these Parts of the MS4 Permit. See Section 5.2.2.1 of the SWMP Plan for details.

DOE and Sandia have a process in place for educating personnel and construction contractors involved in the planning, review, permitting, and/or approval of construction activities. See Section 5.2.2.2 of the SWMP Plan for details.

In addition to maintaining a rigorous CGP process, DOE and Sandia will revise Corporate Procedure ESH.100.2. ENV10 to include all requirements of the MS4 Permit. See Section 5.2.2.3 of the SWMP Plan for details.

Cooperative Elements

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

1.3. Annually conduct site inspections of 100 percent of all construction projects cumulatively disturbing one (1) or more acres as required in Part I.D.5.a.(iii)

Construction site inspections are routinely performed by the Sandia Stormwater Team in accordance with the CGP and SWPPP requirements.

100 percent of all construction projects cumulatively disturbing one or more acres within the MS4 jurisdiction will be inspected many 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 Notice of Termination, to verify proper final stabilization. See 5.2.3 of the SWMP Plan.

Cooperative Elements

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

1.4. Coordinate with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.a.(iv)

Currently, when a construction SWPPP is developed, the Environmental Programs Department promotes coordination with many departments that have responsibilities associated with construction projects/ activities. See SWMP Plan Section 5.2.4.

As the SMWP evolves, the Stormwater Team identified in Section 1.7 of the SWMP Plan will expand to include subject matter experts and points of contacts in multiple organizations including Environmental and Facilities Programs.

Cooperative Elements

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

1.5. Evaluation of GI/LID/Sustainable practices in site plan reviews as required in Part I.D.5.a.(v)

SNL buildings (new/renovations) must comply with the Guiding Principles for Federal Leadership in High Performance Sustainable Building. Over $5M, they must achieve the U.S. Green Building Council's certification of LEED Gold for New Construction.

DOE and Sandia currently review projects in the construction planning stages to demonstrate compliance GI/LID/Sustainable Practices.

A summary of the annual construction projects (one acre or more) that incorporated GI/LID/Sustainable Practices will be included with the SWMP Plan revisions associated with the Annual Report.

More details on the SNL's compliance with GI/LID/Sustainable Practices are included in Section 6 of the SWMP Plan.

Cooperative Elements

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

1.6. Enhance the program to include program elements in Part I.D.5.a.(viii) through Part I.D.5.a.(x)

DOE and Sandia use stormwater educational material and training courses to educate personnel about how their job duties may impact stormwater quality.

Stormwater regulation is and will continue to be considered in the development and revision of construction guidelines and manuals at SNL.

Cooperative Elements

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

1.7. Describe other proposed activities to address the Construction Site Stormwater Runoff Control Measure:

Although not required, in 2014 Sandia began requiring the installation of stormwater controls and pollution prevention measures to address the most critical pollutant sources at construction sites less than one acre in size.

Sediment controls for any storm drains or drop inlets within the boundary of the project area are required. Portable toilets must be secured to prevent tipping (e.g., stake with rebar or bolt to trailer).

Chemicals stored outdoors must be covered/containerized and on secondary containment to prevent contact with stormwater. Containers and trucks containing paint, concrete or other building products must be washed into an appropriate waste container.

Section 2. Post-Construction Stormwater Management in New Development and Redevelopment – Proposed BMPs, Stormwater Controls, and Measurable Goals

2.1. Development of strategies as required in Part I.D.5.b.(ii).(a)

A combination of structural and/or non-structural best management practices (BMPs) will be implemented to control pollutants in stormwater runoff on new development and redevelopment projects within the SNL MS4.

Details of the strategies are discussed in Section 6.2 of the SWMP Plan.

Cooperative Elements

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

2.2. Development of an ordinance or other regulatory mechanism as required in Part I.D.5.b.(ii).(b)

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include requirements of the MS4 Permit, EISA and 19.26.2.15 NMAC to address post-construction runoff from new development and redevelopment projects.

Cooperative Elements

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

2.3. Implementation and enforcement, via the ordinance or other regulatory mechanism, of site design standards as required in Part I.D.5.b.(ii).(b).

SNL is a Federal facility and currently complies with the EISA, Section 438 of the CWA, for the purposes of preserving or restoring predevelopment hydrology for all development and redevelopment projects with a footprint that exceeds 5,000 square feet.

DOE and Sandia manage post-construction runoff by either retaining stormwater from a 95th percentile storm (1.0 inch) onsite (most common); or retaining the calculated volume of the difference between predevelopment and postdevelopment runoff.

SNL will be constructing detention basins for post-construction stormwater management (pursuant to Section 438 and the MS4 Permit) and may be constructing basins as sediment control BMPs that are compliant with Office of the State Engineer requirements.

See SWMP Plan Section 6.2.3 for additional detail.

Cooperative Elements

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

2.4. Ensure appropriate implementation of structural controls as required in Part I.D.5.b.(ii).(c) and Part I.D.5.b.(ii).(d)

Pre-construction reviews of BMP designs will be completed during development of construction SWPPPs, as described in Section 5.2.2 of the SWMP Plan.

Inspections will be performed during construction to verify post-construction stormwater management BMPs are being built as designed.

An inspection will be performed upon completion of construction to verify post-construction stormwater management BMPs are completed as designed, and once per year thereafter to verify proper maintenance.

Non-compliance will be addressed through the enforcement protocol discussed in Section 1.6 of the SWMP Plan.

Cooperative Elements

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

2.5. Develop procedures as required in Part I.D.5.b.(ii).(e), Part I.D.5.b.(ii).(f), Part I.D.5.b.(ii).(g), and Part I.D.5.b.(ii).(h)

Sandia Corporate Training (SW100) Stormwater Pollution Prevention Training will be revised to address the awareness of site design techniques and controls, including GI/LID/Sustainability Practices, and the SNL SSP.

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include the elements listed in Section 6.2.5 of the SWMP Plan such as requiring training, site inspections, as-built plans and revision of the procedure, as necessary.

Corporate Procedure ESH.100.2.ENV10 and the Sandia Integrated Pest Management Plan will be revised to include controls for pesticides, herbicides, and fertilizers with respect to application, storage, and training. See Section 6.2.5 of the SWMP Plan.

Cooperative Elements

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

2.6. Coordinate internally with all departments and boards with jurisdiction over the planning, review, permitting, or approval of public and private construction projects/activities within the permit area as required in Part I.D.5.b.(iii)

As the SMWP develops, the Stormwater Team identified in Section 1.7 of this SWMP Plan will evolve to include subject matter experts and points of contacts in multiple organizations including Environmental Programs and Facilities.

DOE and Sandia will coordinate with all departments that have responsibilities associated with the planning, review, permitting, or approval of new development and redevelopment projects/activities within the SNL MS4.

The requirement to ensure the hydrology associated with new development and redevelopment sites mimics the pre-development hydrology of the previously undeveloped site will be discussed prior to the development of a CGP SWPPP (Section 5.2.2 of SWMP Plan).

Cooperative Elements

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

2.7. As required in Part I.D.5.b.(iv), the permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices

SNL is a federal facility and therefore DOE and Sandia are required to comply with numerous Executive Orders, the EISA and other Acts, as well as other federal mandates regarding sustainability.

Sandia prepares the SNL Site Sustainability Plan (SSP; see the SWMP Plan Appendix) annually in support of DOE's Strategic Sustainability Performance Plan (SSPP). As part of this process, GI/LID/Sustainable Practices are evaluated.

See Section 6.2.7 of the SWMP Plan for additional details.

Cooperative Elements

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

2.8. As required in Part I.D.5.b.(iv), describe the plan to report the assessment findings on GI/LID/ Sustainable practices

DOE and Sandia will review the initiatives of the SSP on an annual basis and summarize the notable GI/LID/ Sustainable Practices in the Annual Report.

See Section 6.2.7 of the SWMP Plan for details.

Cooperative Elements

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

2.9. Estimation of the number of acres of IA and DCIA as required in Part I.D.5.b.(vi)

The number of acres of impervious area (IA; including conventional pavements, sidewalks, driveways, roadways, parking lots, and rooftops) will be estimated for the SNL MS4 and included in the SWMP Plan submitted with the first Annual Report.

The 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) will be estimated for the SNL MS4.

Cooperative Elements

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

2.10. Inventory and priority ranking as required in section in Part I.D.5.b.(vii)

DOE and Sandia will conduct an inventory and 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.

Cooperative Elements

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

2.11. Incorporate watershed protection elements as required in Part I.D.5.b.(viii)

Sandia Corporate Procedure ESH.100.2.ENV10 will be revised to include the watershed protection elements listed in Section 6.2.10 of the SWMP Plan such as recommendations:

to identify environmentally and ecologically sensitive areas that serve critical watershed functions; for disconnecting direct discharges from impervious surfaces; for implementing stormwater management practices that protect groundwater quality;

to avoid or prevent hydromodification of water bodies; to protect native soils, prevent topsoil stripping, and prevent compaction of soils; and to maintain pre-development runoff conditions.

Cooperative Elements

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

2.12. Enhance the program to include program elements in Part I.D.5.b.(xi) and Part I.D.5.b.(xii)

DOE and Sandia use stormwater educational material and training courses to educate personnel about how their job duties may impact stormwater quality.

DOE and Sandia participate in local stakeholder groups, including the Technical Advisory Group (TAG) that was formed to help local MS4s understand, collaborate, and comply with Permit NMR04A000.

Cooperative Elements

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

2.13. Describe other proposed activities to address the Post-Construction Stormwater Management in New Development and Redevelopment Measure:

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

An annual 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 ninety days of construction completion.

A log will be maintained to summarize any additional measures that have been implemented to decrease impervious areas, decrease stormwater discharges, and/or improve water quality. The log will be updated annually.

Section 3. Pollution Prevention/Good Housekeeping for Municipal/Co-permittee Operations – Proposed BMPs, Stormwater Controls, and Measurable Goals

3.1. Develop or update the Pollution Prevention/Good House Keeping program to include the elements in Part I.D.5.c.(i)

DOE and Sandia already require annual stormwater pollution prevention training for personnel with job duties that have the potential to impact stormwater quality.

Waste is managed through the Solid Waste Collection and Recycling Center (a facility designed to manage solid waste and recyclable materials generated by SNL).

As needed, DOE and Sandia will clean debris, floatables, and sediment from basins, ditches, and other conveyance infrastructure.

An assessment of technical guidance documents will be performed to determine water quality impacts and the potential for incorporation of water quality controls into new flood control projects. See Section 7.2.1 of the SWMP Plan.

Cooperative Elements

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

3.2. Enhance the program to include the elements in Part I.D.5.c.(ii)

DOE and Sandia will evaluate the successfulness of the program and modify the SWMP with respect to each of the elements of Part I.D.5.c.(ii) as described in Section 7.2.1.6 of the SWMP Plan, including but not limited to the items listed below:

- Develop a list of all stormwater quality facilities, including location and description
- Develop an operational model for de-icing activities, including methods to protect water quality
- Update plan to decrease runoff of vehicle related pollutants

- A review and revision of the existing street sweeping plan and schedule
- A list of the roadways most likely contributing to pollution in runoff
- A review and revision of existing plan for collecting used motor vehicle fluids

- A review and revision of the existing procedures and schedule for cleaning debris and sediment from the stormwater drainage system
- A review and revision of the existing litter control program, including public awareness campaigns

Cooperative Elements

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

3.3. Develop or update a list and a map of industrial facilities owned or operated by the permittee as required in Part I.D.5.c.(iii)

DOE and Sandia discharge industrial stormwater at SNL in accordance with the provisions of the Multi-Sector General Permit (MSGP) as authorized by NMR05GP29 (DOE) and NMR05GQ63 (Sandia), as discussed in Sections 1.2.4 and 1.4.6 of the SWMP Plan.

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.

Cooperative Elements

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

3.4. Describe other proposed activities to address the Pollution Prevention/Good Housekeeping for Municipal/permittee Operations Measure:

Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges, and Corporate Training SW100 - Stormwater Pollution Prevention Training, will be reviewed and updated annually, at a minimum.
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.
The chemicals and application methods associated with deicing operations and storage at SNL will be reviewed and procedures revised (as necessary) by December 22, 2016.
DOE and Sandia will prepare a cumulative summary of retrofit evaluations conducted during the Permit term on existing flood control devices, structures and drainage ways to benefit water quality.

Section 4: Industrial and High Risk Runoff – Proposed BMPs, Stormwater Controls, and Measurable Goals (APPLICABLE ONLY TO CLASS A PERMITTTEES)

4.1. Ordinance (or other control method) as required in Part I.D.5.d.(i)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.2. Continue implementation and enforcement of the Industrial and High Risk Runoff program, assess the overall success of the program, and document both direct and indirect measurements of program effectiveness in the annual report as required in Part I.D.5.d.(ii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.3. Meet the monitoring requirements in Part I.D.5.d.(iii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.4. Include requirements in Part I.D.5.d.(iv)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.5. Enhance the program to include requirements in Part I.D.5.d.(vii)

DOE and Sandia are Class C permittees; Section 4 does not apply.

Cooperative Elements

DOE and Sandia are Class C permittees; Section 4 does not apply.

4.6. Describe other proposed activities to address the Industrial and High Risk Runoff Measure:

DOE and Sandia are Class C permittees; Section 4 does not apply.

Section 5. Illicit Discharges and Improper Disposal – Proposed BMPs, Stormwater Controls, and Measurable Goals

5.1. Mapping as required in Part I.D.5.e.(i)(a)

A map of the SNL MS4 stormwater drainage system, indicating all outfalls and the names and locations of all waters of the U.S. that receive discharges from those outfalls is provided in Appendix B of the SWMP Plan.

Cooperative Elements

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

5.2. Ordinance (or other control method) as required in Part I.D.5.e.(i)(b)

Sandia currently has a corporate procedure that prohibits discharges to the surface without prior approval from the Environmental Programs Department (Corporate Procedure ESH100.2.ENV.10: Management of Surface and Stormwater Discharges).

Corporate Procedure ESH100.2.ENV.10 is presented to personnel as a component of annual mandatory corporate training materials, and other safety and environmental screening processes. ESH100.2.ENV.10 is summarized in SWMP Plan Section 8.2.2.

Cooperative Elements

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

5.3. Develop and implement a IDDE plan as required in Part I.D.5.e.(i)(c)

The Sandia workforce is trained to prevent and report activities or events with the potential to cause environmental harm.

If an illicit discharge is observed, the Stormwater Team will perform or coordinate visual screening, employee interviews, field parameters and sample collection to identify possible sources.

Enforcement of the IDDEP will be addressed through Corporate Policy and the protocol discussed in Section 1.6 of the SWMP Plan.

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. Additional details are provided in Section 8.2.3 of the SWMP Plan.

Cooperative Elements

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

5.4. Develop an education program as required in Part I.D.5.e.(i)(d)

Sandia will be debuting a stormwater awareness campaign in 2015, "Stormwater - Keep it Clean" to include educational brochures, posters and a publication in The Porcelain Press (discussed in more detail in Section 10 of the SWMP Plan).

The campaign will target Members of the Workforce to raise stormwater quality awareness and advertise training, and will occur during each wet season (July 1 through October 31).

The corporate stormwater pollution prevention training is offered online at any time and is also given in a live presentation to keys groups of employees that have the greatest potential to impact stormwater quality.

Copies of the most recent editions of these materials will be included as an appendix to the SWMP Plan.

Cooperative Elements

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

5.5. Establish a hotline as required in Part I.D.5.e.(i)(e)

Using any landline at SNL, 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 Sandia Emergency Operations Center (EOC) is available at 844-6515 for spill response and cleanup.

Sandia is the primary recipient of calls from these numbers. DOE and various departments within Sandia are in the chain of notification and response.

Cooperative Elements

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

5.6. Investigate suspected significant/severe illicit discharges as required in Part I.D.5.e.(i)(f)

All illicit discharges at SNL are taken seriously by DOE and Sandia. Should an illicit discharge be detected, it will be investigated within 48 hours, and the sources identified as soon as possible.

Any additional controls (administrative and/or engineered) necessary to prevent future discharges will be implemented as soon as practicable.

Cooperative Elements

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

5.7. Review complaint records and develop a targeted source reduction program as required in Part I.D.5.e.(i)(g)

Part I.D.5.e.(i)(g) is applicable to class A and B Permittees only; as a class C permittee this requirement does not apply to DOE and Sandia.

Cooperative Elements

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

5.8. Screening of system as required in Part I.D.5.e.(iii) as follows:

The SNL MS4 has no identified high priority areas at this time.

Screening of the SNL MS4 is informally conducted on on-going basis by field personnel 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 illicit discharge.

Any illicit discharge encountered will be sampled, tracked to its source, and corrected through administrative or engineered control measures.

Cooperative Elements

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

5.9. Develop, update, and implement a Waste Collection Program as required in Part I.D.5.e.(iv)

Sandia has a well developed waste management and recycling program. The program is described in Section 8.2.9 of the SWMP Plan. The program includes education and involvement of all workforce members.

The SNL Solid Waste Collection & Recycling Center (SWCRC) has three purposes:
1. Screen the SNL's collected solid waste and recyclables for prohibited materials.
2. Bale, store, and ship solid waste to an approved landfill.

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/demolition scrap metals.

Hazardous waste generated at SNL is handled under Corporate Procedure ESH100.2.ENV.22. This procedure provides detailed instructions for using, labeling, storing, accumulating, managing, and transporting waste to disposal facilities.

Cooperative Elements

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

5.10. Develop, update and implement a Spill Prevention and Response program to prevent, contain, and respond to spills that may discharge into the MS4 as required in Part I.D.5.e.(v)

Sandia has a detailed Spill Prevention Control and Countermeasure Plan that includes prevention measures including inspections, testing, records, security, operational procedures, best management practices, and personnel.

In the event of a release, Sandia maintains a sophisticated system of containment facilities, trained response staff, and emergency equipment to prevent pollutants from entering the stormwater drainage system.

Cooperative Elements

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

5.11. Enhance the program to include requirements in Part I.D.5.e.(ix)

Sandia will utilize ideas from the manual "Illicit Discharge Detection and Elimination, A Guidance Document for Program Development and Technical Assessments" to enhance the IDDE Program as needed.

Cooperative Elements

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

5.12. Describe other proposed activities to address the Illicit Discharges and Improper Disposal Measure:

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

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.

An annual summary of solid waste management will be included in the SWMP Plan revision included with each Annual Report.

Section 6. Control of Floatables Discharges – Proposed BMPs, Stormwater Controls, and Measurable Goals

6.1. Develop a schedule to implement the program as required in Part I.D.5.f.(i)(a)

SNL's smoke-free campus and the culture of the workforce foster an environment such that solid waste dumping (i.e., littering) is uncommon.

Additionally, on a larger scale, Sandia manages floatables through administrative and source controls, through robust waste management and pollution prevention programs. These programs are described in detail in Section 8.2 of the SWMP Plan.

For the reasons stated above, DOE and Sandia do not anticipate there to be a significant amount of floatables generated within the SNL MS4.

Cooperative Elements

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

6.2. Describe the plan to estimate the annual volume of floatables and trash removed from each control facility and characterize the floatable type as required in Part I.D.5.f.(i)(b)

Sandia operates an aggressive waste management and pollution prevention programs that include education and a recycling facility. During FY 2014 approximately 70 percent of the solid waste generated by Sandia was recycled.

There is an insignificant litter or refuse presence within the SNL MS4.

DOE and Sandia 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.

Cooperative Elements

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

6.3. Describe other proposed activities to address the Control of Floatables Discharges Measure:

The Floatables 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.

Corporate Procedure ESH100.2.ENV.10 and Corporate Training SW100 will be reviewed and updated annually, at a minimum to reflect changes in regulations and associated BMPs.

The main SNL MS4 outfall measured by stormwater sampling point SWSP-05 will be inspected quarterly for the presence of floatable debris. Inspection reports will be maintained with the SWMP Plan.

An annual assessment of the Floatables Program will be conducted to evaluate the need for structural controls.

Section 7. Public Education and Outreach on Stormwater Impacts – proposed BMPs, Stormwater Controls, and Measurable Goals

7.1. Develop, revise, implement, and maintain an education and outreach program as required in Part I.D.5.g.(i) and Part I.D.5.g.(ii)

The Stormwater Quality Program has a website for access by personnel containing basic regulatory requirements pertaining to the protection of stormwater quality, training information and contacts for the Stormwater Team.

Corporate Training (SW100) Stormwater Pollution Prevention Training is available online to personnel, and performed as a live presentation upon request.

A stormwater pollution prevention informational brochure is distributed at the cafeteria during environmental events and other events such as Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day.

Sandia owns educational models for stormwater/watershed, groundwater, and drinking water/wastewater and performs demonstrations to students in the classroom, during Earth Day (Bring Your Sons and Daughters to Work Day) and Family Day.

Cooperative Elements

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

7.2. Enhance the program to include requirements in Part I.D.5.g.(v) through Part I.D.5.g.(viii)

DOE and Sandia may utilize educational materials and program elements as needed to improve the public outreach program.

Educational elements for proper septic system maintenance, proper use and disposal of fertilizers and pesticides, and proper disposal of motor oil and household hazardous wastes will be incorporated into DOE's and Sandia's educational program.

Information about litter reduction, recycling, reduction of pesticide/herbicide use, xeriscaping and reduced water consumption, pet waste and solid waste management will be incorporated into DOE's and Sandia's educational program.

Cooperative Elements

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

7.3. Describe other proposed activities to address the Public Education and Outreach on Stormwater Impacts Measure:

The corporate online training system that disseminates Stormwater Pollution Prevention Training (SW100) is equipped to track completion. DOE's and Sandia's goal is to maintain a minimum of 90 percent annual participation in SW100 training.

The informational brochures and campaign posters will be reviewed and updated annually to ensure regulatory and contact information is current, and to respond to the educational and training needs of the workforce.

Starting in 2016, the Stormwater Team will hold a minimum of three events per reporting period (July 1 - June 30) to perform demonstrations of the educational models to grade-school children and personnel.

Section 8. Public Involvement and Participation – Proposed BMPs, Stormwater Controls, and Measurable Goals

8.1. Develop (or update), implement, and maintain a public involvement and participation plan as required in Part I.D.5.h.(ii) and Part I.D.5.h.(iii)

The Public Involvement and Participation Program (PIPP) will include a comprehensive planning process which involves public participation and, where necessary, intergovernmental coordination. The PIPP is described in Section 11 of the SWMP Plan.

DOE and Sandia will notify the public via legal notice in the Albuquerque Journal for a period of 30 days, prior to the submission of the NOI (and associated SWMP Plan) and each Annual Report (and associated SWMP Plan revision).

A copy of the MS4 Permit and the applicable documents (i.e., NOI, Annual Report, SWMP Plan, etc.) will be maintained up-to-date through the University of New Mexico (UNM) LoboVault online database (https://repository.unm.edu/handle/1928/26737).

A functional behavioral assessment will be performed at DOE/DoD Semi-Annual Public Meeting, where the topic of "stormwater" is presented. The public's antecedent (before), present (during), and consequence (after) behavior will be observed and recorded.

Cooperative Elements

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

8.2. Describe the plan to comply with State, Tribal, and local notice requirements when implementing a Public Involvement and Participation Program as required in Part I.D.5.h.(iv)

DOE and Sandia will comply with State, Tribal, and local public notice requirements when implementing a public involvement/ participation program.

Cooperative Elements

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

8.3. Describe a plan to include elements as required in Part I.D.5.h.(v)

Public notices will be printed in a newspaper of general circulation in the Albuquerque area (i.e., The Albuquerque Journal) and be available online.

The DOE/DoD Semi-Annual Public Meetings are open to all citizens and the public is encouraged to attend. The meetings will be used as a mechanism to discuss stormwater permitting at SNL.

The MS4 Permit (specifically Appendix E), NOIs and SWMP Plan will be available at https://repository.unm.edu/handle/1928/26737 through the University of New Mexico (UNM) LoboVault on-line database.

Physical copies of documents posted to the UNM LoboVault will be available at the UNM Zimmerman Library. Contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment.

Cooperative Elements

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

8.4. As required in Part I.D.5.h.(viii) provide the internet site (or website) where the SWMP document, Annual Reports, and other documents will be available to the public.

8.5. Enhance the program to include requirements in Part I.D.5.h.(ix)

DOE and Sandia will consider options for enhancing the PIPP as needed based on the results of the previous year(s).

Cooperative Elements

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

8.6. Describe other proposed activities to address the Public Involvement and Participation Measure:

Comments received by the public in response to any and all public notices will be considered and maintained with the SWMP Plan for the duration of the Permit term.

DOE and Sandia will perform one functional behavioral assessment during the Permit team at DOE/DoD Semi-Annual Public Meeting, before, during and after the topic of "stormwater" is presented.

IV. Proposed Monitoring Program

Indicate wet weather monitoring program preference:

Individual Monitoring Program ☒

Cooperative Monitoring Program ☐

Provide a general description of the propose monitoring program.

Wet weather and dry weather monitoring will be conducted in compliance with the location, frequency, constituent, and method requirements described in Part III of the Permit. Monitoring is described in more detail in Section 12 of the SWMP Plan.

DOE and Sandia will collect samples at all SNL MS4 inlets and outlets. This will include 1 inlet location and 4 outlet locations. Flow will be measured at the inlet and main outlet of the MS4.

A map of monitoring locations is provided in Appendix B of the SWMP Plan. E. coli waste loads will be determined for each monitoring location and evaluated for compliance with TMDL's.

V. Public Participation

Include a Summary of issues raised in any local public comments received by the MS4 Operator on the draft NOI/SWMP and MS4 operator's responses.

Public comments and responses to them will be provided to EPA and NMED at the time the NOI and SWMP Plan are submitted (on or before June 20, 2015).

VI. Attachments

Attach a location map showing the boundaries of the MS4 under the applicant's jurisdiction. The map must include streets or other demarcations so that the exact boundaries can be located.

Are other attachments included with the NOI? If so, indicate the title of the document(s).

SWMP Plan v.0, dated May 4, 2015 (https://repository.unm.edu/handle/1928/26737)

Maps are included as Appendix B of the SWMP Plan.

VII. Certification

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 gathered and evaluated 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.

Signature:

Printed Name: Michael W. Hazen

Date: 8 May 2015

Appendix C-3

NOTICE
Department of Energy, National Nuclear Security Administration
Sandia National Laboratories

Filing of Notice of Intent and Stormwater Management Program Plan for Municipal Separate Storm Sewer System Permit – NPDES Permit NMR04A000

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), you are hereby notified that DOE and Sandia are requesting coverage under the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Middle Rio Grande Watershed (NMR04A000) for Sandia National Laboratories (SNL).

SNL is a multi-program laboratory managed and operated by Sandia, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's (DOE's) National Nuclear Security Administration under contract DE-AC04-94AL85000. SNL is located within the boundary of Kirtland Air Force Base, immediately southeast of Albuquerque, New Mexico.

Stormwater discharges from SNL are currently regulated under the NPDES Construction General Permit (CGP) and the NPDES Multi-Sector General Permit (MSGP). On December 22, 2014, the Environmental Protection Agency (EPA) issued a new NPDES Permit, the MS4 Permit for the Middle Rio Grande Watershed. DOE and Sandia are listed for potential coverage under the MS4 Permit as Class C permittees and qualify for coverage under the Permit based on the inclusion of a small portion of the northern-most DOE/SNL jurisdiction within the Albuquerque urbanized area (according to the 2010 census). DOE and Sandia will comply with the requirements of the MS4 Permit in addition to the CGP and MSGP.

To obtain coverage under the MS4 Permit, DOE and Sandia will complete the following tasks on or before June 20, 2015:

- Prepare a Notice of Intent (NOI)
- Prepare a Storm Water Management Program (SWMP) Plan
- Publish Public Notice, NOI and SWMP Plan for 30 days
- Submit NOI and SWMP Plan to EPA

COMMENT PERIOD

A 30-day public comment period associated with the proposed filing of the NOIs and SWMP Plan begins on **May 11, 2015**. Comments on this proposed filing will be accepted **through June 10, 2015**. Written comments should be submitted to EPA and DOE via email or hard copy to the contacts listed below.

EPA (via e-mail):
Ms. Dorothy Brown
brown.dorothy@epa.gov

DOE (via e-mail):
Karen Agogino
karen.agogino@nnsa.doe.gov

EPA (via hard copy):
U.S. EPA Region 6
Water Quality Protection Division (6WQ-NP)
Attn: Dorothy Brown
1445 Ross Ave., Suite 1200
Dallas, TX 75202

DOE (via hard copy):
U.S. Department of Energy
National Nuclear Security Administration
Sandia Field Office
Attn: Karen Agogino
PO Box 5400
Albuquerque, New Mexico 87185

PUBLIC HEARING

There is no public hearing scheduled at this time. During the 30 day public comment period, requests for a public hearing can be submitted to the EPA and DOE contacts listed above.

PUBLIC INSPECTION OF DOCUMENTS

The MS4 Permit (specifically Appendix E), NOIs and SWMP Plan will be available at https://repository.unm.edu/handle/1928/26737 through the University of New Mexico (UNM) LoboVault online database, upon the commencement of the 30 day public comment period. Documents associated with DOE's and Sandia's MS4 Permit coverage will be posted to and maintained on this website throughout the permit term. Physical copies of the documents posted to the UNM LoboVault online database are available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

Appendix C-4

NOTICE
Department of Energy, National Nuclear Security Administration
Sandia National Laboratories

Filing of Notice of Intent and Stormwater Management Program Plan for Municipal Separate Storm Sewer System Permit – NPDES Permit NMR04A000

On behalf of the Department of Energy (DOE) and Sandia Corporation (Sandia), you are hereby notified that DOE and Sandia are requesting coverage under the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Middle Rio Grande Watershed (NMR04A000) for Sandia National Laboratories (SNL).

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Stormwater discharges from SNL are currently regulated under the NPDES Construction General Permit (CGP) and the NPDES Multi-Sector General Permit (MSGP). On December 22, 2014, the Environmental Protection Agency (EPA) issued a new NPDES Permit, the MS4 Permit for the Middle Rio Grande Watershed. DOE and Sandia are listed for potential coverage under the Permit as Class C permittees and qualify for coverage under the Permit based on the inclusion of a small portion of the northern-most DOE/SNL jurisdiction within the Albuquerque urbanized area (according to the 2010 census). DOE and Sandia will comply with the requirements of the MS4 Permit in addition to the CGP and MSGP.

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COMMENT PERIOD

A 30-day public comment period associated with the proposed filing of the NOIs and SWMP Plan begins on **May 11, 2015**. Comments on this proposed filing will be accepted **through June 10, 2015**. Written comments should be submitted to EPA and DOE via email or hard copy to the contacts listed below.

EPA (via e-mail):
Ms. Dorothy Brown
brown.dorothy@epa.gov

EPA (via hard copy):
U.S. EPA Region 6
Water Quality Protection Division (6WQ-NP)
Attn: Dorothy Brown
1445 Ross Ave., Suite 1200
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DOE (via e-mail):
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DOE (via hard copy):
U.S. Department of Energy
National Nuclear Security Administration
Sandia Field Office
Attn: Karen Agogino
PO Box 5400
Albuquerque, New Mexico 87185

(continued on next page)

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2015-2207 O

PUBLIC HEARING

There is no public hearing scheduled at this time. During the 30 day public comment period, requests for a public hearing can be submitted to the EPA and DOE contacts listed above.

PUBLIC INSPECTION OF DOCUMENTS

The MS4 Permit (specifically Appendix E), NOIs and SWMP Plan will be available at https://repository.unm.edu/handle/1928/26737 through the University of New Mexico (UNM) LoboVault online database, upon the commencement of the 30 day public comment period. Documents associated with DOE's and Sandia's MS4 Permit coverage will be posted to and maintained on this website throughout the permit term. Physical copies of the documents posted to the UNM LoboVault online database are available at Zimmerman Library, Government Documents Collection, on the UNM main campus in Albuquerque, New Mexico. To review these copies, please contact Daniel Barkley at 505-277-7180 or barkley@unm.edu in advance to make an appointment. Zimmerman Library is open to the public during the following times: 8:00 am to 10:00 pm Monday through Thursday; 8:00 am to 7:00 pm Friday; 12:00 pm to 9:00 pm Saturday; and 12:00 pm to 10:00 pm Sunday.

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2015-2207 O

Appendix D: SNL Precipitation Data

No.	Description
D-1	Seasonal Precipitation Characteristics and NPDES Arid Classification for Sandia National Laboratories, New Mexico

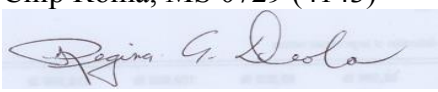
Appendix D-1

Sandia National Laboratories
Operated for the U.S. Department of Energy by
Sandia Corporation

Albuquerque, New Mexico 87185-1042

date: February 12, 2013

to: Chip Roma, MS 0729 (4143)



from: Regina A. Deola, MS-0729 (4143)

subject: Reference Memorandum for Seasonal Precipitation Characteristics and NPDES Arid Classification for Sandia National Laboratories, New Mexico [SNL/NM].

The Environmental Programs Department (4143) operates and maintains a meteorological network at SNL/NM to provide mission support across the laboratory. The program has meteorological records that include wind, temperature, humidity, and precipitation that extend back to 1994. Data from this network can be found in summarized form in the Annual Site Environmental Reports published each year. Additional real-time information from the network and GPS locations of all the sites may be found on the Meteorological Program website [http://clean-air.sandia.gov/].

Site Specific Precipitation Data for SNL/NM

Table 1 includes the monthly and annual precipitation for the A36 tower located in the northern part of Technical Area III (TA-III) at the laboratory. This tower was chosen to represent the laboratory due to the central geographic location. Table 1 shows the 19 year precipitation average for TA-III, which is 9.00 inches. There is another precipitation gauge in a Technical Area, the A21 tower, which represents TA-I and TA-II, and a third one in the foothills east of the main laboratory. The A21 tower, located approximately three miles north of the A36 tower, has an 18 year annual average of 8.45 inches [2001 is missing]. Precipitation increases with increasing elevations towards the mountains east of the main Technical Areas. The SC1 tower in the foothills, at an elevation of 5810 feet, recorded an 18 year average of 10.61 inches [1994 is missing].

The National Weather Service (NWS) at the Albuquerque International Airport has a long term record which supports the finding of the on-site data analysis. This weather station is approximately five miles northwest of TA-III. The 92 year period of record for the NWS Office at the airport includes an annual average of 8.65 inches of precipitation [http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm0234]. It should be noted that the NWS 30 year "climate normal" that shifts every decade shows that some decades are wetter than others, but even the wettest 30 year climate [1971-2000] is below 10 inches, and averaged 9.47 inches for the NWS site. Additional on-site data in Table 1 includes the mean number of days when measureable precipitation was recorded, and the number of days per month when 0.25 inches of precipitation was recorded. Note that during the winter several months may go by before a precipitation event produces a quarter inch rain.

Seasonal Nature of SNL/NM Precipitation

Most precipitation at SNL/NM Technical Areas falls during the high sun season. The main driver of the seasonal precipitation is the North American Monsoon NAMS. The monsoon season manifests in central NM as moisture surges that typically start in the first week in July, though can be quite variable from year to year. The moisture surges advance and retreat for 8 to 10 weeks in the summer.

Table 1. Monthly and Annual Precipitation for the A36 tower from 1994 through 2012.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1994	0.01	0.26	0.61	0.06	2.84	0.44	0.97	4.55	1.35	1.73	1.49	0.82	**15.13**
1995	0.52	0.59	0.21	0.46	0.16	0.02	0.95	1.19	1.75	0.00	0.09	0.07	**6.01**
1996	0.34	0.21	0.02	0.00	0.00	1.44	0.60	2.83	0.79	3.00	0.66	0.00	**9.89**
1997	0.53	0.14	0.15	1.68	0.56	0.99	3.53	0.79	1.69	0.21	1.07	1.02	**12.36**
1998	0.17	0.84	2.93	0.68	0.00	0.15	2.46	1.83	0.54	1.57	0.29	0.16	**11.62**
1999	0.24	0.00	1.11	0.76	0.47	0.35	1.64	2.17	0.86	0.30	0.01	0.10	**8.01**
2000	0.14	0.29	1.44	0.00	0.00	0.34	0.40	1.25	0.08	2.45	0.96	0.25	**7.60**
2001	0.32	0.26	0.35	0.46	0.35	1.28	0.97	0.98	0.25	0.01	0.77	0.42	**6.42**
2002	0.31	0.12	0.00	0.56	0.01	0.25	0.42	1.45	1.42	0.78	0.54	0.11	**5.97**
2003	0.00	1.29	1.04	0.00	0.02	0.13	0.19	1.91	0.14	0.93	0.70	0.16	**6.51**
2004	0.17	1.46	0.68	1.12	0.00	1.01	2.53	0.56	0.71	1.09	1.00	0.36	**10.69**
2005	1.79	1.72	0.89	1.10	0.35	0.04	1.26	1.03	1.48	1.03	0.01	0.17	**10.87**
2006	0.02	0.00	0.16	0.09	0.00	1.09	4.06	6.08	0.86	1.57	0.01	1.43	**15.37**
2007	0.26	0.70	0.78	0.92	0.85	0.39	1.65	0.39	0.70	0.08	0.24	1.40	**8.36**
2008	0.47	0.48	0.00	0.36	0.52	0.01	1.67	1.47	0.01	1.35	0.25	0.54	**7.13**
2009	0.00	0.01	0.11	0.26	0.89	0.79	1.07	1.14	1.74	1.60	0.06	0.30	**7.97**
2010	0.92	0.27	0.65	0.57	0.09	1.06	0.98	1.45	1.89	0.75	0.01	1.03	**9.67**
2011	0.01	0.00	0.00	0.09	0.11	0.00	0.71	1.99	0.70	1.35	0.22	1.70	**6.88**
2012	0.44	0.41	0.18	0.59	0.38	0.05	0.81	1.02	0.23	0.00	0.17	0.23	**4.51**
Monthly Means	0.35	0.48	0.60	0.51	0.40	0.52	1.41	1.79	0.90	1.04	0.45	0.54	**9.00**
Days with >=0.01	3.9	4.9	5.2	4.0	4.3	3.8	8.1	8.8	5.1	5.6	3.1	4.8	61.5
Days with >=0.25	0.26	0.63	0.68	0.68	0.42	0.63	1.68	1.89	1.21	1.53	0.47	0.58	10.7

Table 1 identifies that the highest monthly totals and averages occur during the July/August monsoon season. During most years the 4 month period between July and October includes approximately 60 percent of the annual rainfall. The NAMS generally retreats in September, but periodic typhoon, hurricane, or tropical storm remnants can affect the region in the September and October time frame. As can be seen from the monthly totals for September and October over the years, remnants do not affect the area every year.

Climate Considerations and Definition of Arid Areas

The climate of SNL/NM is typical of dry, higher altitude, continental areas with large diurnal temperature ranges and limited rainfall. Most precipitation in this area falls in brief, heavy rain-showers. While various climatic classification schemes may produce slightly different results for this area depending on the atmospheric parameters used, type of evapotranspiration accounting, and the period of record used for the scheme, they all result in a "dry" climate classification, whether it is labeled semi-arid or arid. Appendix A of the National Pollution Discharge Elimination System (NPDES) General Permit for Construction Activities defines arid areas as areas with an average annual rainfall of zero to

10 inches. This definition of arid areas results in a large portion of the NM laboratory, and all Technical Areas at SNL/NM, being classified as arid.

Periodic Variations in Rainfall Distribution

Winters and most springs lack major precipitation in this area, as can be seen in the monthly averages in Table 1. This is mainly a result of the geographic location, the position of mountain ranges between the laboratory and moisture sources, and the general global circulation. Winter and spring precipitation can vary from normal when the global circulation pattern known as the Southern Oscillation is in an El-Nino phase (ENSO). The El-Nino phase may lead to increased winter and spring precipitation in the central areas of NM. Table 1 includes green shading for months when an El-Nino pattern was present [http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensoyears.shtml] and the monthly total precipitation was 200 percent of the 19 year mean. The El-Nino periods do not always result in an increase in each month when the pattern is present, but does tend to increase the annual precipitation for the year. The temporal duration of the EL-Nino and La-Nina phases can be as short as 7 months, and as long as 3 years. In the past the El-Nino return cycle varied from as few as three years to as long as seven years. During the La-Nina phase of the ENSO, multiple years of below normal rainfall may be recorded. Current research in climate change suggests that for many locations in the southwestern US, climate change may result in periods with La-Nina like annual precipitation, with an increase in the intensity and frequency of droughts.

Summary

For NPDES permit purposes virtually all SNL/NM areas west of the foothills are classified as arid areas. Some remote outdoor test areas in the mountains and foothills, where little to no construction activity occurs, may have annual rainfall over 10 inches a year. While precipitation is limited in the vicinity of SNL/NM, approximately 60 percent of the annual rainfall occurs in 4 months of the year during the July/August monsoon season and into the early fall. It is during these 4 months from July to October that there is a better chance of having a precipitation event that produces one quarter inch of rain or greater in a 24 hour period. If supporting documentation that includes recent peer reviewed literature regarding the NAMS, precipitation variation with ENSO phases, or recent climate change modeling results is needed for the file, please request a reference list that can be filed with this memorandum.

Appendix E: Sandia Corporate Requirements

No.	Description
E-1	FY15 SNL Site Sustainability Plan (SSP)

The remainder of this appendix is reserved for Sandia Corporate Requirements as they are developed or revised (and approved for public release) for inclusion in the SWMP Plan. Anticipated documents (or portions thereof) may include:

No.	Description
reserved	Corporate Procedure ESH100.2.ENV.10: *Management of Surface and Stormwater Discharges*
reserved	FMOC Design Standards Manual
reserved	Sandia Integrated Pest Management Plan
reserved	SNL/NM Spill Prevention, Control, and Countermeasure Plan (SPCC)

Appendix E-1

Exceptional service in the national interest

Sandia National Laboratories

FY 2015 Site Sustainability Plan

U.S. DEPARTMENT OF ENERGY NNSA National Nuclear Security Administration

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND NO. 2014-20139 O

Approvers of record for this revision are as follows:

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Prepared	Stephanie Salinas, Manager Environmental Programs (4143)	12/2/14 Date
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Reviewed	David A. Darling, Director Facilities Management and Operations Center (4800)	3 Dec. 2014 Date
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Appendix C: NNSA Excluded Buildings and Self-Certification Form
Appendix D: Sandia National Laboratories FY 2015 Site Sustainability Commitments
Appendix E: Data Center White Paper – Final Draft

Acknowledgements

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Acronyms

Acronym	Definition
AFV	Alternative Fuel Vehicle
AQC	Air Quality Compliance
ARC	Analytical Reporting Capability
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
B-20	Biodiesel (20% biobased, 80% petroleum)
BAS	Building Automation System
BBtu	Billions of British Thermal Units
BMP	Best Management Practice
Btu	British Thermal Units
C&D	Construction and Demolition
CARB	California Air Resources Board
CD	Critical Decision
CEDR	Consolidated Energy Data Report
CEM	Certified Energy Manager
CEP	Chemical Exchange Program
CIS	Chemical Inventory System
CNG	Compressed Natural Gas
CO2e	Carbon Dioxide Equivalent
CRAC	Computer Room Air Conditioning
CSRI	Computer Science Research Institute
CUB	Central Utility Building
CW	Chilled Water
CY	Calendar Year
D&D	Decontamination and Demolition
DCC	Data Center Consolidation
DCIM	Data Center Infrastructure Management
DDC	Direct Digital Controls
DEAR	Department of Energy Acquisition Regulations
DI	Deionized
DOE	US Department of Energy
E-85	Ethanol-based fuel (85% ethanol, 15% unleaded)
EACCS	East Alameda County Conservation Strategy
EC	Energy and Climate
EISA	Energy Independence and Security Act
EMES	Electromagnetic Environment Simulator
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act
EPEAT	Electronic Product Environmental Assessment Tool
ES&H	Environment, Safety and Health
FAST	Federal Automotive Statistical Tool
FCS	Facilities Control System
FDCCI	Federal Data Center Consolidation Initiative

Acronym	Definition
FEMO	Facilities Engineering, Maintenance, and Operations
FEMP	Federal Energy Management Program
FIMS	Facilities Information Management System
FMOC	Facilities Management and Operations Center
FY	Fiscal Year
GGE	Gasoline Gallon Equivalent
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GP	Guiding Principles
GPON	Gigabit Passive Optical Network
GPP	General Plant Project
GSA	General Services Administration
GSF	Gross Square Feet
HEMSF	High-Energy Mission Support Facilities
HPC	High-Performance Computing
HPSB	High Performance Sustainable Building
HVAC	Heating Ventilation and Air Conditioning
HW	Hot Water
IGPP	Institutional General Plant Project
ILA	Industrial, Landscaping, and Agricultural
IT	Information Technology
IX	Institutional Transformation
JIT	Just in Time
K	Thousand
KAFB	Kirtland Air Force Base
kBtu	Kilo-British Thermal Unit
KPI	Key Performance Indicator
KTF	Kauai Test Facility
kV	Kilowatt
KWh	Kilowatt Hours
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LLNL	Lawrence Livermore National Laboratory
LM	Lockheed Martin
LPG	Liquid Propane Gas
LVOC	Livermore Valley Open Campus
MBtu	Thousands of British Thermal Units
MESA	Microsystems and Engineering Sciences Application Complex
MMBtu	Millions of British Thermal Units
MO	Mobile Office
MR	Major Renovation
MRCOG	Mid Region Council of Governments
MT	Metric Tons
MWh	Mega-Watt Hours
NC	New Construction
NEPA	National Environmental Policy Act
NG	Natural Gas

Acronym	Definition
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
NSTTF	National Solar Thermal Test Facility
P2	Pollution Prevention
PC	Personal Computer
POD	Performance Optimized Data
PPA	Purchased Power Agreement
PPTRS	Pollution Prevention Tracking and Reporting System
PREP	Preliminary Real Estate Plan
PUE	Power Utilization Effectiveness
PV	Photovoltaic
R&D	Research and Development
RAMP	Roofing Assessment Management Program
RE	Renewable Energy
REC	Renewable Energy Credit
RTC	Regional Test Center
SA	Sustainability Acquisition
SC/VP	Server Consolidation/Virtualization Project
SF	Square feet or footage
SF6	Sulfur Hexafluoride
SFO	Sandia Field Office
SIF	Sustainability Innovation Foundry
SLS	Sandia Lightning Simulator
SNL	Sandia National Laboratories
SNL/CA	Sandia National Laboratories/California
SNL/HI	Sandia National Laboratories/Hawaii
SNL/NM	Sandia National Laboratories/New Mexico
SNL/NV	Sandia National Laboratories/Nevada
SON	Sandia Open Network
SRN	Sandia Restricted Network
SSP	Site Sustainability Plan
SSPP	Strategic Sustainability Performance Plan
SSTP	Sandia Science and Technology Park
SWEIS	Site-Wide Environmental Impact Statement
T	Transportable
T&D	Transmission and Distribution
TA	Technical Area
TLCC	Tri-Laboratory Linux Capacity Cluster
TTR	Tonopah Test Range
U.S.	United States
UPS	Uninterruptible Power Supply
USAF	United States Air Force
USDA	U.S. Department of Agriculture
VFD	Variable Frequency Drive
Yr	Year

1.0 Executive Summary

1.1 Introduction

Clean energy and sustainability, long at the core of the United States (U.S.) Department of Energy (DOE) mission and championed at Sandia National Laboratories (SNL), are reinforced in Executive Orders (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management,* and 13514, *Federal Leadership in Environmental, Energy and Economic Performance*. DOE has articulated its key strategies and goals in its current S*trategic Sustainability Performance Plan* (SSPP), which states that DOE will comply with EO 13514 by doing the following:

- Instituting wholesale cultural change to factor sustainability and greenhouse gas (GHG) emission reductions into all DOE corporate management decisions
- Planning, executing, evaluating, and continually improving DOE operations to maximize sustainable use of energy and natural resources
- Developing cost-effective, energy efficient, and renewable energy (RE) projects
- Improving the performance of existing DOE building stock
- Using low-GHG-emitting energy sources to replace existing grid energy
- Preventing pollution and reducing or eliminating the generation of waste

The SNL Site Sustainability Plan (SSP) is prepared annually to support DOE's SSPP and the National Nuclear Security Administration's (NNSA) sustainability goals and broader sustainability program. Accordingly, the content of this SNL SSP covers the SNL contributions toward meeting the DOE sustainability goals cited in DOE's SSPP, as well as the DOE requirement to comply with EOs 13423 and 13514. This SSP fulfills the contractual requirement for Sandia Corporation (Sandia) to deliver an annual sustainability plan to the NNSA and SFO.

Each DOE site is required to have an Environmental Management System (EMS) that implements sustainable practices for enhancing environmental, energy, and transportation management performance. SNL's EMS is a quality-based system modeled on the Plan-Do-Check-Act structure for continuous improvement. The SNL EMS is a part of SNL's Integrated Safety Management System and functions within the overall Sandia Management System. The SNL EMS is International Organization for Standardization 14001 certified and incorporates all relevant federal, state, local, and DOE requirements.

The SNL EMS is coordinated and implemented through 20 environmental programs, 6 of which are included within the scope of this SSP. Each environmental program operates according to a program plan (or related document) consistent with the SNL EMS:

- Air Quality Compliance (AQC)
- Energy and Water
- Fleet Services
- Pollution Prevention (P2)
- Storm Water
- Waste Management

The SNL SSP supports the SNL EMS. It leverages existing environmental program plans and reporting structures and provides references for further detail. In cases where an SSPP goal is the same as a current SNL EMS corporate target, it is noted in Tables 1.3. The SNL SSP also serves as the deliverable to address the following DOE reporting requirements:

- DOE's Annual Energy Report, as required by the National Energy Conservation Policy Act, Energy Policy Act of 2005 (EPAct 2005), and the Energy Independence and Security Act of 2007 (EISA 2007)
- Section 432 of EISA 2007, which requires reporting of energy and water conservation measures that are identified as a result of site audits
- Commitments in the DOE SSPP

1.1.1 Site Information, Description, and Operations

Sandia conducts mission activities at four primary locations:

- SNL/New Mexico (SNL/NM)
- SNL/California (SNL/CA)
- SNL/Nevada – Tonopah Test Range (SNL/NV – TTR)
- SNL/Hawaii – Kauai Test Facility (SNL/HI – KTF)

Each location has unique energy, water, and transportation fuels resource management challenges.

SNL/NM and SNL/CA account for most of SNL's total energy, water, and transportation fuel use and building square footage (SF). Therefore, although the objectives and targets of this plan include all locations, Sandia's sustainability activities focus predominantly on the SNL/NM and SNL/CA locations.

SNL/NM

SNL/NM is located on Kirtland Air Force Base (KAFB), at the base of the Manzano Mountains, adjacent to the City of Albuquerque, New Mexico. The location has approximately 6.58 million gross square feet (GSF) of existing facilities on 13,777 acres of land. Sandia purchases electricity, natural gas (NG), and water from external utility suppliers through an interagency support agreement with KAFB. Sandia purchases liquid propane gas (LPG) and fuel oil independently from KAFB.

SNL/CA

SNL/CA is located 3 miles east of downtown Livermore and 40 miles east of San Francisco, California. The location has approximately 895,094 GSF of existing facilities on 410 acres of land. It is adjacent to Lawrence Livermore National Laboratory (LLNL), with residential areas to the west, industrial parks to the north, and agricultural lands to the east and south. Electricity, NG, and water are metered and billed by LLNL, which has contracts with outside agencies and municipalities.

SNL/NV – Tonopah Test Range

The Tonopah Test Range (TTR) is a full-scale test range and outdoor laboratory located north of Las Vegas, Nevada, on Nellis Air Force Base. The location is used to develop, validate, and certify NNSA-designed weapon systems and components. It has approximately 121,937 GSF of existing facilities on 179,200 acres of land. Electricity, LPG, sewer, and water are metered and billed independently of Nellis Air Force Base.

SNL/HI – Kauai Test Facility

The Kauai Test Facility (KTF) is an SNL rocket-launch range consisting mainly of rocket- and payload-assembly facilities and a launch operations facility. The location has approximately 50,317 GSF of existing facilities on 133 acres of land.

1.2 Vision and Sustainability Definition

1.2.1 Vision

Sandia leads the DOE complex, the nation, and the world in innovative, large-scale institutional transformation (IX) toward a sustainable, carbon-neutral environment while increasing mission effectiveness, resource reliability, and resource security. Each person at SNL understands and accepts his or her vital role in achieving this vision.

Sandia developed objectives that support the DOE goals articulated in the DOE SSPP (see Section 1.5, *DOE SSPP and NNSA Goals and Sandia Objectives*).

1.2.2 Sustainability Definition and Strategies

For SNL, sustainability means making balanced environmental, social, and economic decisions about developing, operating, and maintaining its site to meet the human and mission needs of the present without compromising future generations and missions. Sandia recognizes that it is part of a larger community; the impacts of sustainable development on its site extend beyond its physical boundaries. To that end, Sandia is actively engaged in finding and implementing innovative sustainable solutions for its site and the nation.

Sandia has identified high-level sustainability strategies that will influence future decision making:

- Preserve it.
  - Protect the current environment.
  - Do no (or minimal) harm.
- Conserve it.
  - Use none.
  - Use less.
  - Use what you have to better.
- (Re)generate more of it.
  - Make more.
  - Correct past.
- Reuse it.
  - Recycle.

The definition and strategies are included in Sandia's *Energy, Water, and Transportation Fuels Strategic Plan* and other relevant corporate documents.

1.3 Planning Assumptions, Principles, Practices, Strategies, and Energy Issues

This section identifies the following assumptions, principles, practices, and strategies used to develop the fiscal year (FY) 2015 SNL SSP and summarizes energy issues and concerns.

1.3.1 Planning Assumptions

The following assumptions, including funding assumptions, were used to develop the SNL SSP:

- At a minimum, Sandia will meet the goals of all applicable laws, regulations, EOs, and DOE directives with respect to energy and water efficiency and conservation improvements.
- Funding is available and allocated for projects necessary to meet goals and objectives.
- Sandia will use AQC program GHG footprint methodology and tools; AQC program methodologies meet the requirements of the GHG protocol.
- Sandia's first priorities are mission performance and effectiveness.
- The number of people onsite remains flat over the planning period.
- SNL GSF is expected to decline over the planning period (note that the perceived GSF increase in FY 2014 occurred because the Facilities Information Management System [FIMS] changed the definition of "building" to include more structures, not because new buildings were constructed).

1.3.2 Principles

Sandia will use the following principles, including funding principles, to direct decision making when prioritizing actions to achieve its objectives:

- Use a life-cycle, cost-effective approach to evaluate and prioritize strategies and projects.
- Design and build sustainability into buildings, systems, and operations from the beginning rather than retrofitting later.
- Ensure that energy conservation and related savings give direct benefit to line organizations or to Sandia.
- Consider private-sector funding to implement energy and water conservation and RE projects.
- Develop corporate solutions, not location- or organization-based solutions.
- Consider impacts outside of Sandia when making decisions.
- Align initiatives, projects, and recommendations with at least one corporate strategy to be considered for implementation.

1.3.3 Best Management Practices

The following best management practices (BMPs) will be implemented to achieve Sandia's objectives:

- Use every opportunity to improve resource effectiveness on SNL projects, operations, and activities.
- Pursue non-carbon-emitting RE sources as they become more cost effective.
- Support Sandia research and development (R&D) efforts by using SNL locations as test beds for new alternative and renewable technologies.
- Support Sandia energy-surety initiatives.
- Learn from and share BMPs with other institutions; incorporate innovative resource management techniques.
- Establish a consistent and verifiable measurement system to track the cause-and-effect relationship between implementation activities and GHG, energy, and water footprint reduction.

- Integrate and institutionalize resource consumption-reduction strategies into all SNL planning; building location; design; construction; operations; infrastructure; and environment, safety, and health (ES&H) activities.
- Enable and encourage the Sandia workforce to reduce resource use.
- Limit or eliminate the number of excluded buildings; if buildings are not counted in the baseline, Sandia cannot take credit for energy savings.
- Use the Sandia EMS aspects and impacts evaluation process to facilitate identification of objectives and targets relevant to energy, water, and materials sustainability measures, activities, and actions.

1.3.4 Corporate Strategies

The overall approach to reducing Sandia's energy consumption, GHG, and water footprints is to implement the following strategies:

- Reduce current demand; use less.
- Eliminate current demand; turn off or remove.
- Use resources efficiently; use fewer resources for the same task.

At the same time, Sandia plans to do the following:

- Manage future demand.
- Migrate to non-carbon-emitting energy sources.
- Reduce transportation fossil fuel use.
- Deliver resources to mission-critical activities reliably and securely.

Additional strategies that might not directly reduce the energy consumption GHG and water footprints but are essential for successful energy and water resource management include the following:

- Provide metering and control systems to track and trend performance.
- Showcase SNL R&D activities.
- Promote a sustainable business model.
- Improve partnerships with external resource providers and collaborators.

Reducing, eliminating, and efficiently using energy and water resources in SNL existing buildings are the most cost-effective strategies for Sandia to pursue in the immediate to mid-term timeframes. To implement these strategies, Sandia intends to continue to provide, operate, and maintain a robust system of meters and controls at the building level to track and trend performance.

Migrating to renewable, non-carbon-emitting energy sources is a less cost-effective strategy to pursue in the same timeframe. RE projects will be pursued based on favorable economics. The IX RE module will be used to determine when RE is cost effective.

EO 13514 requires federal agencies to pursue a "net zero" energy strategy, where all new federal buildings entering the planning process beginning in 2020 are designed to achieve zero net energy by 2030. There are several definitions of net zero energy; however, it is clear that significant RE must be part of the equation. It is also clear that although the EO states "all new federal buildings," there are many building types in the NNSA portfolio (i.e., high-energy, mission-specific facilities [HEMSF]) that cannot achieve net zero.

Existing buildings with an energy use intensity of 30 to 35 kilo-British thermal unit (kBtu)/GSF or less are considered good candidates for net zero achievement. The best performing buildings at Sandia use over 50 kBtu/GSF, and many are much higher. Therefore, Sandia's net zero energy strategy in the short- to mid-term, or in other words, before entering the planning process beginning in FY 2020, is to include net zero energy requirements for appropriate new buildings as part of Sandia line item proposals. Site net zero energy status is a long-term objective.

1.3.5 Energy Issues

Based on progress made toward meeting the goals and objectives in FY 2014, Sandia has identified the following specific energy issues and concerns:

- Sulfur hexafluoride (SF6) measurement and capture program must balance mission needs with GHG scope 1 reduction goals.
- Sustained financial investment and management commitment is needed to manage and reduce SF6 fugitive emissions.
- Scope 3 GHG, although small relative to Scopes 1 and 2, is increasing and needs focused attention.
- New data center efficiency goals are aggressive but poorly defined. Sandia continues, in coordination with other NNSA laboratories, to work on an achievable comprehensive plan and implementation strategy.
- Significant mission growth may impact goal achievement.

Effectively managing future demand is critical if Sandia is to meet its objectives. Sandia's first priorities are mission performance and effectiveness. Mission growth, with associated growth in energy and water use, is anticipated over the planning period. Planning for mission growth before it occurs and managing growth during program implementation will increase the probability of sustainability success. Excluding buildings with significant program demand is not the best long-term option. Metering program energy and water use separately from building system use may be an effective tool for tracking program energy and water use while encouraging building energy and water conservation activities.

1.4 FY 2014 Success and Path Forward

This section describes the successes of FY 2014 and the path forward.

1.4.1 FY 2014 Success

Building Operations and Maintenance

In FY 2014, Sandia pursued the following operation and maintenance activities:

- Retro-commissioning projects
- Programming and monitoring the building automation system (BAS)

Facilities Organization/Line Organization Interaction

In FY 2014, Sandia Energy Management, ES&H, and Building Operations personnel accomplished the following:

- Continued collaboration and partnership with Energy and Climate (EC) and Science and Technology communities, including the Sustainability Innovation Foundry and IX projects.

- Reducing individual laboratory energy use (Building 701 was the pilot for FY 2014)
- Continued collaboration with Center 9300 for efficient data center operations and consolidation.
- Matching Class 100,000 cleanroom laminar flows to clean class requirements (Building 986)
- Set back Class 100 cleanroom temperatures during unoccupied hours (Building 986)

Facilities Organization/NNSA Interaction

In FY 2014, Sandia worked with the NNSA and SFO to accomplish the following:

- Hosted the NNSA Sustainability Summit.
- Participated as the first site to undergo a GP compliance review.
- Reviewed Sandia's data center energy reduction/consolidation initiatives.
- Demonstrated the IX tool to NNSA sites.

Training and Tools

In FY 2014, the Sandia Energy Management Program offered training and provided tools to achieve positive energy savings:

- Training
  - Continued providing NNSA- and Federal Energy Management Program (FEMP)-funded training and technical assistance to other DOE and federal sites on high-performance sustainable buildings (HPSB).
- Tools
  - IX and eQuest

FY 2014 Energy Projects

In FY 2014, Sandia completed the projects summarized in Table 1.1, which resulted in significant energy savings. See Section 2.2.1.1 and the *Consolidated Energy Data Report* (CEDR) worksheet, "Conservation and RE Measures," for more detailed information. These savings will not be fully realized until FY 2015.

Table 1.1. Sandia FY 2014 Energy Projects

2014 Projects	Annual Budget (K)	Estimated Savings (BBtus/Year)
Install lighting/HVAC occupancy sensors	$200	1.3
Design and convert buildings to full digital control	$3,700	10.0
Combine Bldg. 858N/858J chilled water (CW) loops (finish in FY 2015)	$537	9.6
Energy audits/retro-commissioning building tune-ups, Energy Management Team support	$150	2.0
IX-EC collaboration (energy efficiency via simulation)	$535	0
TOTAL	**$5,122**	**22.9**

BBtus = Billions of British Thermal Units

1.4.2 Path Forward – FY 2015 and Beyond

Sandia recognizes that implementing energy conservation projects are key, but these projects are only part of the equation to achieve energy goals for FY 2015 and beyond. The ongoing operation and maintenance of the buildings and site, occupant use of buildings for specific missions, Facilities Management and Operations Center (FMOC) and line personnel training, development and availability of modeling and energy analysis tools, and Sandia personal behavior modifications will be required to support long-term institutional change.

Building Operations and Maintenance

Continuing in FY 2015, Sandia will pursue the following operation and maintenance activities:

- Implement retro-commissioning projects.
- Program (including lighting/HVAC occupancy sensors) and monitor BAS.
- Establish temperature set points in office space.
- Improve compressed air operations.
  - Delamp and increase efficiency of light fixtures by installing reflector retrofit kits.
- Develop and implement energy analytics to provide monitoring and diagnostics of HVAC systems and plant systems.
- Develop key performance indicators (KPIs) for buildings and HVAC systems.
  - Monitor KPIs using energy analytics to determine when buildings and systems are not operating efficiently.

Facilities Organization/Line Organization Interaction

In FY 2015, Sandia Energy Management, ES&H, and Building Operations personnel will do the following:

- Engage line organizations in energy audits of high-process buildings and look for opportunities to reduce energy for 24/7 operations. Buildings include 858EF, 899A, 810A, 983, 897, 880/880A, 962, and 827.
- Make use of IX/eQuest to evaluate energy conservation measures and use energy models during energy audits to evaluate operational conservation measures (funded collaboration with Division 6000).
- Reduce laboratory energy use in Buildings 701, 858EL, 518, and 897.
  - Control fume hood air flow per American National Standards Institute (ANSI) and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) standards.
  - Establish temperature set points in laboratories during occupied periods.
  - Set back temperature set points in laboratories during unoccupied periods.
- Investigate cleanroom energy saving opportunities (applicable to 858N, 986, and others).
  - Determine the correct operating air flows and air handling configuration, benchmarking against industry standards.
- Begin community-based social marketing initiative.
  - Employ a method to identify, evaluate, and implement long-term behavior change.
- Continue collaboration and partnership with EC and Science and Technology communities, including the Sustainability Innovation Foundry and IX projects.

- Continue collaboration with Center 9300 for efficient data center operations and data center consolidation.
- Perform energy audits and retro-commissioning for the buildings listed below. This effort will restore and commission the buildings back to their original or modified design basis. The effort will also identify both energy conservation and operational conservation measures. Buildings include 858EF, 899A, 810A, 983, 897, 880/880A, 850, 962, 770, 857, 827, and 981.

Facilities Organization/NNSA Interaction

- Conduct an overview of the Sandia Sustainability Program for SFO to increase employee awareness about energy, water, sustainable acquisition, and pollution prevention.

Training and Tools

In FY 2015, Sandia Energy management will offer training and provide tools to achieve positive energy savings as follows:

- Training
  - BAS (for Facilities system engineers and building operators)
  - Energy audits
  - eQuest and IX modeling and analytic tools
  - Continuance of NNSA- and FEMP-funded training and technical assistance to other DOE and federal sites on HPSBs.
- Tools
  - IX and eQuest
  - Energy analytics and diagnostics

FY 2015 Energy Projects

In FY 2015, Sandia will complete the projects summarized in Table 1.2, which will result in significant energy savings. See Section 2.2.1.2 and the CEDR worksheet, "Conservation and RE Measures," for more details on each project. The savings from these projects will not be fully realized until FY 2016.

Table 1.2. Sandia FY 2015 Energy Projects

2015 Projects	Annual Budget (K)	Savings (BBtus/Year)
Bldg. 897 Pneumatics to Direct Digital Controls (DDC) Units	$100	1.9
Bldg. 836 Pneumatics to DDC Units	$503	1.3
DCC Support to Remove Computer Room Air Conditioning (CRAC) Units	$100	0
eQuest Modeling Support	$100	0
DOE Guiding Principles for HPSB Occupancy Sensor Installations	$200	1.3
DOE Guiding Principles for HPSB Low-Flow Water Fixture Installations	$75	0
DOE Guiding Principles for HPSB ASHRAE Audits	$100	0
Carbon Dioxide (CO2) Sensor Installations to Comply with ASHRAE 62 and DOE	$50	0
DOE BTU Metering and Apportioning	$100	0
Electric Meter (Bldg. 986)	$15	0
Energy Program Team Support (24/7 Operations and Lab Operations)	$150	3.1

2015 Projects	Annual Budget (K)	Savings (BBtus/Year)
858N Chase Ductwork Repairs	$130	8.1
Delamping Project	$120	4.0
Bldg. 870 Upgrade Facility Control System (FCS) Programming to Demand-Based	$30	2.7
850 Heat Exchanger/Water-Side Economizer	$350	9.5
858N Clean Room Air Change Rate Reduction Project	$60	3.1
858N and 858J Chilled Water Tie-In	$306	9.6
C942 Controls Project	$1,080	6.6
C910 DDC Conversion Design	$120	0 (5.6 when constructed)
C906 DDC Conversion Design	$110	0 (5.2 when constructed)
Energy Analytics Project/Improve Building Operations	$200	3.0
Variable Frequency Drive (VFD) Pump Project	$60	0.9
Behavior Change Energy Study	$100	0 (Future Savings TBD)
Energy Audits/Retro-Commissioning	$150	2.3
IX Maintenance Support	$100	0
Replace Top 10 Inefficient Refrigerators with ENERGY STAR Refrigerators	$13	0.06
858 Heat Pump Chiller Design	$50	0 (24.2 when constructed)
858EF Energy Study	$125	0
Compressed Air Assessments/Audits	$200	2.5
California High-Efficiency Lighting Project	$200	1.3
823 Solar Hot Water (HW) Design	$50	0 (Future Savings TBD)
California Heat Exchanger/Water Side Economizer Conceptual Designs	$100	0 (Future Savings TBD)
Energy Awareness, Recognition, and Communication	$50	0
TOTAL	**$5,197**	**61.23**

1.5 DOE SSPP and NNSA Goals and Sandia Objectives

Sandia's commitment to sustainability goes beyond DOE SSPP and NNSA mandated goals. Sandia's internal goals and initiatives are supported by upper-level management, as evidenced by the following:

- Engaged leadership: Division 4000 Vice President, Michael Hazen, is the Corporate Sustainability Champion
- Sustained investment for energy projects
  - Embed energy and sustainability in all facility and infrastructure planning and projects.
  - Continue $5 million commitment to energy and water conservation projects through FY 2016.

Table 1.3 summarizes Sandia's objectives, performance status, and projected performance in support of DOE's goals. See Appendix D of this document for specific FY 2015 goals and targets.

Table 1.3. Sandia Objectives, Performance Status, and Projected Performance

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
GOAL 1: Greenhouse Gas Reduction					
1.1	2.1.1	28% Scope 1 and 2 GHG reduction by FY 2020 from an FY 2008 baseline (2014 target: 19%)	56% reduction in FY 2014 relative to FY 2008 baseline. Sandia considers this medium risk primarily due to the nature of sulfur hexafluoride (SF6) applications.	In FY 2015, Sandia will continue Scopes 1 and 2 GHG reductions. *Included in SNL EMS as a target.*	Medium
1.2	2.1.2	13% Scope 3 GHG reduction by FY 2020 from an FY 2008 baseline (2014 target: 5%)	3% increase in FY 2014 relative to FY 2008 baseline. Sandia considers this to be high risk because Scope 3 emissions are difficult to control and measure.	Sandia will pursue focused improvements. Sandia will concentrate efforts on Scopes 1 and 2.	High
GOAL 2: Sustainable Buildings					
2.1	2.2.1	30% energy intensity (Btu/SF) reduction by FY 2015 from an FY 2003 baseline (2014 target: 27%)	1.84% reduction in FY 2014 relative to FY 2012 and 29.64% relative to FY 2003 baseline for regular (nonexcluded) buildings. Sandia considers this low risk despite potential mission changes and funding availability.	Continuing in FY 2015, Sandia will pursue the following energy-reduction activities: • Occupancy sensor (lighting and HVAC) installation • NightWatchman deployment (see also Goal 7.3) • Heating, ventilation, and air conditioning (HVAC) system modifications, including "free cooling" projects • Night and weekend energy-use reduction • Building controls upgrades and modifications • Office space temperature set point policy • Behavior change *Included in SNL EMS as a target.*	Low

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
2.2	2.2.2	EISA Section 432 energy and water evaluations	Completed 42% (cumulative FY 2013 and 2014) of its covered facilities audits in FY 2014 due to emphasis on Guiding Principles audit/commissioning efforts.	See the CEDR, Section 11, "Covered Facilities" for revised covered building list, schedule, and other information. Sandia added Central Utility Buildings (CUBs) to the covered facilities list. Sandia will audit at least 75% (cumulative, FY 2013 – 2015) of its covered facilities in FY 2015 to reach 100% by FY 2016.	Low
2.3	2.2.3	Individual buildings metering for 90% of electricity by October 1, 2012; for 90% steam, NG, and CW by October 1, 2015 (2014 target: 90% and 75% respectively)	SNL FY 2014 Energy and Water Metering Plan was completed in December 2014. • All electric meters required by EPAct 2005 have been installed. • FY 2014 electricity individually building metered: 88.2% • Sandia does not use steam as an energy stream. • FY 2014 NG individually building metered: 55.5% • Sandia considers this medium risk because the final NG percentage cannot be calculated until all the HW meters are programmed into the BAS. • Sandia meters 100% of its water usage at SNL/NM through advanced location meters, which register all potable water usage, including industrial, landscaping, and agricultural (ILA). • SNL/CA water is supplied by LLNL and is monitored by a single meter.	• Several new electric meters will be installed at the individual building level to meet the goal. • Objective may not be met for NG, HW Btu, and CW Btu meters. • New meters will be installed and existing meters programmed into the BAS. • SNL/CA plans to install HW Btu and CW Btu meters to measure CUB energy use at individual buildings. • New and existing HW meters will count toward the NG FY 2015 objective when programmed into the BAS.	High
2.4	2.2.4	Cool roofs, unless uneconomical, for roof replacements unless project already has Critical Decision (CD)-2 approval. New roofs must have thermal resistance of at least R-30.	Sandia meets this objective: SNL has 132 total cool roofs at SNL/NM and 27 cool roofs at SNL/CA.	See the CEDR worksheet, "Conservation and RE Measures," for proposed, new cool-roof projects. Sandia will replace roofs on 6 buildings with cool roofs in FY 2015.	Low
2.5	2.2.5	15% of existing buildings greater than 5,000 GSF are compliant with the Guiding Principles for HPSBs by FY 2015 (2014 target: 13%).	11.9% of SNL existing buildings over 5,000 GSF (by number of buildings) were compliant in CY 2014. 14.4% of existing buildings over 5,000 GSF (by	Sandia has a plan to meet the objective.	Low

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
			GSF) were compliant in calendar year (CY) 2014.		
2.6	2.2.6	All new construction, major renovations (MRs), and alterations of buildings greater than 5,000 GSF must comply with the Guiding Principles.	Sandia constructed one new building in FY 2014. LEED Gold certification is expected in early FY 2015. Sandia considers this low risk even though the green building certification program Leadership in Energy and Environmental Design (LEED) for New Construction or Guiding Principles for New Construction may not be the appropriate certification for High-Energy Mission Support Facilities (HEMSF), renovated, or altered buildings.	Sandia will meet this requirement for future new construction and comprehensive MR projects. One new institutional general plant project (IGPP) is proposed in the next year, which will comply with the Guiding Principles and be LEED Gold for New Construction. Alterations may not meet LEED for New Construction or Guiding Principles for New Construction. NNSA is considering an exception process, which may address the issue.	Low
2.7	2.2.7	Efforts to increase regional and local planning coordination and involvement	Sandia meets this objective.	Sandia will continue to meet this objective.	Low
GOAL 3: Fleet Management					
3.1	2.3.1	10% annual increase in fleet alternative fuel consumption by FY 2015 relative to an FY 2005 baseline (2014 target: 136% cumulative since 2005)	• 19.3% increase since FY 2005 • 52.1% decrease from FY 2013 to FY 2014 Limited access to E-85 fuel in FY 2014 resulted in decreased alternative fuel consumption and increased petroleum fuel consumption.	Sandia will work to resolve the issues associated with access to E-85 fuel. *Included in SNL EMS as a target*.	Medium
3.2	2.3.1	2% annual reduction in fleet petroleum consumption by FY 2015 relative to an FY 2005 baseline (2014 target: 18% cumulative since 2005)	• 18.3% reduction since FY 2005 • 34.5% increase from FY 2013 to FY 2014. Limited access to E-85 fuel in FY 2014 resulted in decreased alternative fuel consumption and increased petroleum fuel consumption.	Sandia will work to resolve the issues associated with access to E-85 fuel. *Included in SNL EMS as a target.*	Medium
3.3	2.3.1	100% of light-duty vehicle purchases must consist of alternative fuel vehicles (AFVs) by FY 2015 and thereafter (75% FY 2005 – 2015)	Objective has been met. Sandia continues to exceed this objective, purchasing 98% alternative fuel, light-duty vehicles in FY 2014.	Sandia will continue to exceed this objective.	Low
GOAL 4: Water Use Efficiency and Management					
4.1	2.4.1	26% water intensity reduction by	Sandia exceeds the objective with a 29.53%	Sandia will continue to exceed this	Low

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
		FY 2020 from an FY 2007 baseline (2014 target: 14%).	decrease relative to FY 2007 baseline.	objective. *Included in SNL EMS as a target.*	
4.2	2.4.1	20% water-consumption reduction of ILA water by FY 2020 from an FY 2010 baseline (2014 target: 8%).	Included in previous objective.	Included in previous objective.	Low
GOAL 5: Pollution Prevention and Waste Reduction					
5.1	2.5.1	Divert at least 50% of nonhazardous solid waste, excluding construction and demolition (C&D) debris by FY 2015.	Ending FY 2014: • SNL/NM – 67.3% • SNL/CA – 81.5% SNL/CA is required by State regulations to divert 80% of nonhazardous solid waste.	Sandia will continue to seek new materials to divert and improve existing processes.	Low
5.2	2.5.1	Divert at least 50% of C&D materials and debris by FY 2015.	Ending FY 2014: • SNL/NM – 80.5% • SNL/CA – 97.0% SNL/CA is required State regulations to divert 80% of C&D materials and debris.	Sandia will continue to improve existing processes.	Low
GOAL 6: Sustainable Acquisition					
6.1	2.6	Procurements meet requirements by including necessary provisions and clauses in 95% of applicable contracts.	SNL purchasing agreements and procurement documents meet the objective.	The *FMOC Design Standards Manual* and remaining Standard Specifications will be updated in FY 2015. • Update 1000S Design-Build specification for applicable Sustainable Acquisition (SA) requirements. • Add or update SA requirements to Section I for new contracts and, when possible, existing contracts. • Develop quarterly means of tracking and recording number of applicable contract actions placed.	Low
GOAL 7: Electronic Stewardship and Data Centers					
7.1	2.7.1.1	All core data centers are metered to measure a monthly Power Utilization Effectiveness (PUE) (100% by FY 2015). (2014 target: 90%)	The two SNL/NM core data centers are metered. The SNL/CA core data center is not metered.	Sandia will meter the SNL/CA data center in FY 2015.	Medium

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
7.2	2.7.1	Core data centers maximum annual weighted average PUE of 1.4 by FY 2015 (2014 target: 1.5)	The SNL/CA core data center is not metered and will not achieve the 1.4 PUE by FY 2015. The SNL/NM core data centers have not achieved the target PUE.	There is no plan to renovate C912 in FY 2015 so Sandia will not meet this goal. SNL/NM is installing an energy management system in the core data centers, which will allow accurate PUE measurements to be taken. It is unlikely those measurements will meet the goal.	High
7.3	2.7.2	Power Management - 100% of eligible personal computers (PCs), laptops, and monitors with power management actively implemented and in use by FY 2012 and continuously thereafter.	Continued NightWatchman installation on new Windows 7 and 8 computers at SNL/NM and SNL/CA SNL locations. Saw a decrease in actual NightWatchman use in FY 2014.	Sandia will develop and implement a plan to: • Improve power management use on eligible computers. • Expand the number of eligible computers. • Investigate and implement improvements to increase power savings at desktop workstations.	High
7.4	2.7.3	Electronic stewardship – 95% of eligible electronics acquisitions meet Electronic Product Environmental Assessment Tool (EPEAT) standards.	Electronic Stewardship – 95% of eligible electronics acquisitions meet EPEAT Standards.	Sandia plans to: • Improve ENERGY STAR compliance for eligible enterprise server purchases. • Standardize on available models of printers for purchase to be minimum EPEAT Silver level, and to reduce printer consumables costs and waste. • Expand utilization of networked Fleet Copiers to meet workforce Print/Copy/Scan/Fax needs	Low
GOAL 8: Renewable Energy					
8.1	2.8	20% of annual electricity consumption from renewable sources by FY 2020 (2014 target: 7.5%)	Sandia met this objective using Renewable Energy Credits (RECs) and implementing small RE projects. See the CEDR worksheets, "Operating Onsite Renewables" and "Purchased Renewables." Sandia purchased 7.5% (24,000 Mega Watt Hours [MWh]) RECs in FY 2014 to meet this objective.	In FY 2015, Sandia will continue to pursue RECs. See the CEDR worksheets, "Conservation and RE Measures" and "Purchased Renewables," for proposed, new RE projects and RECs. Implementation of renewable energy systems is dependent on favorable economics.	Low

SSPP Goal #	SSP Section	DOE SSPP and NNSA Goal/ Sandia Objective	Performance Status through FY 2014	Planned Actions and Contribution	Risk of Non-Attainment
GOAL 9: Climate Change Resilience					
9.1	2.9	Address DOE Climate Change Adaptation Plan goals	This goal and associated objectives was completely changed in the FY 2015 SSP Guidance. See detailed response in Section 2.9 by objective.	See detailed response in Section 2.9 by objective.	Medium
GOAL 10: Energy Performance Contracts					
10.1	2.10	Utilization of Energy Performance Contracts	Sandia did not utilize Energy Performance Contracts in FY 2014	Sandia does not plan to utilize Energy Performance Contracts in FY 2015.	N/A

2.0 Goal Performance Review and Plans

This section describes Sandia's achievements and plans with regard to the goals set forth in the SSPP.

2.1 Goal 1: Greenhouse Gas Reduction

This section summarizes the current state of SNL GHG emissions given various elements of GHG emissions described in the following subsections. All GHG emission inventory data is available through the CEDR, Facilities Information Management System (FIMS), and Federal Automotive Statistical Tool (FAST).

Reducing, eliminating, and efficiently using energy resources in SNL existing buildings is the most cost-effective strategy for Sandia to pursue in the immediate to mid-term timeframes.

Effectively managing future demand is also critical if Sandia is to meet its objectives. Sandia's first priorities are mission performance and effectiveness. Mission growth, with associated growth in energy and water use, is anticipated over the planning period. Planning for and managing growth before it occurs will increase the probability of sustainability success. Establishing appropriate and accurate GHG and energy and water baselines is also essential for success.

See Figure 2.1 for Scopes 1, 2, and 3 GHG emissions in metric tons (MTs) of carbon dioxide equivalent (CO2e).

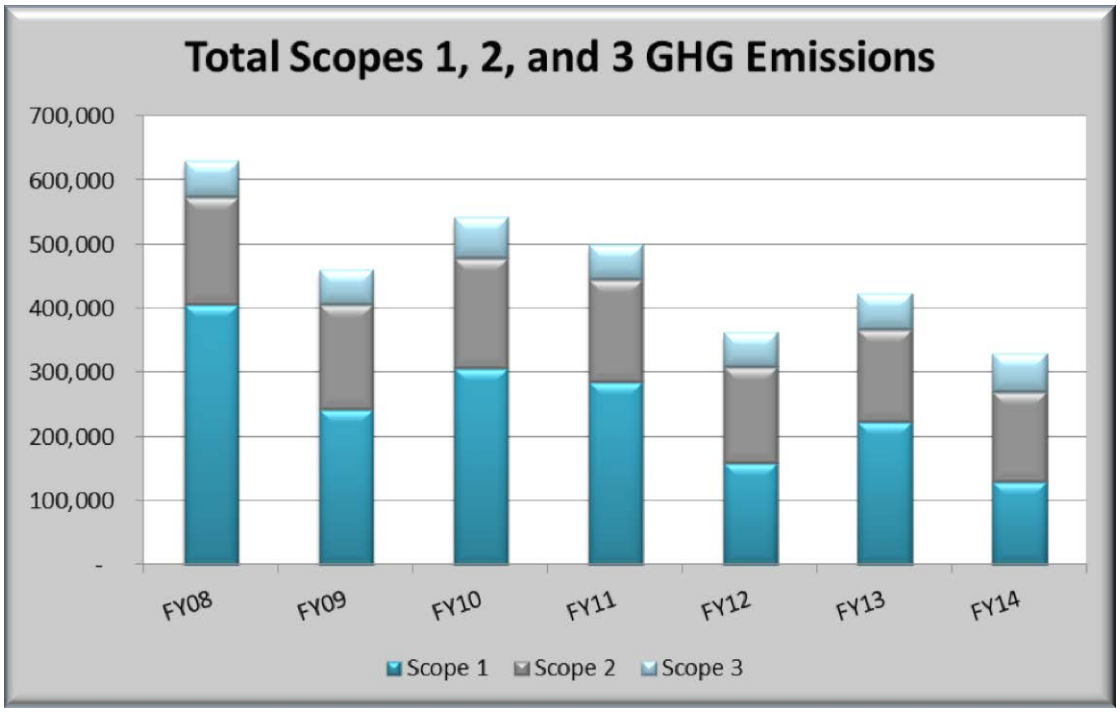


Figure 2.1. SNL Total Scopes 1, 2, 3 GHG Emissions in Metric Tons CO2e

The second largest source of GHG emissions at SNL was SF6 emissions. With SF6's global warming potential of 22,800, SF6 reductions provide opportunities for significant GHG reduction (see Figure 2.2).

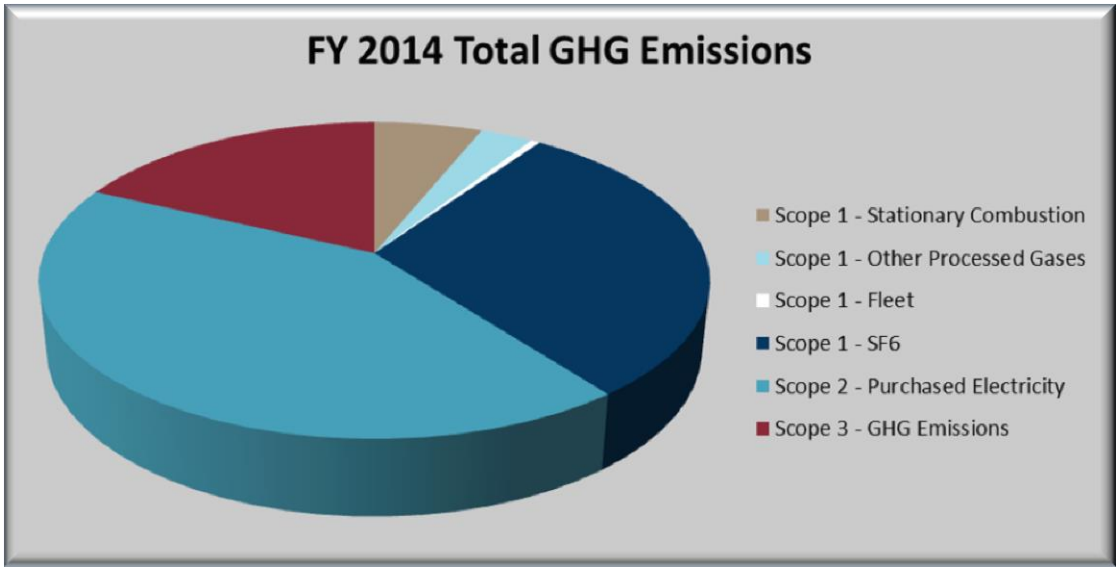


Figure 2.2. SNL FY 2014 Total GHG Emissions

2.1.1 Scopes 1 and 2 Greenhouse Gas Emissions

The SSPP commits DOE to reduce its GHG Scopes 1 and 2 emissions by 28 percent by FY 2020 from an FY 2008 baseline. Sites are expected to aggressively strive toward the overall DOE goal. Sandia has accepted this challenge and has developed objectives accordingly. Table 2.1 lists GHG scope definitions.

Table 2.1. SNL Emissions Categories by GHG Protocol Scopes

Scope 1	Scope 2	Scope 3
• NG consumption • Other stationary combustion • Fleet fuel consumption • Process gases and fugitive emissions	• Purchased electricity	• Employee commuting • Business ground and air travel • Transmission and distribution (T&D) losses • Contracted (offsite) waste water treatment • Contracted (offsite) municipal waste disposal
Notes: • Other stationary combustion includes diesel and gasoline used in generators and jet fuel used for experimentation. • Fleet is onsite transportation.		

2.1.1.1 FY 2014 Performance Status

Sandia has reduced GHG Scopes 1 and 2 emissions by 56 percent in FY 2014 from an FY 2008 baseline. The major source of SNL's Scope 1 GHG emissions is fugitive emissions, which are considered to be any emissions that cannot reasonably pass through a stack, chimney, vent, or otherwise be collected. At SNL, the primary source of fugitive GHG emissions is SF6.

SF6 used in pulsed power and high-voltage R&D applications account for the majority of use at SNL/NM. Based on the equipment and processes involved, there is currently no suitable alternative to SF6 for these applications. These programs and the buildings that house them use large quantities of SF6, have leak detection and repair processes in place, and have SF6-reclamation units associated with them. Various other activities are conducted throughout SNL that do not recapture the gas. However, the amount of SF6 involved in those processes is minimal, typically less than 5 percent, in comparison to the pulsed power applications.

The FY 2010 SSPP committed DOE to acquire SF6 capture and storage equipment, develop training, and deploy an SF6-capture program at key DOE sites subject to funding availability by September 2012. The SNL AQC group and members of Pulsed Power Operations formed a working group in FY 2011 to identify potential areas for further reductions and improved tracking methods.

Since FY 2012, Sandia personnel have been tracking SF6 additions to the systems at several of the pulsed power facilities (Z Pulsed Power Facility, HERMES III, RITS-6, Saturn, SPHINX, Sandia Lightning Simulator (SLS), and the Electromagnetic Environment Simulator). This method of tracking provides better information about SF6 emissions at the equipment level than tracking purchases only. Sandia has identified and taken measures to reduce emissions during storage at some of these facilities. Emissions from all other SNL operations continue to be estimated based on purchases. See SNL's SF6 purchases and estimated use as reported in the CEDR worksheets.

The department that maintains and operates the Saturn and HERMES III accelerators also made several improvements in FY 2013 to minimize SF6 emissions. This team continued their efforts in FY 2014 by doing the following:

- Installing pressure-relief valves that vent to storage rather than to the atmosphere
- Installing additional valves to isolate leaks
- Implementing the use of substitute gases for leak checks

All members on the Saturn and HERMES III operations team have been made aware of the importance of reducing the loss of SF6 gas and are incorporating that culture in their work routines. The department's management continuously encourages improvements and upgrades to the systems to reduce SF6 losses.

In addition, the department that maintains and operates the SLS and Electromagnetic Environment Simulator (EMES) has made several improvements in FY 2014 to minimize SF6 emissions, including the following:

- Updating the SLS SF6 gas supply and return manifolds with new fittings, gas regulators, and piping to eliminate leaks
- Procuring new load cells for the existing SLS SF6 reclaimer, which will provide more accurate SF6 loss measurements; the new load cells are scheduled for installation in FY 2015
- Acquiring a new SF6 reclaimer for EMES to support high-voltage operations in FY 2015–2020

In FY 2014, Sandia's Pulsed Power Engineering Department purchased a forward-looking infrared (FLIR) optical gas detection camera to enhance the leak detection program at SNL's pulsed power facilities. This infrared optical gas imaging camera identifies and corrects numerous small leaks at the Z-Machine.

In FY 2011, SNL/CA initiated a multiyear electrical switchgear refurbishment project, with the intent of reducing SF6 emissions from the site's 18 gas-insulated switchgear. The project began with sending three inactive switches (i.e., in storage) back to the manufacturer for refurbishment. Upon their return to SNL/CA, they were used to replace the three active, leaking switches; these three were then sent to the manufacturer for their refurbishment. By the end of FY 2014, seven switches had been refurbished and reactivated. An additional five switches had been removed from service and were awaiting shipment to the manufacturer for refurbishment.

This process will continue until all 18 switchgears have been replaced with new or refurbished units. This project was initiated to comply with the California Air Resources Board's (CARB) *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (CCR 95350 – 95359). This regulation sets a maximum allowable leak rate of 10 percent for 2011. The leak rate limit declines by 1 percent each year until 2020, when it reaches a final allowable leak rate of 1 percent.

Figure 2.3 illustrates Scopes 1 and 2 GHG emissions in MT of CO2e. Combined Scopes 1 and 2 emissions decreased by 29 percent between FY 2008 and FY 2009 but increased by 18 percent between FY 2009 and FY 2010 due to an increase in SF6 purchases. Between the baseline year of FY 2008 and FY 2014, Scopes 1 and 2 emissions decreased 54 percent.

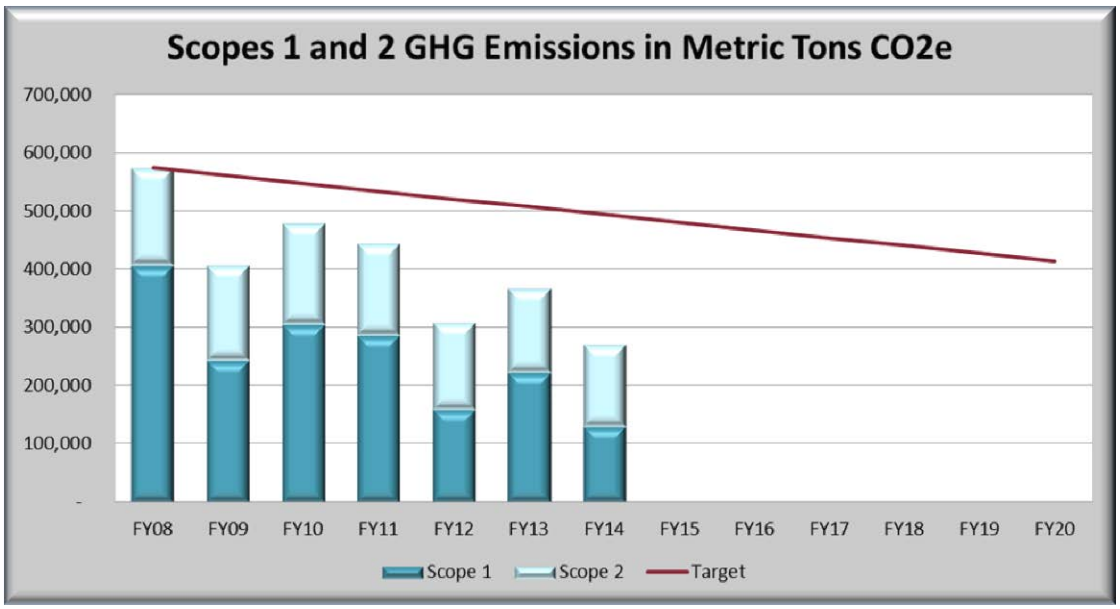


Figure 2.3. Scopes 1 and 2 GHG Emissions in MT CO2e

In FY 2014, the only component of SNL's Scope 2 GHG emissions was grid electricity because the majority of SNL's grid electricity generation is coal-fired. This is an important opportunity for SNL to reduce GHG emissions. There is a direct link between projects supporting electricity use reduction and GHG emissions reduction. See the CEDR worksheets, "Conservation and RE Measures" and "Building Inventory Changes," for a list of specific projects executed in FY 2014 and prior years as well as Section 2.1.1 for the performance status as of FY 2014 to reduce energy and, as a result, Scopes 1 and 2 GHG emissions.

2.1.1.2 Plans and Projected Performance

A new SF6 storage system for the Z-Machine has been designed, and installation is underway. The new system will prevent releases of SF6 from the storage torpedoes. Installation of new sensors to detect

leaks and stop flow in the Z-Machine SF6 delivery system is planned for FY 2015 to reduce emissions and the amount of SF6 used.

The Saturn/HERMES team worked closely with the SF6 reclaimer manufacturer in FY 2014 and determined that custom reclamation units are warranted. The custom reclaimers are expected to be manufactured and installed in FY 2015. These units will have much higher efficiency than those being replaced and provide more appropriate filtration for the accelerator systems than the commercial off-the-shelf reclaimers. This team also has an FY 2015 goal to install quick disconnect fittings to isolate Marx generators that require routine maintenance.

Anticipated growth in Sandia's pulsed power mission presents a challenge to achieving Scope 1 reduction objectives. While SF6 emissions per experiment are expected to decrease, overall emissions may increase, depending on the total work scope.

The Radiography group in Sandia's Structural Dynamics X-Ray Department initiated a substitution analysis to determine the feasibility of using compressed air rather than SF6 in their flash x-ray systems. In FY 2015, the Radiography group will have the equipment vendor retrofit all of their 450 kilovolt (kV) flash x-ray generators to eliminate the majority of their SF6 usage. The Radiography group also uses 1 megavolt (MeV) flash x-ray equipment, but the vendor determined that a substitute gas cannot be used. The 1 MeV flash x-ray systems are not used as frequently as the 450 kV systems, and equipment modifications are expected to eliminate most of this department's SF6 use, which would be a reduction of approximately 460 pounds (4,757 MT CO2e) annually. The Radiography group is currently exploring the use of an SF6 reclamation system to further decrease its SF6 gas usage.

See the CEDR worksheets and Section 2.1.1.2, Plans and Projected Performance, for planned activities to reduce energy and, as a result, Scopes 1 and 2 GHG emissions.

2.1.2 Scope 3 Greenhouse Gas Emissions

The SSPP commits DOE to reduce its Scope 3 GHG emissions by 13 percent by FY 2020 from an FY 2008 baseline. Sandia is committed to meeting this target; however, emissions are increasing, not decreasing.

2.1.2.1 FY 2014 Performance Status

Annual Scope 3 GHG emissions are shown in Figure 2.4. SNL's Scope 3 emissions show a 3 percent increase from the FY 2008 baseline to FY 2014.

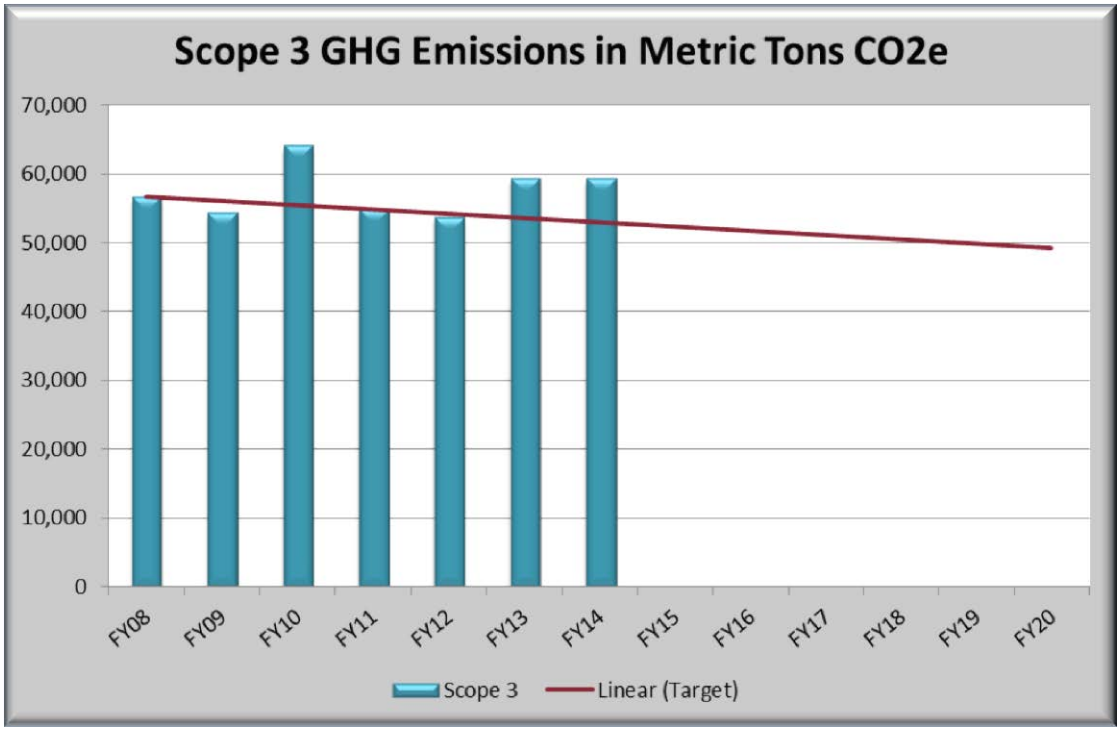


Figure 2.4. SNL Scope 3 GHG Emissions in Metric Tons CO2e

Employee Commuting

Sandia encourages Members of the Workforce to use alternatives to single-passenger commuting through the following incentive and assistance programs:

- Preferred parking: Sandia reassessed reserved parking for carpoolers in FY 2011 to maximize the incentive to carpool. The Commuter Assistance Program identified improvements to the number and locations of preferred parking for convenience based on information provided by registered carpoolers. Installations were completed in FY 2013.
- Carpool SharePoint site: This is an SNL internal website that serves as a central meeting point for people across SNL to find carpool and vanpool riders based on individual needs.
- Bike commuter SharePoint site: This is an SNL internal website that provides Sandia personnel with information about gear, routes, shower and locker facilities, safety, traffic, and the "Bike Buddy" bike-commuter connector.
- Bus pass discounts: The City of Albuquerque Transit Department currently uses the ABQ Ride Bus System to serve KAFB. There are seven different bus routes that service SNL/NM. Discounted monthly bus passes are available from Sandia Employee Recreational Program.
- Express bus routes: At SNL/NM, there are established express bus routes from the west side of Albuquerque.
- Train: The New Mexico Rail Runner provides a train commuting option with 13 different stations from Santa Fe to Belen.
- Guaranteed Ride Home: SNL Members of the Workforce who use alternative modes of transportation at least three times a week are eligible to register for the City of Albuquerque's Guaranteed Ride Home program. If an emergency arises during the workday, this program will provide a free ride to the requested destination if it is within the ABQ Ride bus route service area.

- Vanpooling: SNL/CA has partnered with VRide, a local vanpool company to support vanpooling at the California site.
- Bike commuter support: SNL/CA provides fully enclosed bicycle lockers across the site.
- Electric vehicles: Sandia is pursuing how to utilize electric cart and Fleet vehicle charging stations for personal electric vehicles.

Business Ground and Air Travel

Sandia has not established specific initiatives to reduce ground or air travel for the purpose of Scope 3 GHG reduction; however, Sandia has established corporate travel procedures (FIN100.1.TNT.5, *Travel on Business*) that promote efficiency in business travel. Sandia requires corporate travel be undertaken only when alternative methods to accomplish the business purpose are not suitable. Members of the Workforce are expected to help minimize rental expenses by sharing a vehicle.

Transmission and Distribution Losses

The Technical Service Document for the Federal GHG Accounting and Reporting Guidance uses the national average default value of 0.0618 for transmission and distribution (T&D) losses; this is the figure Sandia uses.

At SNL/NM, Sandia purchases low-loss substation and distribution transformers. All transformers have energy losses that reduce electrical system energy efficiency. Energy losses are due to the magnetizing losses of the core (no-load loss) and the conductor resistive losses (load loss) of the transformer. Transformers are available that have reduced core and winding losses; however, this reduction in losses corresponds to an increase in transformer price. At SNL/NM, Sandia uses a transformer life-cycle, cost-procurement methodology to procure transformers. Using life-cycle cost evaluation, the more expensive, energy-efficient transformers can compete in the procurement system because the initial cost of the transformers is offset by its lower annual operating costs.

Contracted (Offsite) Waste Water Treatment

Waste water discharge permits with the local Publicly Owned Treatment Works are in place for SNL/NM and SNL/CA. SNL/NV discharges waste water to an evaporation lagoon owned and operated by the U.S. Air Force (USAF).

Contracted (Offsite) Municipal Waste Disposal

Sandia contracts its offsite solid waste disposal, which is referred to as “commercial solid waste” disposal in program documents. At SNL/NM, Sandia uses the city of Albuquerque Cerro Colorado landfill and the Waste Management-owned Rio Rancho landfill for offsite solid waste disposal.

At SNL/CA, the Facilities Management organization owns and manages the solid waste disposal contracts and works in conjunction with the SNL/CA P2 program to ensure reporting and recycling requirements are met. To meet the new recycling ordinance implemented by Alameda County in July 2014, SNL/CA significantly changed its solid waste management activities to increase recyclables and implement composting. Facilities Management self-hauls trash and mixed recycle waste directly from the site to the Vasco Road Landfill owned by Republic Services. Organic wastes are collected under contract by Livermore Sanitation, which transfers the composting process to Recology Grover Environmental. Livermore Sanitation is contracted to pick up trash, asphalt, concrete, carpeting, C&D, tires, and wood that are transported to Vasco Road Landfill for disposal or recycling. Cardboard is transferred to Alameda County Industries.

The number of new contract actions reported in FY 2014 is significantly less than the number reported in FY 2012 and FY 2013. Discussions with Facilities Engineering personnel indicate that past years’ reports

counted all new projects and activities, including those that did not require contract modifications. A thorough review of actions that involved new or modified contracts verified that the number reported for FY 2014 is accurate.

At SNL/NV, Sandia disposes normal dumpster refuse at the TTR USAF Class II Sanitary Landfill. Minor quantities of construction debris are disposed of at the USAF landfill. For larger quantities of other "commercial solid waste" (salvage yard materials or large quantities of construction debris), Sandia has a contract with the Apex Landfill in Las Vegas. Sandia also has a contract to haul used tires to Phoenix Recycling Technologies in Las Vegas.

2.1.2.2 Plans and Projected Performance

Although Sandia will focus primarily on Scopes 1 and 2 GHG emission reductions in the near term, Sandia plans future Scope 3 GHG emissions reduction activities as follows:

- Reduce vehicle miles traveled.
- Encourage trip consolidation through carpooling and vanpooling.
- Increase use of teleconferencing, video conferencing, and web conferencing.
- Reduce workforce business travel between SNL/NM and SNL/CA with increased use of teleconferencing, video conferencing, and web-based collaboration tools.
- Encourage telecommuting.
- Encourage fuel-efficient rental car use: Sandia is required to use Lockheed Martin (LM) corporate contract travel arrangements for rental car services and, therefore, does not define efficiencies of cars rented. This may potentially represent an opportunity for improvement by proposing development of requirements for fuel-efficient rental car use.
- Support Sandia personnel use of public transportation by facilitating its use through negotiating schedules with the provider and by providing incentives for use of mass transit.
- Actively pursue how electric vehicle charging stations can be utilized on site for personal vehicle use within federal restrictions.

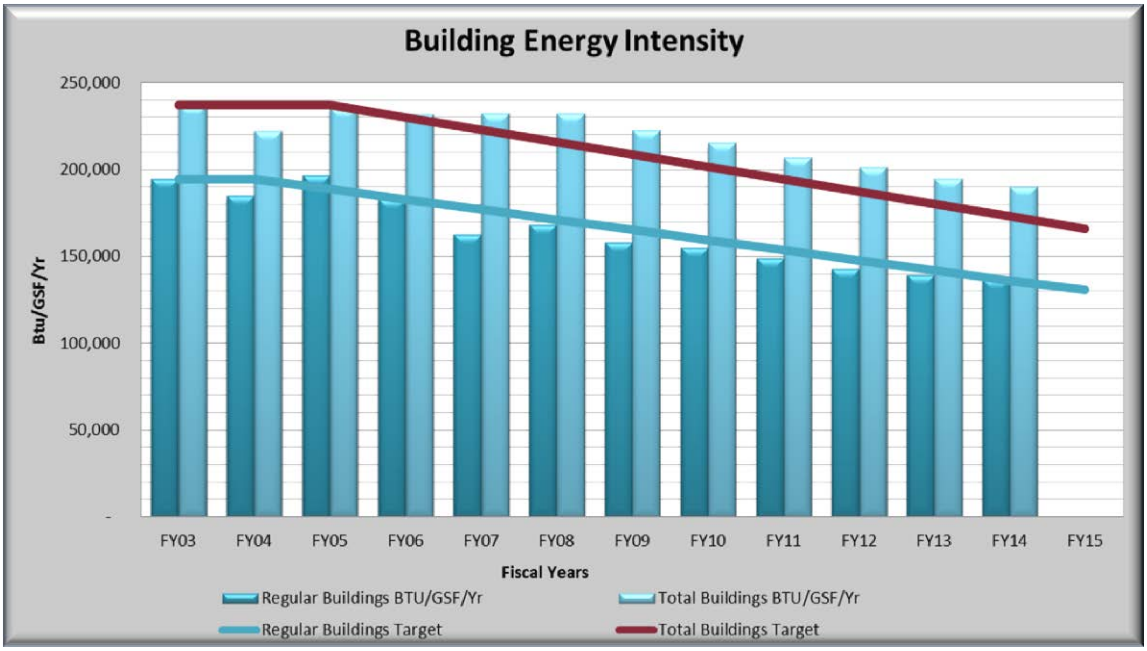
2.2 Goal 2: Sustainable Buildings

2.2.1 Energy Intensity

EISA 2007 requires DOE to reduce its energy intensity by 30 percent by FY 2015 from an FY 2003 baseline. Sandia accepts the goal for regular buildings and will strive to achieve the goal for all buildings.

2.2.1.1 FY 2014 Performance Status

Sandia is on track to meet the EISA-required goal for energy intensity reduction (see Figure 2.5). In regular (nonexcluded) buildings, Sandia reduced energy intensity per SF by 29.64 percent from FY 2003 to FY 2014 (see Figure 2.6). For all buildings, Sandia reduced energy intensity per SF by 19.66 percent from FY 2003 to FY 2014. These results reflect energy-conservation initiatives completed in FY 2013. See the CEDR worksheets, "Conservation and RE Measures" and "Building Inventory Changes," for a list of specific projects executed in FY 2014 and prior years as well as the CEDR worksheet, "Energy and Water," for energy intensity information. Appendix C contains a copy of the final FIMS list of NNSA buildings (as of November 10, 2014) that Sandia is excluding from the energy intensity goal as well as a copy of the DOE Building Exclusion Self-Certification form.



Notes:

- Data does not include SNL/HI.
- FY 2008 and prior data does not include offsite leases.
- FY 2009–2014 data include offsite leases in which energy cost was not included in the lease cost.

Figure 2.5. SNL Total Energy Intensity in Btu/GSF/Yr

In FY 2013, Sandia began tracking two additional voluntary metrics: Total British Thermal Unit (Btu)/ Total Mission Dollar and Total Btu/Capita. Total Million British Thermal Unit (MBtu) (1,328,250) is based on the total site energy usage (NM, CA, and NV). For FY 2014:

Total MBtu/Total Mission Dollar (M) = 1,328,250/4,813 = 275.97 MBtu/Total Mission Dollar (M)

Total Mission Dollar is the total Sandia cost for all programs (including Work for Others and indirect costs) minus line item construction projects. Figures 2.6 and 2.7 illustrate the total site MBtu per total mission cost and per capita. See also Table B-11 in Appendix B for more information.

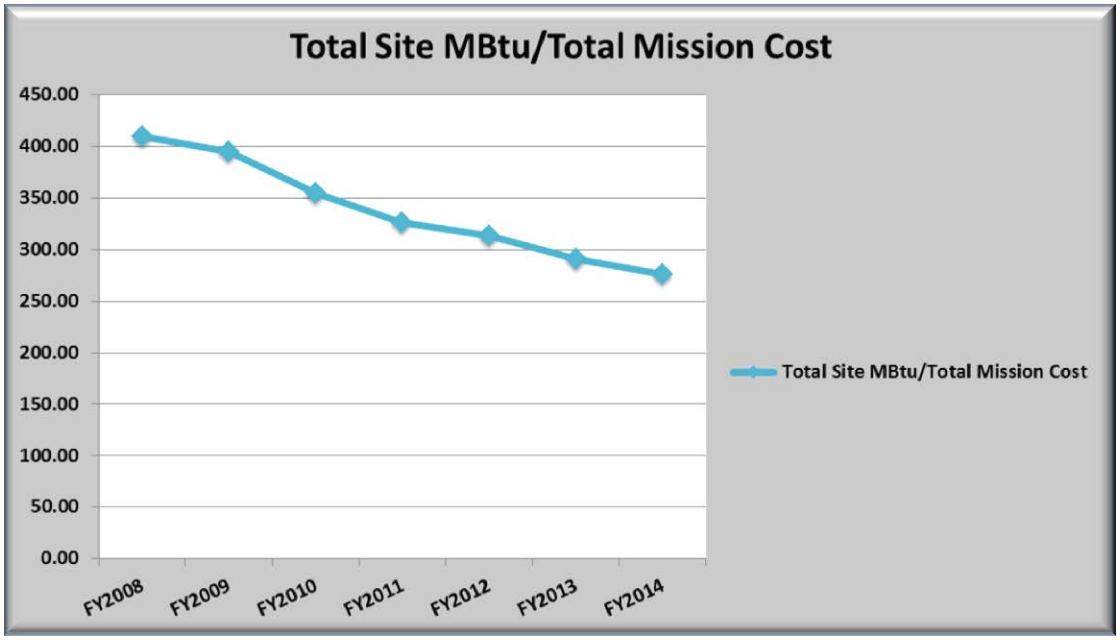


Figure 2.6. Total Site MBTU/Total Mission Cost

Total MBtu/Capita = 1,328,250/11,849 = 112.10 MBtu/Capita

Capita is the total Sandia workforce number, including staff, onsite staff augmentation contractors, and visitors. The above calculation does not include SNL/HI. See Table B-10 for more information.

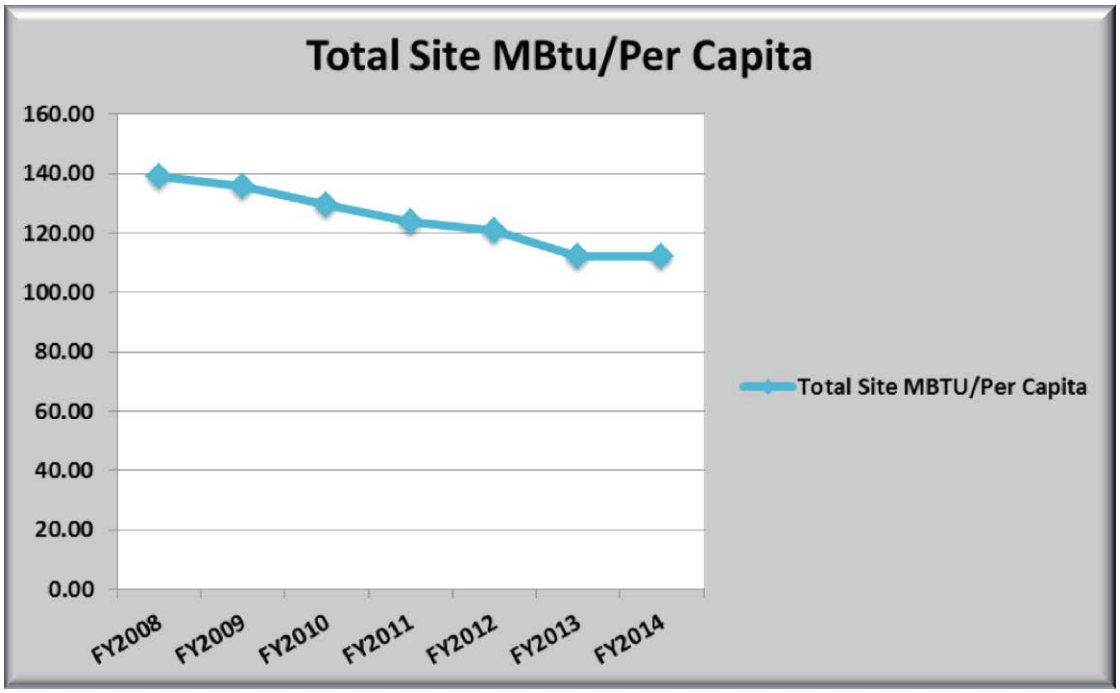


Figure 2.7. Total Site MBTU per Capita

In FY 2014, Sandia accomplished the following energy-conservation measures:

- Designed controls conversion from pneumatic to DDC zone control in Buildings C942, C940, 6585, and 6580
- Constructed controls conversion from pneumatic to DDC zone control in Buildings C914, C940, C943 (Phase A), 836 (Phase A), 897 (Phase A), 886, and 891
- Installed lighting occupancy sensors in Buildings 859, 861, 752, 856, 885, 727, 730, 700, 703, 877, 879, 971, and 720
- Integrated lighting occupancy sensors with the HVAC system to turn off lighting and HVAC to offices when unoccupied; the integrated systems were installed in Buildings 720, 730, 752, 971, and 856
- Constructed Phase A of the 858J and 858N chilled water tie-in project
- Completed 858N energy study that evaluated many energy conservation measures
- Operated most office buildings within a temperature band of 70° to 76°F during standard working hours in buildings connected to the BAS
- Used the BAS to shut off or set back systems during nonstandard working hours in monitored buildings
- Conducted energy audits to identify issues, deficiencies (return building to current design basis), and opportunities to improve energy and water resource efficiency; energy audits were completed for Buildings 758, 860, 892, 836, 957, 750, 809, 891, 1090, 954, 885, 725, 986, 727, 886, 6584, 858S, 899, 6587, 701, 821, 970, 823, 905, 858N, 726, C906 and C907
- Completed Technical Area (TA)-I chilled water infrastructure study
- Continued implementation of the computer power management program on eligible non-mission-critical desktop computers running Microsoft Windows 7 and 8 at SNL locations (see Section 2.7.2)
- Designed and installed HVAC controls in Building 840
- Provided meters to measure PUE in Buildings 725 and 899
- Decontaminated and demolished (D&D) the following:
    - Building C927 (22,001 GSF) at SNL/CA
    - Mobile offices (MOs) 03-100 and 03-101 (12,000 GSF total) at SNL/NV
    - MOs 95, 138, 246, and 247 (4,257 GSF) at SNL/NM

In FY 2014, the construction of Building 730, a new 24,349 GSF IGPP building located south of Building 810 (the building will be LEED Gold certified and meet the Guiding Principles for New Construction), is anticipated to cause an increase in energy consumption, but a decrease in energy intensity. Sandia also constructed Building 1091, a new 15,000 GSF corporate records modular storage building.

In addition, in FY 2014 Sandia Facilities and R&D organizations collaborated on the following initiatives:

- Continued the Sustainability Innovation Foundry (SIF), which will facilitate and integrate Sandia's efforts at innovative, science-based systems engineering solutions to the issues of sustainability; the SIF will focus on Sandia's sustainability issues and solutions for applications at SNL and within the broader community
- Completed IX software tool version 2.5, which will be used to evaluate energy conservation measures for buildings across the SNL/NM and SNL/CA campuses

- Completed 114 building energy models using eQUEST/DOE2 for SNL/NM and SNL/CA buildings; these building models will be used to look for opportunities to improve efficiency, conserve energy, and evaluate energy conservation measures

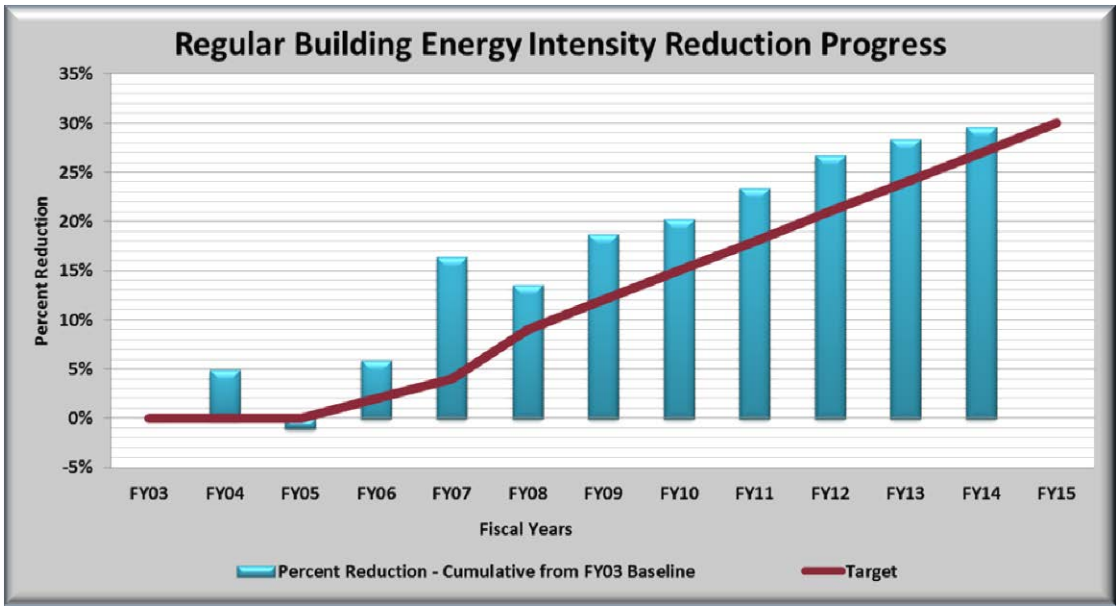


Figure 2.8. SNL Regular Building Energy Intensity Reduction Progress

2.2.1.2 Plans and Projected Performance

See the CEDR worksheets, "Conservation and RE Measures" and "Building Inventory Changes," for planned major energy intensity reduction and generation activities and new construction projects that will impact how future energy is expected to grow or decline in FY 2015 and beyond.

The high levels of electrical demand at night and on weekends (12,000 to 14,000 kilowatt [kW], 60 to 70 percent of the peak daily demand) present a significant opportunity for energy demand reduction at SNL/NM. Although the demand is less, SNL/CA has a similar load profile and opportunities for energy reduction.

When completed in FY 2015, the following actions will result in a decrease in energy intensity:

- Design controls conversion from pneumatic to zone DDC control in Buildings 872, C906, C910, and C942.
- Convert controls from pneumatic to zone DDC control in Buildings C942, C943 (Phase B), 836 (Phase B), and 897 (Phase B) at SNL/CA.
- Install combined occupancy/HVAC sensors in Buildings 859, 702, 861, 957, 6586, 755, 770, 809, 836, 905, and 954.
- Reduce building and equipment operational time by doing the following:
  - Operate equipment, rooms, and buildings 24/7 only when required by mission work.
  - Allow nighttime operation only when required by mission work.
- Continue implementation of the computer power management program on all eligible non-mission-critical desktop computers running Microsoft Windows 7 and 8 at SNL locations (see Section 2.7.2).
- Implement recommissioning or retro-commissioning based on audit recommendations.

- Remove CRAC units in DCC rooms.
- Make 858N chase ductwork repairs.
- Delamp buildings and install high-efficiency lighting retrofit kits with reflectors.
- Upgrade the FCS programming in Building 870 to be demand-based.
- Install Building 850 heat exchanger/water-side economizer.
- Reduce Building 858N clean room air change rate.
- Construct Building 858N and 858J chilled water tie-in to improve chilled water plant efficiency.
- Develop and implement an energy analytics program to improve building operations.
- Install combination VFD/Pump/5 horsepower motors (pilot project).
- Replace the top 10 inefficient refrigerators with ENERGY STAR refrigerators.
- Design solar hot water (HW) systems for Building 823.
- Perform an energy study at Building 858EF to identify energy conservation measures and associated energy savings for each measure.
- Replace the air handling unit at Building C912.
- Replace the chiller in Building 840.
- Replace the chillers in Building 810 with magnetic-bearing, high-efficiency chillers.
- Replace the boilers in Building 963 with high-efficiency boilers.

In FY 2015, Sandia will construct the following project, which is anticipated to cause an increase in energy consumption but a decrease in energy intensity:

- Construct Building 705, a new 25,000 GSF general plant project (GPP) building in TA-I (the building will be LEED Gold certified and meet the Guiding Principles for New Construction).

The following planned actions will impact energy intensity after FY 2015:

- Construct a new IGPP in SNL/CA.
- Restore mechanical and control systems in Buildings 960 and 961.
- Replace air handlers and controls in Building 826.
- Convert controls from pneumatic to DDC zone control in Buildings 6585, 6580, 823, 905, and 857.
- Upgrade the BAS in the remaining SNL/CA buildings.
- Investigate new technologies for lighting and lighting controls.
- Perform a study of all exterior lighting systems at all Sandia locations.
- Install water-side economizers for buildings in TA-IV to shut down chillers in the fall, winter, and spring seasons.
- Continue to apply energy analytics for buildings and plant systems. Analytics will perform diagnostics and set rules to capture operational inefficiencies within buildings, HVAC systems, and plant systems.
- Continue to use IX software tool and eQuest building energy models to identify energy conservation measures and operational conservation measures. These tools will also be used during energy audits and retro-commissioning.
- Improve compressed air operations by implementing recommendations identified in assessments and audits.

- Install water-side economizers for SNL/CA buildings and plant systems to shut down chillers in the winter season.
- Continue to engage line organizations and operations teams to evaluate existing 24/7 operations and identify opportunities for the following:
  - Improve existing 24/7 operations by optimizing the existing operations.
  - Install dedicated systems for 24/7 operations that will improve efficiency.
  - Reduce the 24/7 operations by setting up a schedule.
  - Shut down 24/7 operations by consolidating functions.
- Reduce the lighting power density in buildings by delamping and improving the efficiency of the lighting by installing retrofit kits with reflectors.
- Implement recommissioning or retro-commissioning based on audit recommendations.
- D&D Buildings 867, C9731, and several MOs in SNL/CA for a total of 35,162 GSF. (Building 867 at 19,713 GSF is a relatively small energy consumer.) Building 03-50 at 17,391 GSF and Building 09-52 at 8,324 GSF are scheduled for D&D after FY 2015 at SNL/NV. Building 892 is also slated for D&D within the next 10 years.
- Accommodate new mission work.

Table 2.2 illustrates actual and projected electricity consumption at SNL, and Figure 2.9 provides Sandia's 10-year load forecast for electricity use. Sandia does not anticipate major increases in electrical use at this time.

Table 2.2. SNL Actual and Projected Electricity Consumption (x 10^6 kWh)

	Actual FY 2014	Planned FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Total Electricity Consumption (MWh)	279,994	274,394	269,074	264,027	266,667	269,334	272,027	274,748	277,495	280,270
Electricity Consumption (MWh) – Regular Buildings	156,378	153,250	150,279	147,460	148,935	150,424	151,929	153,448	154,982	156,532
Electricity Consumption (MWh) – Excluded Buildings	123,616	121,144	118,795	116,567	117,732	118,910	120,099	121,300	122,513	123,738

Notes:
1. Assumes a 1% increase/year before efficiencies
2. Assumes a 3% decrease/year from FY 2014 actual through FY 2017
3. See the CEDR, Section 3.4, for projected energy efficiencies.
4. See the CEDR, Section 3.3, for projected growth components.

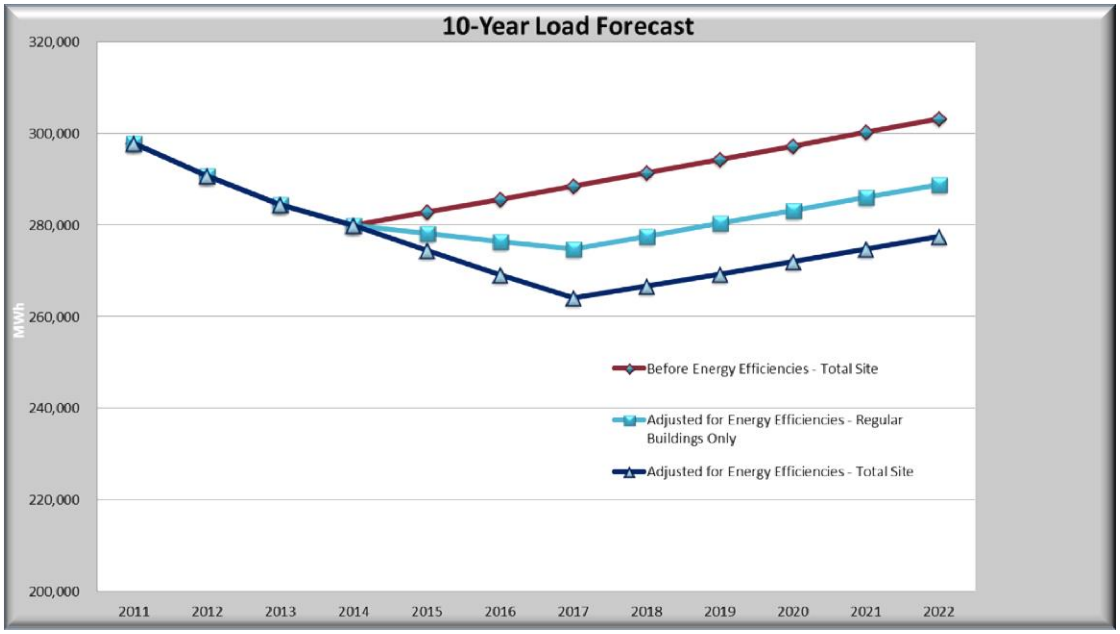


Figure 2.9. SNL 10-Year Load Forecast

2.2.2 EISA Section 432, Energy and Water Evaluations

EISA 432 requires DOE to complete energy and water evaluations (audits) on its covered facilities every four years. June 2016 will mark the end of the second cycle. EISA defines covered facilities as the top 75 percent energy-using buildings. DOE tracks covered facilities at the site level. In FY 2014, Sandia had 57 covered facilities, which equated to approximately 4.58 million GSF.

EISA also requires benchmarking for energy and water use. For buildings that may be ENERGY STAR candidates, Sandia uses the U.S. Environmental Protection Agency's (EPA) Portfolio Manager to benchmark building energy use. For other buildings, Sandia uses an internal benchmarking process.

2.2.2.1 FY 2014 Performance Status

Sandia did not complete 50 percent (cumulative FY 2013 and 2014) of the required EISA Section 432 energy audits for covered facilities on schedule. Sandia only completed 42 percent of its covered facilities and has a plan to complete 100 percent by June 2016. This status is reflected in the CEDR, Sections 3.3 and 11.

Starting in FY 2014, Sandia counted central utility buildings (CUBs) as covered facilities for the purposes of EISA audits. This increased the number of covered facilities to 57. Sandia apportions all the CUB energy use to the buildings served by the CUB. Sandia counts these buildings as required toward the top 75 percent energy-using buildings in addition to the CUBs.

In FY 2010, Sandia developed a comprehensive process to perform building-level energy and water audits. The process includes individual discipline checklists, energy lead profiles, energy baselines, a summary report, and deficiency and opportunity identification. Sandia has updated the process several times, most recently in FY 2014, based on feedback from the subject matter experts who perform the audits. The energy and water audits are also used to meet Guiding Principle commissioning requirements and become the basis for CEDR Section 3.1 and Compliance Tracking System energy conservation measures reporting requirements.

2.2.2.2 Plans and Projected Performance

Sandia's plan to meet EISA audit requirements by June 2015 is shown in the CEDR, Sections 3.3 and 11.

Sandia plans to add an additional checklist for building occupant representatives to identify energy conservation measures and opportunities for process equipment and program operations.

2.2.3 Metering

DOE is required to install metering devices, advanced or standard, for electricity, NG, steam, and water to the maximum extent practicable at all sites in each building and other facilities as well as grounds. This requirement stems from statutes that include the EPAct 2005, Section 103, for electricity meters by October 1, 2012, and EISA 2007, Section 434, for NG and steam meters by October 1, 2016.

The SSPP established the following goals:

- At least 90 percent of electricity use is metered at an individual building or process level by October 1, 2012, where life-cycle cost effective.
- At least 90 percent of NG, steam, and CW (90 percent for each utility) are metered at an individual building or process level by October 1, 2015, where life-cycle cost effective.

Sandia accepts these objectives. This section discusses electric, NG, and CW meters. Sandia does not use steam at any of its locations. See Section 2.4, *Water Use Efficiency and Management*, for a water meter discussion.

2.2.3.1 FY 2014 Performance Status

See Tables 1-5a, 1-5b, and 1.5d of the CEDR worksheet, "Funds, Metering, Training," for building-level electric, NG, and CW meter information.

Sandia completed a comprehensive metering plan update in December 2014. See the SNL FY 2014 *Energy and Water Metering Plan* for more information.

Sandia has not achieved the electricity goal and is at high risk for meeting the NG goal by the October 1 deadline.

2.2.3.2 Plans and Projected Performance

Sandia will pursue the planned actions as identified in the SNL FY 2014 *Energy and Water Metering Plan*. If the planned actions are implemented early in FY 2015, Sandia should meet the DOE SSPP and NNSA goals and stretch goals, where life-cycle cost effective, by FY 2016.

2.2.4 Cool Roofs

In accordance with DOE Secretary Steven Chu's memorandum dated June 1, 2010, unless determined uneconomical by a life-cycle cost analysis and unless the project already has CD-2 approval, roof replacements and roofs for new construction shall be cool roofs. New roofs must have a thermal resistance of at least R-30 to enhance overall building thermal performance.

2.2.4.1 FY 2014 Performance Status

Sandia has met the intent of the DOE objective for cool roofs. See the CEDR section, "Conservation and RE Measures," for specific new roof-replacement projects.

- SNL/NM has approximately 3,503,603 GSF total roof area; of that area, 132 roofs, or approximately 74 percent (2,593,399 GSF), comply with the "cool roof" definition. The roofs are either bright-white installed membrane roofs or existing roof membranes that have been coated

with a bright-white roof coating. These numbers do not include Building 1008, MOs, transportable (T)-buildings, or leased space.

- SNL/CA has approximately 602,224 GSF total roof area; of that area, 27 roofs, or approximately 74 percent (444,111 GSF), comply with the "cool roof" definition. The roofs are either bright-white installed membrane roofs or existing roof membranes that have been coated with a bright-white roof coating. These numbers do not include MOs, T-buildings, or leased space.
- All new construction and roof replacements use SNL Standard Specification 07533, which specifies an ENERGY STAR-compliant, 60-mil (Buildings 860 and 970 used an 80 mil) thermal propylene olefin bright-white membrane. The specification also requires minimum R-30 poly-iso insulation (9 percent minimum recycled content), wood nailers from preservative-treated lumber using nonchromated copper arsenate preservatives, and adhesives compliant with the volatile organic compound limits of California South Coast Air Quality Management District, Rule #1168.
- In FY 2014 at SNL/NM, Sandia completed a cool roof on one building:
    - Building 857S (approximately 10,387 GSF)
- In FY 2014 at SNL/NM, Sandia completed a new building with a cool roof:
    - Building 730 (approximately 7,600 GSF)
- In FY 2014 at SNL/CA, Sandia completed cool roofs on six buildings:
    - Building C923 (approximately 1,134 GSF)
    - Building C925 (approximately 5,851 GSF)
    - Building C929 coating (approximately 23,333 GSF)
    - Building C943 coating (approximately 3,603 GSF)
    - Building C979 coating (approximately 5,022 GSF)
    - Building C983 coating (approximately 1,891 GSF)

2.2.4.2 Plans and Projected Performance

See the CEDR section, "Conservation and RE Measures," for planned, new cool-roof and cool-roof-replacement projects. Implementation of future roofing projects is dependent upon the availability of Roof Asset Management Program (RAMP) funding.

- In FY 2015 at SNL/NM, the following buildings have been identified for cool-roof replacement design:
    - Building 802 (approximately 40,000 GSF)
    - Building 890 (approximately 36,800 GSF)
    - Building 963 (approximately 43,900 GSF)
    - Building 840 (approximately 80,000 GSF)
- In FY 2015 at SNL/NM, Sandia will construct a new building with a cool roof:
    - Building 705 (approximately 8,400 GSF)
- In FY 2015 at SNL/CA, the following buildings have been identified for cool-roof coating applications:
    - Building C904 (approximately 5,083 GSF)
    - Building C905 (approximately 18,867 GSF)

2.2.5 HPSB – Existing

The DOE SSPP has identified reporting requirements for HPSBs, new construction, MRs, and existing buildings. Sandia complies with all of these requirements.

2.2.5.1 FY 2014 Performance Status

EO 13423 required all agencies that own or lease real property to develop and implement a plan to ensure that at least 15 percent of their enduring buildings are compliant with the *Guiding Principles for Federal Leadership in High Performance Sustainable Buildings* by the end of 2015.

EO 13514 and the SSPP clarify the goal to be 15 percent of the number of buildings—not square footage, although both will be tracked. Buildings that fall under this requirement are limited to those greater than 5,000 SF. Additionally, EO 13514 and the SSPP require the 15 percent compliance by December 15, 2015, while stipulating continued progress towards 100 percent. See Table 2.3 for target building and GSF numbers.

Sandia is tracking approximately 160 buildings in the U.S. EPA ENERGY STAR system Portfolio Manager using the federal HPSB checklist. These include 49 buildings currently projected to meet or exceed the Guiding Principles goal by FY 2015. In FY 2014, the average percent Guiding Principles complete for the 49 buildings was 89 percent (see Appendix B, Table B-12).

Four buildings met all the Guiding Principles for FY 2014. Another seven are over 90 percent. See Table 2.3 for more details.

Table 2.3. Sandia Requirements to Meet Guiding Principles

	Baseline FY	Total (All Locations)	FY 2009 – 15% Required to Meet Guiding Principles	FY 2015 Projection Total (All Locations)	FY 2015 Projection – 15% Required to Meet Guiding Principles
# Buildings >5,000 GSF	FY 2009	191	29	193	29
GSF for Buildings >5,000 GSF	FY 2009	6,623,821	993,000	6,727,293	1,009,094

2.2.5.2 Plans and Projected Performance

Sandia will continue to demonstrate that a building meets the Guiding Principles through the use of the HPSB federal checklist embedded within EPA's Portfolio Manager. This information will also be reported in FIMS. Table 2.4 shows Sandia's current plan for meeting the 15 percent requirement.

The most difficult Guiding Principles to achieve are energy efficiency, ASHRAE 55 and 62 compliance, indoor fixture replacement, and occupancy sensor installation in limited areas.

Table 2.4. Sandia's Plan to Meet Guiding Principles

	LEED Grandfathered	FY 2010	FY 2011	FY 2012	FY/CY 2013	FY/CY 2014	FY 2015	Beyond FY 2015
Buildings	518 720 898 899 858EL 858EF		750 C903 (new)	753 969	1090 752 971 704 (new) 811 877 879 858J (CUB) 899A (CUB)	730 (new) 727 758 726 (CUB)	886 856 859 885 C960 C940 6587 6584 770 962 701 895 705 (new)	836 905 809 C905 827 954 957 6585 C943 (CUB) 861 6586 755 700
# for GP	6	0	2	2	9	4	13	13
Total GP	6	6	8	10	19	23	36	49
% Buildings (> 5,000 GSF)	3.1%	3.1%	4.2%	5.2%	10.1%	11.9%	18.7%	25.4%
GSF	629,746	0	23,047	26,353	124,797	149,200	559,822	569,540
Total GSF	629,746	629,746	652,793	679,146	803,943	953,143	1,363,765	1,933,305
% GSF (>5,000 GSF)	9.5%	9.5%	9.8%	10.2%	12.2%	14.4%	20.4%	29.0%

Notes:

1. Building 705 is a new IGPP at an estimated 25,000 GSF. It will be LEED Gold certified or better. Completion dates are approximate.
2. "Green" buildings have achieved 90% or higher GP compliance.
3. Building count and GSF include CUBs > 5,000 GSF.
4. Three buildings and MOs >5,000 GSF were demolished in FY 2014. No demolition > 5,000 is expected in FY 2015.
5. Building 1091, the Corporate Storage Modular Building, is estimated at 15,000 GSF. A modular building does not meet LEED requirements.

2.2.6 HPSB – New Construction

2.2.6.1 FY 2014 Performance Status

The SSPP requires that all new buildings, MRs, and alterations of buildings greater than 5,000 GSF must comply with the Guiding Principles for Federal Leadership in HPSB (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. In addition, in accordance with the EPAct 2005, Section 109, all new federal buildings must be designed so that their energy consumption is 30 percent below the ASHRAE standard. DOE recently adopted ASHRAE 90.1 – 2010 as the new baseline for energy consumption performance. See the CEDR worksheet, "Building Inventory Changes," for more information.

Sandia accomplished the following in FY 2014:

- Completed construction of one IGPP, Building 730, which meets the Guiding Principles, and LEED Gold for New Construction is pending; this will bring the total number of LEED for New Construction-certified buildings at SNL to nine

2.2.6.2 Plans and Projected Performance

See the CEDR worksheet, "Building Inventory Changes," for additional information.

Sandia will accomplish the following:

- Meet or exceed LEED Gold for New Construction and Guiding Principles requirements and maximize energy, water, and transportation resource credits to achieve HPSBs.
- Work toward meeting the Guiding Principles for Existing Buildings for Building C912 and C905 renovation projects. Although these projects may exceed the $5 million budget threshold, they are not complete building renovations meeting the MR definition.
- Obtain LEED Gold for New Construction certification for IGPP Building 705 in FY 2015. This will bring the SNL's total number of LEED for New Construction-certified buildings to ten. Although this building may not comply with all the Guiding Principles requirements, NNSA has determined that it should be counted toward the 15 percent goal.
- Use energy, water, and transportation resource-efficient practices when locating, designing, constructing, and operating new buildings.
- Ensure that design standards and specifications support sustainable design.
- Include a preference for buildings that are LEED Gold-certified and meet Guiding Principles requirements (and/or ENERGY STAR) and that maximize energy, water, and transportation resource performance credits in all procurement specifications and selection criteria for acquiring new leased space, such as build-to-suit lease solicitations and alternatively financed statements of work.
- Ensure that planning for new SNL facilities or new leases considers sites that are pedestrian friendly, near existing employment centers, and accessible to public transit.
- Avoid development of sensitive land resources.

EO 13514 requires federal agencies to pursue a net zero energy strategy where all buildings entering the planning process beginning in 2020 are designed to achieve zero net energy by 2030. There are several definitions for what net zero energy means; however, it is clear that significant RE must be part of the equation. It is also clear that although the EO states "all buildings," there are many building types in the NNSA portfolio (i.e., HEMSF) that cannot achieve net zero.

Sandia's net zero energy strategy in the short- to mid-term is to include net zero energy requirements for appropriate new buildings as part of Sandia line item proposals. Site net zero energy status is a long-term objective.

2.2.7 Regional and Local Planning

EO 13514 instructs federal agencies, including DOE, to establish regional and local planning goals. The SSPP commits DOE to the actions shown in Table 2.5.

2.2.7.1 FY 2014 Performance Status and Plans and Projected Performance

Table 2.5. Performance Status and Plans and Projected Performance

DOE SSPP Goal/ Sandia Objective	FY 2014 Performance Status	Plans and Projected Performance
Participate in regional transportation planning, with recognition of existing community transportation infrastructure, and incorporate such efforts into site policy and guidance documents.	**SNL/NM** • Strengthened the relationship with the Sandia Science and Technology Park (SSTP) in undertaking mutually beneficial planning and development initiatives • Worked with SSTP to develop a consultant Request for Proposal (RFP) for marketing purposes for the Center for Collaboration and Commercialization (3C) initiative • Participated in a workshop at UNM that focused on conceptual design associated with Innovate Albuquerque, which is a partnership for economic development and technology transfer and application between the City of Albuquerque, UNM, the State of New Mexico, and Sandia **SNL/CA** • Collaborated with the City of Livermore Planning Department on projects and outreach, as appropriate, including planning for a new site entrance from Greenville Road to the Livermore Valley Open Campus (LVOC) • Participated in regional planning activities, such as those to support the LVOC	**SNL/NM** • Continue to coordinate with the SSTP on long-range site planning and development policy issues. **SNL/CA** • Continue to participate in regional planning activities to support the LVOC.
Integrate Principles for Sustainable Federal Location Decision into site selection and lease procurement procedures.	**SNL/NM and SNL/CA** • Incorporated regional growth and transportation planning considerations in long-range site planning, site selection, and development policy and guidance documents in accordance with the Principles for Sustainable Federal Location Decision • Examined opportunities to incorporate Principles for Sustainable Federal Location Decision into lease procurement procedures and lease Preliminary Real Estate Plan (PREP) documentation	**SNL/NM and SNL/CA** • Continue to incorporate regional growth and transportation planning considerations in long-range site planning, site selection, and development policy and guidance documents in accordance with the Principles for Sustainable Federal Location Decision. • Continue to examine opportunities to incorporate the Principles for Sustainable Federal Location Decision into lease procurement procedures and lease PREP documentation in consultation with the Sandia Field Office (SFO).
Ensure that planning for new federal facilities or new leases includes consideration of sites that are pedestrian friendly,	**SNL/NM** • In developing plans for proposed projects, continued to ensure the	**SNL/NM** • As plans are refined for proposed projects, continue to ensure the

DOE SSPP Goal/ Sandia Objective	FY 2014 Performance Status	Plans and Projected Performance
near existing employment centers, and accessible to public transit, and emphasize existing central cities and in rural communities, existing or planned town centers.	proposed projects' locations are pedestrian friendly, contiguous to the existing campus development footprint, accessible to public transit, and emphasize development within an existing employment center	proposed projects' locations are pedestrian friendly, contiguous to the existing campus development footprint, accessible to public transit, and emphasize development within an existing employment center
Identify and analyze impacts from energy usage and alternative energy sources in all Environmental Impact Statements and Environmental Assessments for proposals for new or expanded federal facilities under the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. 4321 et seq.).	**SNL/NM and SNL/CA** • Ensured that NEPA documentation considered energy usage and alternative energy sources for proposed new or expanded federal facilities	**SNL/NM and SNL/CA** • Ensure that NEPA documentation considers energy usage and alternative energy sources for any proposed new or expanded federal facilities.
Coordinate with regional programs for federal, state, tribal, and local ecosystem, watershed, and environmental management.	**SNL/NM** • Continued participation in Albuquerque Sector Development Plans, development of new plans, and refinement of existing plans	**SNL/NM** • Continue to participate in the Mid-Region Council of Governments (MRCOG) Intelligent Transport System Subcommittee and other subcommittees, as appropriate. • Continue to coordinate with KAFB, the City of Albuquerque, and Bernalillo County regarding environmental management of the Tijeras Arroyo. • Continue to coordinate with KAFB on all issues dealing with environmental management.
Identify regional transportation planning, ecosystem, watershed, and environmental management initiatives affecting sites and opportunities to work with local authorities to align energy policies and siting of RE infrastructure.	**SNL/NM** • Continued to identify opportunities in the Sandia TA-V Sub-Area planning program for locally generated RE development • Continued to work with SNL Organization 6000 to examine the feasibility of developing RE capabilities at or near the National Solar Thermal Test Facility (NSTTF) **SNL/CA** • Participated in community meetings, when appropriate	**SNL/NM** • Continue to examine and evaluate potential energy savings for new construction and major renovations.

2.3 Goal 3: Fleet Management

DOE transportation and fleet management goals are as follows:

- Increase alternative fuel consumption by 10 percent annually by FY 2015 from an FY 2005 baseline.
- Decrease fleet petroleum consumption by 2 percent annually by FY 2015 from an FY 2005 baseline.
- Meet the EPAct 1992 AFV acquisition requirement, whereby 100 percent of light-duty vehicles must be AFVs by FY 2015 and thereafter.

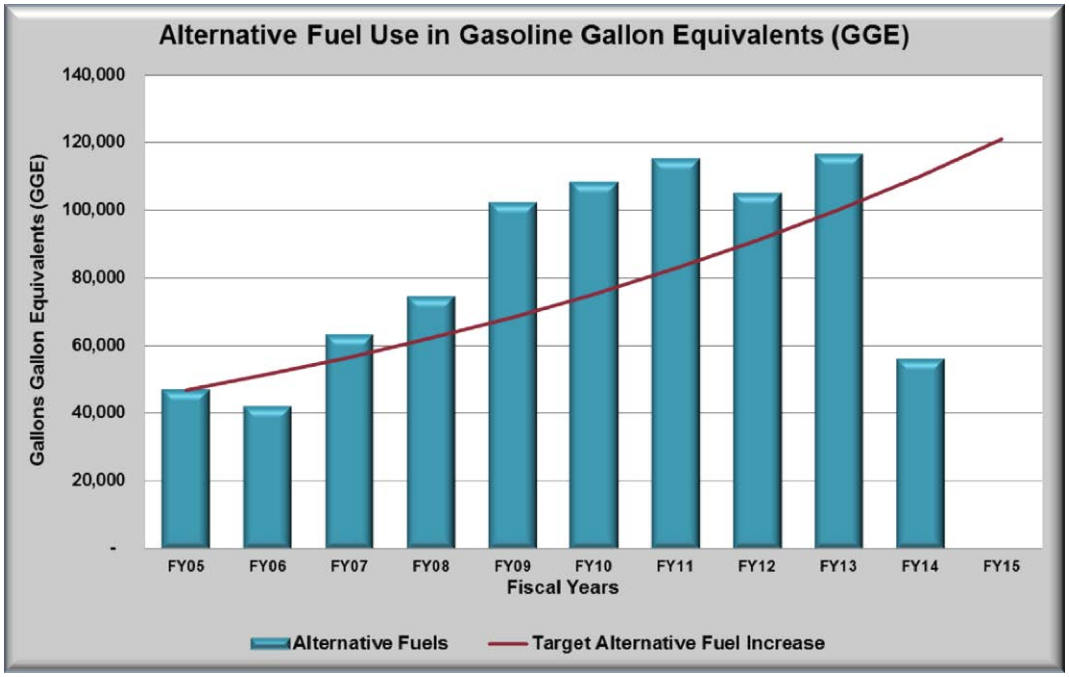
Sandia has accepted DOE's goals as its objectives.

2.3.1 FY 2014 Performance Status

In FY 2014, Sandia experienced a problem with the availability of E-85 fuel at the SNL/NM site, which constituted over 90 percent of the alternative fuel consumed by SNL/NM fleet-managed vehicles in FY 2013. SNL/NM access to E-85 fuel is through KAFB. The KAFB E-85 fuel dispensing system has been out of service since January 2014. This resulted in SNL/NM flex fuel vehicles using regular gasoline instead of E-85 fuel. As of the issuance of this report, the KAFB E-85 dispensing system remains out of service.

Alternative Fuel Consumption Increase

Sandia decreased alternative fuel consumption by 52.1 percent in FY 2014 compared to FY 2013. As a result, Sandia's increase in alternative fuel use is 19.3 percent relative to the FY 2005 baseline (see Figure 2.10).



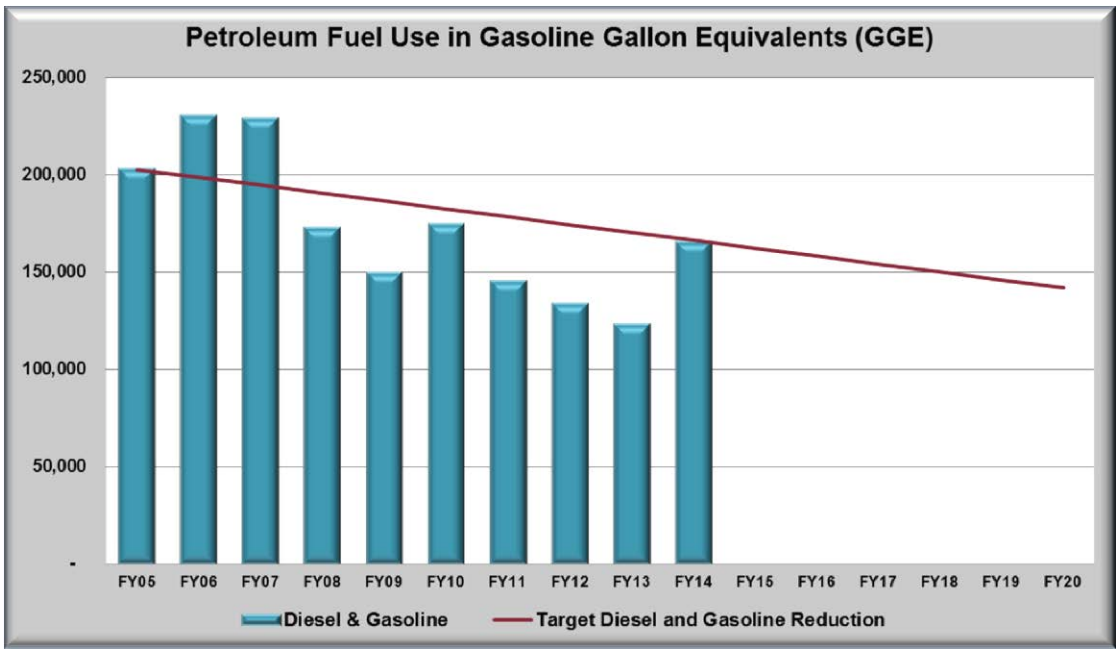
Notes:

- All locations.
- Alternative fuels include B-20 (non-diesel portion), E-85, compressed natural gas (CNG), and electricity; electrical use includes only SNL/NM data.

Figure 2.10. SNL Alternative Fuel Use

Petroleum Fuel (Diesel and Gasoline) Reduction

Sandia increased petroleum fuel consumption by 34.5 percent in FY 2014 compared to FY 2013. As a result, Sandia's reduction in petroleum fuel use is 18.3 percent relative to the FY 2005 baseline (see Figure 2.11).



Notes:

- All locations.
- Petroleum fuels include gasoline, diesel, and diesel portion of B-20 (bio-diesel).

Figure 2.11. SNL Petroleum Fuel Use in Gallons

Vehicle Acquisition

- In FY 2014, 98 percent of the retired light-duty vehicles were replaced by AFVs. Since FY 2005, Sandia has replaced its retired light-duty fleet vehicles at an average rate of over 96 percent (See Table 2.6).
- All the acquired AFVs in FY 2014 were flex fuel vehicles that can use E-85 fuel.
- High-efficiency vehicles were purchased or leased when cost competitive and available on the U.S. General Services Administration (GSA) schedule.
- SNL Fleet Services received Honorable Mention in The 100 Best Fleets in North America award program for 2014.
- Fueling stations for E-85, B-20, and CNG exist at SNL/NM; however, as described above, SNL/NM had limited access to E-85 fuel in FY 2014. Additionally, E-85 fueling stations are available for use at SNL/CA. AFVs are required to use these fueling stations. Diesel vehicles are required to use B-20 at SNL/NM.

2.3.2 Planned and Projected Performance

See the CEDR worksheet, "Energy and Water."

- Acquire vehicles.
  - Sandia will continue to replace retired fleet vehicles (see Table 2.6).

- High-efficiency vehicles will be purchased or leased when cost competitive and available on the U.S. GSA schedule.

- Reduce diesel and gasoline.
  - Sandia will continue to reduce diesel and gasoline consumption by purchasing AFVs (E-85 and B-20); Sandia will evaluate its fleet to reduce vehicle miles and replace gas-powered carts with electric carts (see Table 2.6).

Table 2.6. SNL Retired Fleet Replacement with AFVs

Year	Replacement with AFVs
FY 2005	**98.2%**
FY 2006	**98.5%**
FY 2007	**95.0%**
FY 2008	**96.0%**
FY 2009	**98.0%**
FY 2010	**88.0%**
FY 2011	**100.0%**
FY 2012	**100.0%**
FY 2013	**100.0%**
FY 2014	**98.0%**

- Increase alternative fuel use.
  - Sandia will continue working with KAFB to re-establish access to the onsite E-85 fueling station and evaluate other potential opportunities for accessing E-85 fuel.
  - The DOE SSPP sets petroleum fuel (diesel and gasoline) reduction goals; however, property regulations, codified in diesel- and gasoline-reduction goals, and the high cost of AFVs pose a challenge. Although hybrid vehicles (gas-electric configurations) are considered AFVs and impact the 75 percent AFV-replacement goal for light-duty vehicles, hybrid vehicles do not increase alternative fuel consumption.

- Increase overall fleet fuel economy.
  - Acquire higher fuel economy vehicles, such as smaller-sized vehicles, hybrid electric vehicles, and other advanced technology vehicles.
  - Optimize use of alternative fuel and hybrid electric vehicles and expand and maintain an alternative-fuel infrastructure.

- Employ “right-size” fleet.
  - Use the most fuel-efficient vehicle for the required task.
  - Provide the appropriate type and number of vehicles relative to need.

- Employ efficiency strategies that reduce energy.
  - Use low-rolling-resistance tires.
  - Use synthetic oil, which allows for extended replacement frequencies.

2.4 Goal 4: Water Use Efficiency and Management

This section is divided into descriptions of water efficiency and storm water management.

2.4.1 Water Efficiency

SNL/NM is located in Albuquerque, New Mexico, which receives an average of 9 inches of annual rainfall. The SNL/NM water-distribution system is interconnected with the KAFB water system. Water is supplied from the Albuquerque aquifer. At SNL/NM, Sandia meters 100 percent of its usage through advanced location meters. These meters register all potable water usage, including ILA. The location metering system was in place prior to the FY 2007 baseline calculation. Sandia does not meter water usage at every building.

SNL/CA water is supplied by LLNL and is monitored by a single meter. All potable water used at the location is monitored by this meter.

See the SNL *FY 2014 Energy and Water Metering Plan* and Table 1-5e of the CEDR worksheet, "Funds, Metering, Training," for building-level water metering information. Because ILA water use is potable and already metered by location, the calculation of a new baseline for ILA water usage is not needed for SNL.

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 water by FY 2020 from an FY 2010 baseline. These goals are consistent with the EO 13514 requirements for federal agencies.

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. Sandia has accepted DOE's goals as its objectives.

FY 2014 Performance Status

Sandia has exceeded the goals set forth by the EO. Currently, Sandia has reduced water intensity by 29.53 percent based on the FY 2007 baseline (see Figures 2.12 and 2.13).

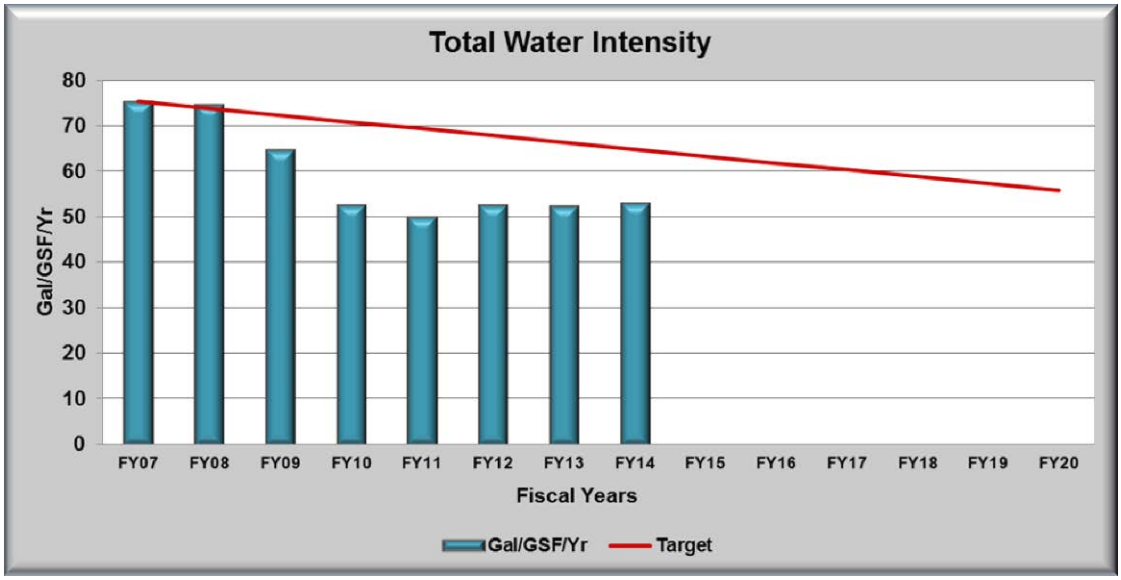


Figure 2.12. SNL Total Water Intensity in Gal/GSF/Yr

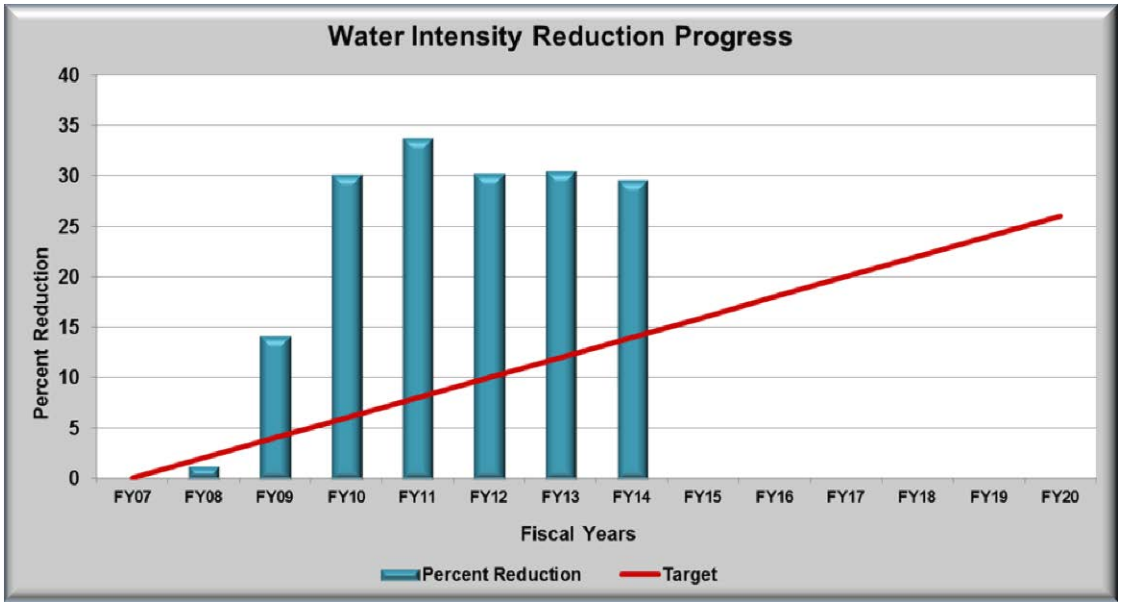


Figure 2.13. SNL Total Water Intensity Reduction Progress

Water is used in various ways across SNL. At SNL/NM, chilled water is used for process and comfort cooling, while potable water is used for irrigation, environmental restoration, domestic, construction, and laboratory use (see Figure 2.14). These uses are not metered individually. In FY 2014, cooling tower makeup water accounted for approximately 14 percent of Sandia's water.

The Microsystems and Engineering Sciences Application (MESA) complex deionized (DI) plant water meter shows that approximately 24 percent of Sandia's total water consumption is DI water. While other SNL/NM facilities use DI water, they are not currently metered separately from other building water use; therefore, a reliable approximation of DI water use across the site cannot be made. Based upon LEED criteria, building occupancy, and water audit data for fixture flow, approximately 9 percent of SNL/NM's total water was used for domestic purposes.

There are currently 49 water meters monitoring landscape use. This accounts for about 90 percent of the total site landscaping at SNL/NM. Landscape water metering indicates that roughly 11 percent of site water was used for irrigation. The environmental restoration program used roughly 1 percent of the total for supplemental watering of vegetation covers.

The remaining category, "Unknown," included the following water use:

- CW and process water used for customer operated and maintained process equipment
- Facilities equipment, such as evaporative coolers and other water-using equipment, that does not have water treatment or metering installed
- Hydrant and fire sprinkler flushing preventive maintenance activities
- Construction and dust suppression activities
- Water main leaks

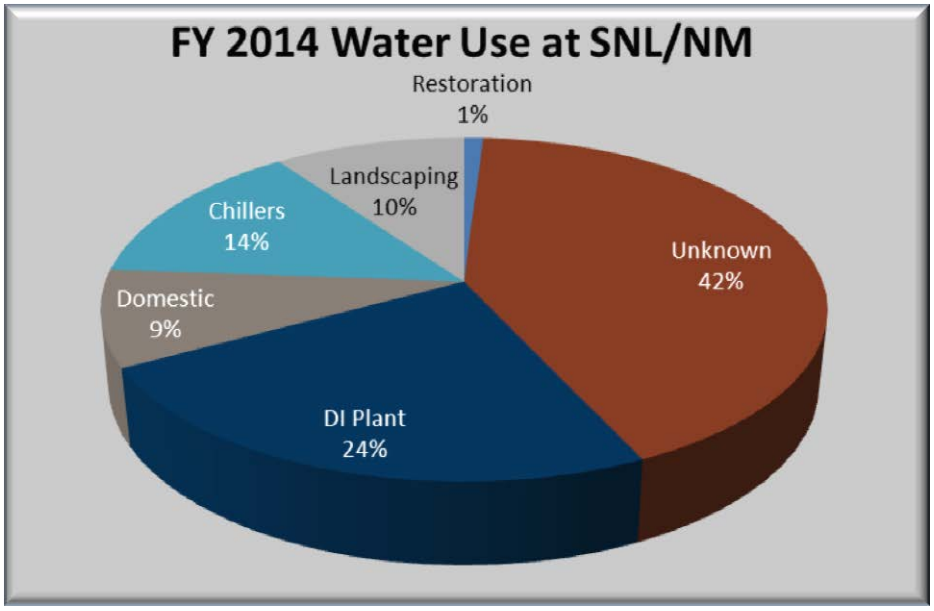


Figure 2.14. SNL/NM FY 2014 Water Use

At SNL/CA, all water uses consist of potable water – irrigation, heating/cooling, domestic, and laboratory use. Most buildings have water meters installed, as do most irrigation lines. SNL/CA initiated a Water System Study during 2014. The purpose of the study was to assess the current condition of the water distribution system and to identify areas of deficiencies. During this effort, broken and missing water meters were identified and corrected. Prior to the study, water meters were not read on a regular basis. Meter reading started in May 2014. The following graph shows SNL/CA's water use for September 2014 as a typical summer month. The SSP for next year will show water use for the entire year.

The "Unknown" category includes system leaks, fire hydrant testing, building fire system testing, and construction activities.

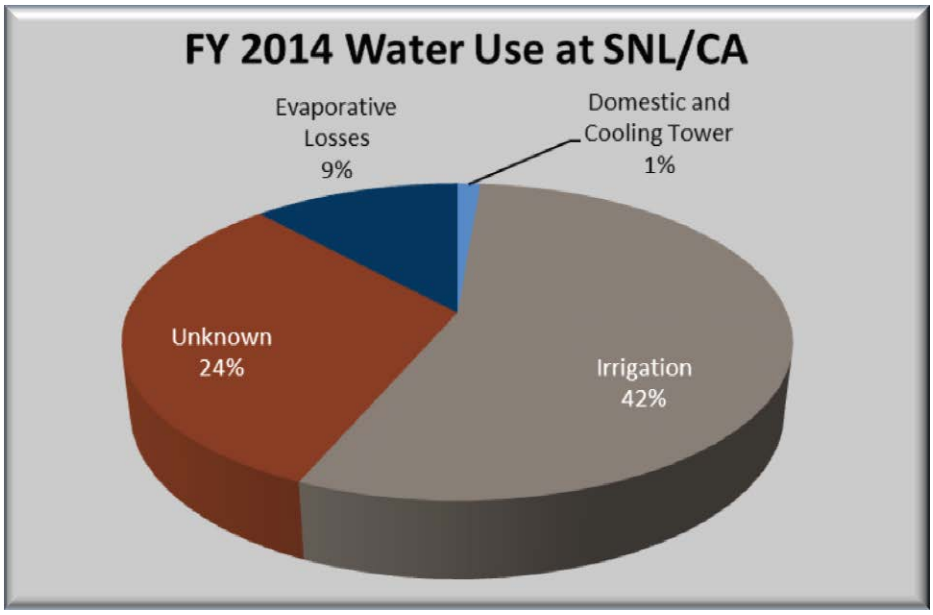


Figure 2.15. SNL/CA September 2014 Water Use

Sandia continuously strives to conserve water. The maintenance and operations of water-conserving systems, like the DI recycling system and the Central Irrigation Control System, is an ongoing process and an important part of Sandia's water conservation effort. The increase in water usage intensity since FY 2011 can be attributed to the ongoing drought in the area and an increase in construction. Water main breaks (repaired in late FY 2014), the temporarily offline 858 water recycling tanks, and the construction of Building 730 contributed to the increase in FY 2014. See Table 1-5e of the CEDR worksheet, "Funds, Metering, Training," for water meter information.

Sandia also replaced inefficient plumbing fixtures with low-flow fixtures in several buildings to comply with HPSB Guiding Principles.

2.4.1.1 Planned and Projected Performance

See the CEDR worksheet, "Conservation and RE Measures."

Sandia will continue to explore water-conservation opportunities. Variables associated with cooling at SNL/NM include weather and significant changes to water chemistry caused by increased aquifer drawdown. At SNL/NM, Sandia anticipates a rise in cooling loads due to data centers and other process cooling demands. These issues will create challenges to maintaining the current reduction numbers until FY 2020, but Sandia plans to continue implementing conservation projects wherever feasible. Some of these projects include the following:

- Retrofit restrooms with high-efficiency fixtures.
- Install new building-level water meters where feasible.
- Follow green building guidelines and use recycled water wherever possible to realize water savings when designing and constructing new data centers.

Construction is planned and will increase the amount of reclaim water available for reuse in the cooling towers and air scrubbers. The increase in system capacity will allow for more buildings to be connected to the reclaim system and further offset the need for potable water use in the cooling towers. Sandia continues to investigate ways to improve the performance of these systems to increase efficiencies and, therefore, water savings.

Sandia conducts building water audits as part of its energy audits and condition assessments. Findings from these audits range from bathroom retrofits to the elimination of once-through cooling loops. Inefficient and outdated fixtures will be replaced as funding becomes available, particularly in buildings identified to meet HPSB Guiding Principles.

2.4.2 Storm Water Management

The EPA provides regulatory oversight of the SNL/NM Storm Water Program under the Clean Water Act. SNL/NM is covered by the following National Pollutant Discharge Elimination System (NPDES) permits:

- Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities
- Construction General Permit for Discharges Associated with Construction Activities

Sandia has developed storm water pollution prevention plans to control discharges to meet applicable water-quality standards and to eliminate, minimize, or reduce the amount of pollution in storm water discharged. Consideration is given to traditional storm water management practices and options for controlling storm water runoff, including diversion, infiltration, and reuse.

Sandia has adopted facility design standards to meet the requirements of EISA Section 438 pertaining to storm water. The act is intended to ensure that any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 GSF uses site planning, design, construction, and

maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property concerning temperature, rate, volume, and duration of flow. Sandia provides guidance and design standards in the *FMOC Design Standards Manual* for SNL/NM and in standardized construction specifications for SNL/CA.

The State Water Resources Control Board provides regulatory oversight of the SNL/CA Storm Water Program. SNL/CA is covered by the following NPDES permits:

- Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities
- Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities

2.4.2.1 FY 2014 Performance Status

See the CEDR worksheet, "Building Inventory Changes."

Sandia accomplished the following in FY 2014:

- Used the *FMOC Design Standards Manual* to develop appropriate plans for six existing buildings to meet the requirements of the *Storm Water Management Guiding Principle for Existing Buildings*

2.4.2.2 Plans and Projected Performance

Sandia will do the following:

- Use the revised *FMOC Design Standards Manual* and the *FEMO Civil Design Standards Manual* to develop appropriate plans for 15 percent of existing buildings to meet the requirements of the *Storm Water Management Guiding Principle for Existing Buildings.*
- Ensure new construction meets the requirements in the revised *FMOC Design Standards Manual* and the *FEMO Civil Design Standards Manual* with regard to storm water management.

2.5 Goal 5: P2 and Waste Reduction

The SSPP commits DOE to the following P2 goals:

- Divert at least 50 percent of nonhazardous solid waste, excluding C&D debris, by FY 2015 (SNL/CA shall divert at least 80 percent).
- Divert at least 50 percent of C&D materials by FY 2015 (SNL/CA shall divert at least 80 percent).

In California, the Alameda County Ordinance 2012-1 mandates recycling of cardboard, newspaper, white paper, mixed recyclable paper, recyclable glass food and beverage containers, aluminum and metal food and beverage containers, PET (#1) and HDPE (#2) plastic bottles as well as food and other compostables beginning July 1, 2014. If SNL/CA operations generate more than 10% organics, SNL/CA personnel are to provide containers and service of sufficient number, size, and frequency for organics (food scraps and/or compostable paper) and place food scraps and compostable paper in separate organics cart/bin for collection. These requirements were made effective to ensure Alameda County reaches its goal of less than 10% of discards sent to landfills in 2020 are easily recyclable and compostable materials.

Sandia commits to meeting the DOE P2 goals, and Alameda County requirements, and continues its practices to minimize waste generation consistent with EO 13514, the Pollution Prevention Act of 1990, and the Resource Conservation and Recovery Act. The Pollution Prevention Act declared the following hierarchy to be the national policy of the United States:

- Pollution should be prevented or reduced at the source whenever feasible.
- Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible.
- Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible.
- Disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Sandia is committed to meeting the P2 goals through the following waste minimization and resource-conservation activities:

- "Buying green" (e.g., reusing excess materials where possible to avoid purchases, buying only what is needed, buying recycled content products to close the loop, and reinvesting recycling revenues in infrastructure, contracts, and equipment that furthers waste reuse, recycling, or organics composting)
- Reducing solid-waste through reuse and continuing identification and diversion of recyclable materials that are currently being disposed
- Improving involvement with the FMOC and Procurement on C&D project reuse and recycling
- Increasing efforts to replace or reduce toxic chemicals in laboratory operations

In California, the Alameda County Ordinance mandates that food and other compostables be recycled beginning July 1, 2014, and requires that recyclables and compostables make up less than 10 percent of material landfilled by 2020.

2.5.1 FY 2014 Performance Status

See the SNL data annually reported in the CEDR. SNL/NM and SNL/CA data are reported separately. Because the SSP represents all SNL locations, the numbers presented here are totals.

- SNL/CA shall divert at least 80 percent and SNL/NM shall divert at least 50 percent of nonhazardous solid waste, excluding C&D debris by FY 2015.
    - SNL/CA solid waste decreased by 23.9 MT in FY 2014, and SNL/NM solid waste decreased by 46 MT, setting a new record low.
    - In FY 2014, SNL/NM diverted 67 percent of nonhazardous solid waste, excluding C&D debris.
    - In FY 2014, SNL/CA diverted 81.5 percent of nonhazardous solid waste, excluding C&D debris.
    - SNL/NM food waste composting continued in FY 2014 from two cafeteria locations and two office trailers. Composting doubled to 12 catered events as part of the advertised "zero waste events."
    - In FY 2014, SNL/CA added recycling of plastics 1–7, plastic bags and wrap, aluminum foil products, and composting of organics.
- SNL/CA shall divert at least 80 percent and SNL/NM shall divert at least 50 percent of C&D waste by FY 2015.
    - SNL Facilities organizations use a construction waste management specification requiring adherence to the waste management hierarchy of reduce, reuse, and recycle.
    - In FY 2014 at SNL/NM, Sandia diverted 80.5 percent of C&D waste.
    - In FY 2014 at SNL/CA, Sandia diverted 97.0 percent of C&D waste, contributing to an increase of 33 percent. This can be attributed to environmental awareness of the

contract representatives and increased relationships between Facilities SDRs and the P2 Program.

- Reduce printing paper use.
    - The JIT paper contract specifies a minimum of 30 percent postconsumer recycled content, but 100 percent recycled content copy paper is also readily available from the vendor for a premium. Evidence shows that some departments are willing to pay.
    - JIT imaging equipment contracts require duplex-capable desktop printing equipment.
    - Multifunction copiers are available on the internal network for use as central printing, scanning, and faxing devices, and their network drivers are installed to default to grayscale duplex printing. SNL/CA requires management justification for purchasing desktop printers.
    - Instructions for setting network copiers to grayscale duplex printing are located on the internal Copier Fleet website.
- Reduce and minimize the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of.
    - The JIT chemical purchases webpage has been modified to emphasize the waste management hierarchy of reduce, reuse, recycle and to encourage the purchase of quantities actually needed and to reduce the tendency to purchase in bulk.
    - Sandia reviewed internal mission and mission support processes to minimize chemical use.
    - Sandia has a Chemical Exchange Program (CEP) in place, and the JIT Chemical Purchases webpage also steers Members of the Workforce to the CEP as an alternative to new chemical purchases.
    - The corporate procedure on technical work document preparation was revised and submitted for acceptance to address waste minimization and associated required documentation intended to improve compliance with the waste management hierarchy per the corporate procedure on hazardous waste management.
- Implement integrated pest management and other appropriate landscape management practices.
    - Revise the *Integrated Pest Management Plan* to include vegetative pests and SNL/CA requirements.
    - Update service contracts to reflect the plan.

Figure 2.16 provides an illustration of SNL waste and diversion metrics.

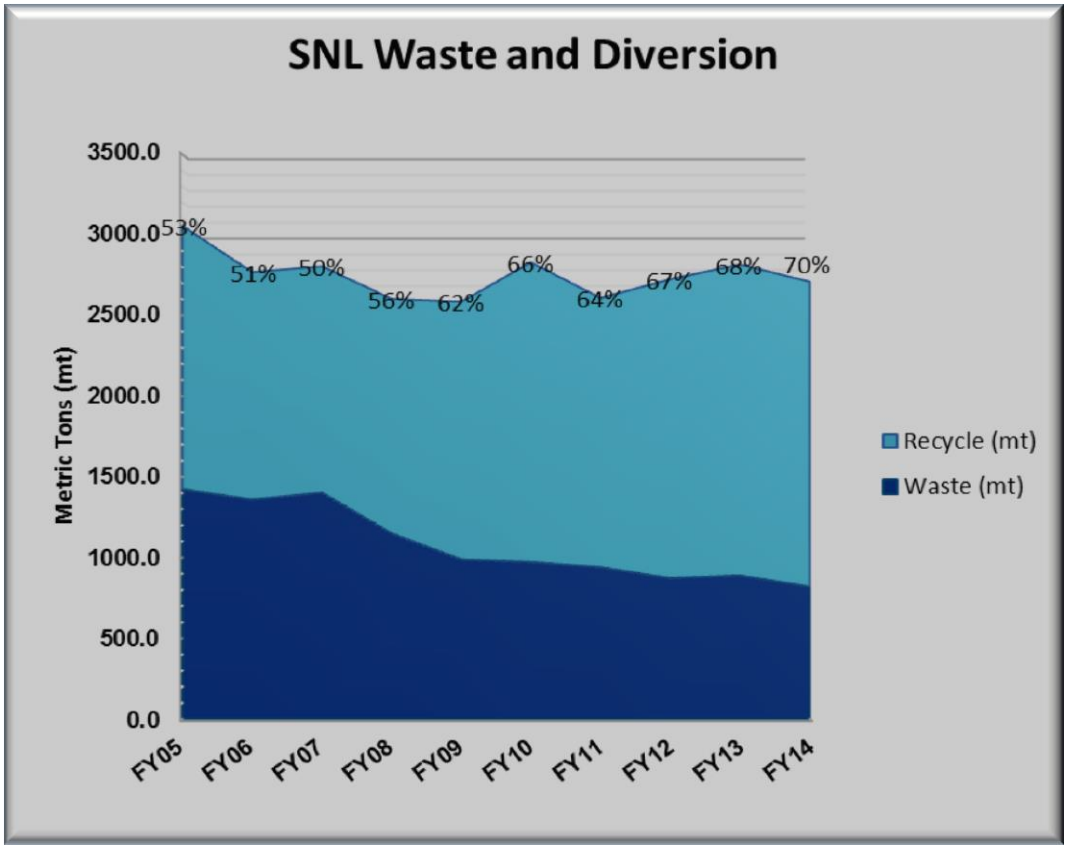


Figure 2.16. SNL Waste and Diversion

2.5.2 Planned and Projected Performance

- Implement initial actions identified in the FY 2014 waste characterization report as EMS objectives.
- Identify reuse streams for C&D waste materials.
- Reduce and minimize the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of and increase CEP participation.
- Implement integrated pest management and other appropriate landscape management practices.

2.6 Goal 6: Sustainable Acquisition

The SSPP commits DOE to the following sustainable acquisition (SA) goals:

- Ensure that 95 percent of new contract actions, including task and delivery orders under new contracts and existing contracts, require the supply or use of products and services that are energy efficient (ENERGY STAR or FEMP-designated), water efficient, and/or biobased; include recycled content; are environmentally preferable, non-ozone depleting products containing recycled content; or are nontoxic or less-toxic alternatives. EPEAT-registered products are addressed under Goal 7.
- Update DOE SA procurement plans, policies, and programs to ensure that all federally mandated designated products and services are included in all relevant acquisitions.

The underlying purchasing requirements are also supported by several federal statutes:

- EPAct 2005, Section 104, which requires federal agencies to incorporate energy efficiency criteria consistent with ENERGY STAR and FEMP-designated products for all procurements involving energy-consuming products and services
- Resource Conservation and Recovery Act, Section 6002, which requires federal agencies to purchase EPA-designated recycled-content products
- Farm Security and Rural Investment Act of 2002, Section 9002, which requires the purchase of U.S. Department of Agriculture (USDA)-designated biobased products

Sandia has accepted DOE's goals as its objectives.

2.6.1 FY 2014 Performance Status

SNL purchasing agreements adhere to DEAR Clause 970.5223-7, Sustainable Acquisition Program, contained in the SNL Management and Operating Prime Contract.

The standard clause in all pertinent Sandia JIT purchasing contracts reads as follows:

> B. PRODUCT REQUIREMENTS/GREEN PURCHASING
>
> Per DEAR Clause 970.5223-7, Sustainable Acquisition Program, all applicable products shall be environmentally preferable, which include recycled content, biobased, energy efficient (ENERGY STAR or FEMP-designated products), or water efficient (plumbing) products. Reporting on applicable acquisitions is a requirement in order for Sandia to meet its annual reporting requirements to the Department of Energy.
>
> All desktops, laptops, and computer monitors provided under this contract are required to have achieved Silver registration or higher under the Electronic Products Environmental Assessment Tool (EPEAT), http://www.epeat.net/. EPEAT is a procurement tool designed to help large volume purchasers evaluate, compare, and select desktop computers, laptops, and monitors based upon their environmental attributes as specified in the consensus-based Institute of Electrical and Electronic Engineers Standard for the Environmental Assessment of Personal Computer Products (1680).

The standard clause in all Sandia Firm Fixed Price blanket contracts reads as follows:

> Per DEAR 970.5223-7, Sustainable Acquisition Program, the Contractor shall provide its services in a manner that promotes the expanded use of green products, reduces greenhouse gas emissions, and protects the health and wellbeing of building occupants, service providers, and visitors in the facility. Per DEAR Clause 970.5223-7, all applicable products shall be environmentally sustainable, which include recycled content, biobased, energy efficient (ENERGY STAR or FEMP-designated products), or water efficient (plumbing) products. Details and references to environmentally sustainable products can be found in SNL's Construction Specifications.
>
> Improvements in purchasing include the following:
>
> - As part of the Life-Cycle (Hazardous) Materials Management initiative, Sandia implemented a chemical acquisition process prerequisite that requires review by several SMEs before authorization for the purchase is granted. This will support better utilization of existing inventory, ensure proper storage, and ensure proper attention to end-of-life disposal.

2.6.2 Plans and Projected Performance

Sandia will update corporate policies, processes, and procedures to reflect the incorporation of DEAR Clause 970.5223-7 on SA requirements into the SNL Management and Operating Prime Contract.

- Pursue achieving 95 percent of applicable purchases for recycled content and other sustainable attributes products.
- Add to or update the SA language in Section I for new contracts and, when possible, existing contracts.
- Continue to update construction specifications, design manuals, and other pertinent Facilities documentation.
- Improve reporting of SA priority product purchases in construction contracts.
- Develop a standard quarterly means of tracking and confirming the number of contract actions placed.
- Implement environmental criteria and scoring during contract request for quotation and proposal processes.

2.7 Goal 7: Electronic Stewardship and Data Centers

SSPP electronic stewardship and data center goals address energy management and optimization for IT systems, including equipment found in offices, laboratories, production environments, computer rooms, and data centers. Activities supporting these goals are intended to reduce DOE's GHG emissions, support environmental management goals, and achieve the sustainability objectives of the Federal Data Center Consolidation Initiative (FDCCI).

The SSPP commits DOE to the following:

- Meter all core data centers to measure a monthly PUE (100 percent by FY 2015).
- Achieve a maximum annual weighted average PUE of 1.4 by FY 2015 in core data centers.
- Provide 100 percent of eligible PCs, laptops, and monitors with power management actively implemented and in use by FY 2012 and continually thereafter.

Other electronic stewardship and data center sustainability measures identified in the FY 2014 SSPP include the following:

- Ensure acquisition of EPEAT-registered (95 percent), ENERGY STAR-qualified (100 percent), and FEMP-designated (95 percent) electronic office products when procuring electronics in eligible product categories.
- Ensure the use of power management, duplex printing, and other energy-efficient or environmentally preferred options and features on all eligible agency electronic products.
- Use environmentally sound practices for disposition of all excess or surplus electronic products.

Sandia has accepted DOE's goals as its objectives, as applicable.

2.7.1 Data Center Efficiency

2.7.1.1 FY 2014 Performance Status

In FY 2014, Sandia conducted CORE data center assessments at the building level in DOE Green IT. Sandia identified three CORE data center buildings: Buildings 880 Annex, 725, and C912. CORE data center buildings include only those of significant size owned and operated by SNL's Corporate

Computing and Network Services organization. Sandia has also identified non-CORE enduring data centers owned by other Sandia organizations.

Table 2.7. SNL Data Centers

	FY 2013	FY 2014	Notes
Total number of Data Centers (by room)	107	84	Rooms with > 10 servers (approximately)
Total number of CORE Data Centers (by building/by room)	3/16	3/16	Buildings 880A, C912, and 725; all CORE data centers are owned by corporate IT
Total number of non-CORE Data Centers (by room)	91	68	Non-CORE data centers are a mix of corporate IT and line-owned rooms
Total number of Enduring Data Centers (by room)	N/A	85	Includes CORE and non-CORE data centers that are not planned for consolidation in the next 3–5 years
Total number of Enduring Data Centers to be metered (by room)	N/A	22	Enduring data centers with >50 servers are metering candidates; CORE data centers are metered by room

Sandia is at low risk for meeting the CORE data center objective for metering and high risk for meeting the PUE. Started in FY 2013 and continuing in FY 2014, Sandia, working with LANL, completed a white paper that proposed a realistic definition of "data center," a consistent methodology for calculating PUE, and cost effective criteria for metering. Sandia used this definition to determine how many enduring data centers it has and which ones should be metered. See Appendix E for the white paper final draft.

In FY 2014, Sandia implemented the following data center improvements.

Data Center Power Metering and Environmental Monitoring

At SNL/NM, CORE data center locations, such as the Building 880 Annex (880A) and Building 725 power usage, is tracked at the transformer or switchboard level that serves the transformer. Sandia improved CORE data center metering capabilities, as well as automating metered data acquisition and monitoring to enable auto-calculation of efficiency metrics, such as PUEs. In FY 2014, 100 percent of the data center rooms in Building 880A were metered and monitored at the electrical infrastructure level. Sandia has also implemented rack-level metering and monitoring in Building 880A.

In FY 2014, Sandia transitioned to a new electrical energy monitoring system for the CORE data centers at SNL/NM. Because of this, Sandia did not have sufficient data to calculate PUEs for Buildings 880A and 725 in FY 2014. The new system will be completely operational in early CY 2015, and Sandia will begin calculating PUE starting in March 2015. Sandia does not have a system in place to calculate PUE for Building C912 because the C912 data center is not separately metered.

Efforts to improve PUE include the following:

- Install a new monitoring system.
- Consolidate rack equipment to reduce the electronics footprint.
- Relocate under-floor cabling to overhead cable trays to improve the efficiency of air flow and distribution in the under floor plenum.
- Refine CRAC unit control set points to increase operating temperature and decrease cooling load demand.

Energy Consumption Reduction

This subsection describes the data center energy use reduction measures Sandia implemented in FY 2014.

Gigabit Passive Optical Network Technology

The gigabit passive optical network (GPON) project to replace powered copper network components with non-powered fiber components completed 100 percent of the total migration effort in FY 2013. Decommissioning activities continued in FY 2014 to divert copper and recyclable components from SNL's landfill/waste streams.

Air Flow Management

Sandia increased the usage of hot/cold aisle containment in NM CORE data centers. Prior to FY 2014, hot/cold aisle containment was used primarily in high performance computer clusters; however, in FY 2014, Sandia implemented AisleLok containment doors/overhead baffles. These doors are attached to end-of-aisle racks wherever needed and are currently used in both the High-Performance Computing (HPC) and Enterprise environments. The energy savings are not as significant as with a built-in containment system, but that is offset by the doors' flexibility to be quickly reconfigured and used.

In FY 2014, Sandia performed a SmartAire fan tile spot cooling test with Tate floor manufacturing. At this time, Sandia continues to deploy spot cooling where applicable and will continue to investigate automating/linking spot cooling to the CRAC units.

Sandia continued to explore new technologies and methods for air flow management and elevated ambient operating temperatures in FY 2014.

Data Center Consolidation Project

Sandia continued the Data Center Consolidation (DCC) project started in FY 2013. In FY 2014, this included identifying and prioritizing opportunities, particularly on the Sandia Restricted Network (SRN) and Sandia Open Network (SON), to eliminate, virtualize, and colocate servers from line-owned data centers and server rooms to corporate data centers. Additionally, in FY 2014, Sandia partially or totally consolidated 10 non-CORE data centers and server rooms. From those 10 rooms, the DCC team processed 623 devices, of which 20 percent moved into the Building 880A CORE data center, 1 percent were virtualized, and the remainder were turned off or virtualized to a non-CORE data center. The largest percentage was turned off. The DCC team also was able to defer a number of proposed equipment purchases to virtualization which reduced the corporate IT footprint.

Enduring data centers, defined as data centers that cannot be consolidated within the next three to five years due to security or mission constraints, were also identified.

Sandia line organizations are consolidating server equipment and associated capabilities as cost-austerity measures. These efforts are happening both on an internal organizational basis and as part of the DCC project.

Data Center Infrastructure Management

To support DCC and other measures taken to reduce data center energy consumption, the Corporate IT organization began a market survey of Data Center Infrastructure Management (DCIM) tools in FY 2014. Implementation of this tool will provide the holistic view of data center performance (IT and building facilities functions) such that we can maximize opportunities to utilize available energy, equipment and floor space as efficiently as possible.

Server Consolidation/Virtualization Project

The server consolidation/virtualization project (SC/VP) is ongoing since FY 2010 and continues to grow as a service (see Table 2.8). To date, one virtual rack has replaced the services that once ran on five rows of Enterprise racks in Building 880A.

Table 2.8. SNL Virtualized Services

Virtualized Services			
SQL Database	BMC Remedy Ticketing	EIMS Library System	IBM Maximo
Bentley ProjectWise	Business Objects Xlr2	IBM FileNet	Savvion BPM
Forio	Process Dashboard	TEDS – CBM LMS	WFS – Document Library (Stellent)
Reliasoft Tracking Software	Oracle Weblogic GP Java	Sharepoint	RSA DLP
Perseus Survey Generator	Asset Risk Management	Medical Apps	Fleet Management Apps
Symantec	Blackberry Servers	Dropzone	Capp Servers
Web Servers	Terminal Servers	Cyber Scanning Servers	Primavera

Virtualization savings in FY 2014 is estimated at $4.4M based on the cost of the virtual servers minus the cost of the hosts and the annual cost of system partitions. The associated energy savings is estimated at $270K and also considers the cost of the energy (direct power and indirect cooling) consumed by the virtual servers and hosts.

Operating Temperature Increases

Sandia continued to increase CRAC unit temperature set points to decrease cooling-load requirements at data center and server room locations. In FY 2014, equipment purchases included criteria for allowable operating temperatures between 65° and 75°F to increase operational flexibility for CRAC unit operating set points to further decrease cooling-load requirements. The combination of increased CRAC unit temperature set points and the deployment of plate frame heat exchangers has allowed the Building 880A and 725 data centers to increase ambient room operating temperatures to about 55° to 60°F (Building 880) and about 50°F (Building 725).

Efficient Uninterruptible Power Supplies

In FY 2014, Sandia initiated a design study to implement backup power generation that is more energy efficient and reduces the SNL environmental impact over traditional uninterruptible power supplies (UPSs).

Data Center Component Recycle and Reuse

In FY 2014, Sandia continued to seek opportunities to recycle and reuse components, including deployment of recycle containers inside data center staging areas for metals.

Standardization of IT Equipment

In FY 2014, Sandia deployed standardized racks as part of data center consolidation and the enterprise environment. These standardized racks are self-contained units for air-cooled racks requiring no additional cool air delivery.

2.7.1.2 Planned and Projected Performance

Several measures implemented in FY 2014, described in Section 2.7.1.1, *FY 2014 Performance Status*, to improve data center performance, are ongoing and will continue through FY 2015, in addition to the new initiatives described in the following sections.

Data Center Power Metering and Environmental Monitoring

At SNL/NM CORE data center locations, Sandia will continue to improve data center metering capabilities, as well as automating metered data acquisition and monitoring to enable autocalculation of efficiency metrics such as PUEs. Sandia will continue to implement rack-level metering and monitoring for network and enterprise racks in Building 880A. In FY 2015, Sandia plans to configure meters for monitoring capability through the BAS in Building 725. Sandia also anticipates having the ability to perform automated calculations of PUEs for data centers located in Buildings 725 and 880A by March 2015.

Efforts to improve PUE will continue in FY 2015, including the following:

- Consolidating rack equipment to reduce the electronics footprint
- Relocating under-floor cabling to overhead cable trays to improve the efficiency of air flow and distribution in the under floor plenum
- Refining CRAC unit control set points to increase operating temperature and decrease cooling load demand
- Ensure meters are connected to the BAS

In FY 2015, Sandia will continue to improve cooling-equipment operation and power efficiencies in all data center rooms in Buildings 725, 880A, and 899 and improve associated PUE values.

In FY 2015 Sandia will meter the C912 data center.

Energy Consumption Reduction

This section describes data center energy-use reduction measures that Sandia will implement in FY 2015.

Skybridge Deployment

Skybridge will eventually replace Red Sky. It will have an energy efficient 70 percent liquid cooling system. In FY 2015 it will run side by side with Red Sky, until Red Sky is decommissioned in FY 2016. Skybridge will replace the 48 racks of Red Sky with 36 racks and double the computing power.

Air Flow Management

To reduce the load on data center CRAC unit operations, Sandia will continue to implement “hot” and “cold” aisle containment measures in corporate data centers. Containment strategies will be evaluated for other enduring non-CORE data center locations in FY 2015.

In FY 2015, Sandia will continue to test and evaluate new technologies that can provide directional or spot cooling and reduce the demand on CRAC units, thereby reducing energy consumption. Sandia will also continue exploring rack-level warm water, liquid cooling as another method of reducing chilled water consumption, and more efficiently managing air flow.

In FY 2015, the cold-plate heat exchanger in the Building 726 chiller plant, which is dedicated to supporting the Building 725 data center, will be connected to the BAS. Sandia will continue to explore new technologies and methods for air flow management and elevated ambient operating temperatures.

In FY 2015, the new units installed in FY 2013 and 2014 will be tied into the BAS and will be monitored and controlled. The units are equipped with VFDs to provide air delivery in response to increased or decreased IT demand (load). Buildings 899 and 725 will also be tied to the BAS for the capability to monitor and control air flow delivery.

DCC Project

In FY 2015, Sandia will continue to identify and prioritize opportunities to eliminate, virtualize, and colocate servers from non-CORE, line-owned data centers and server rooms to corporate data centers. Additional data centers and server rooms will be decommissioned at all Sandia sites. Because of ongoing mission and security requirements, the 40 percent reduction in data centers is an unrealistic goal for Sandia.

Data Center Infrastructure Management

Upon completion of the market study for a DCIM tool, SNL's Corporate IT personnel will invite the top vendors to perform a proof-of-concept study within the Building 880A CORE data center. In FY 2015, Sandia will select, purchase, and initiate implementation of the DCIM tool in FY 2015.

Server Consolidation/Virtualization Project

The SC/VP project will result in significant reductions in server purchases, operations and disposal, and associated power consumption and electronic equipment footprints. This project is ongoing and will continue in FY 2015. It is closely associated with the DCC project.

Review of Availability Requirements for IT Resources

This review involves evaluation of system availability needs relative to current operating requirements. Adjusting operating requirements to meet availability needs can result in reduced power consumption. This effort will continue in FY 2015.

Operating Temperature Increases

Sandia will continue to increase CRAC unit temperature set points to decrease cooling-load requirements at data center and server room locations. SNL intermediate distribution rooms will be maintained at cool temperatures and will be reviewed as part of the data center consolidation initiative.

Efficient UPSs

Future plans include reduced reliance on larger UPS systems by using smaller units for critical applications only in Building 725. In FY 2015, Sandia will also develop criteria to determine where and when a UPS is really necessary.

Sandia is also looking at opportunities to utilize fuel cell, flywheel, or other types of backup power generation that are more energy efficient and reduce the SNL environmental impact over traditional UPS power.

Data Center Component Recycle and Reuse

In FY 2015, Sandia will continue to seek opportunities to recycle and reuse components, including deployment of recycle containers inside data center staging areas for metals.

Performance-Optimized Data Center

In FY 2015, Sandia will evaluate the energy efficiency, cost, and risk associated with installing a performance-optimized data center (POD) as an alternative to renovating existing data center facilities.

Standardization of IT Equipment

In FY 2015, Sandia will continue to deploy standardized racks as part of data center consolidation and enterprise environment.

2.7.2 Personal Computer Power Management

2.7.2.1 FY 2014 Performance Status

Sandia monitors power management for PCs through implementation of NightWatchman, a desktop power-management software system. In January 2011, NightWatchman was implemented per a memo from the Corporate Information Officer. When configured, NightWatchman allows Sandia's IT services to manage the power consumption of manageable Windows 7 and greater desktops by sending them into automatic standby (or "sleep") during nonstandard work hours. To accommodate nonstandard work hours as well as telecommuting and other offsite computing requirements, NightWatchman has a Web WakeUp feature, which allows a computer to be remotely "woken up" from anywhere at any time.

In FY 2014, approximately 9,679 desktop computers at SNL/NM and SNL/CA were eligible for the sleep policy. However, only 3,005 machines participated and were configured with the sleep policy.

2.7.2.2 Plans and Projected Performance

In FY 2015, Sandia will deploy a new power policy process to increase power management on eligible machines. This policy will provide user options for using a local power policy or hosted solution. For machines that are eligible and do not have a power management solution, Sandia will report the status of those machines to the center level for accountability.

2.7.3 Electronic Stewardship – Sustainable Acquisition

The SSPP commits DOE to the following electronic stewardship goals:

- Ensure that 95 percent of eligible electronics acquisitions meet EPEAT standards.

Sandia has accepted DOE's goals as its objectives.

The commitments concerning recycling and disposal of electronic products are addressed in Section 2.5., *Pollution Prevention.* See both the SNL/NM and SNL/CA CEDR worksheets for data on electronics reuse, recycling, and EPEAT purchase compliance.

2.7.3.1 FY 2014 Performance Status

The commitments concerning SA of electronic products are addressed in section 2.6., Sustainable Acquisition. The commitments concerning recycling and disposal of electronic products are addressed in section 2.5., Pollution Prevention. See both the SNL/NM and SNL/CA CEDR worksheets for data on electronics reuse, recycling, and EPEAT registered equipment purchasing compliance.

- Computer, monitor, and imaging equipment purchases in FY 2014 were 99 percent EPEAT compliant on $15.44M in applicable computing equipment purchases. Of the EPEAT-compliant equipment purchased, 95 percent were EPEAT Gold registered.
- Applicable imaging equipment purchases (i.e., printers, scanners, and multifunction devices [print/copy/scan]), were 98 percent EPEAT compliant in FY 2014, compared to 93 percent in FY 2013—the first year of the EPEAT-registered imaging equipment requirement.

2.7.3.2 Plans and Projected Performance

Sandia will update corporate policies, processes, and procedures to reflect the incorporation of DEAR Clause 970.5223-7 on SA requirements into the SNL Management and Operating Prime Contract.

- Improve compliance with EPEAT requirements for purchases of thin clients, imaging equipment, and televisions (large-screen LCD).
- Determine criteria for eligible servers.

- Meet ENERGY STAR requirements for more than 80 percent of eligible enterprise server purchases.
- Standardize on no more than 10 models of individual printers (including multifunction devices), all at minimum Silver EPEAT level.
- Expand utilization of networked fleet copiers to meet more than 25 percent of all workforce print/copy/scan/fax needs.

2.8 Goal 8: Renewable Energy

DOE is required to have 7.5 percent of its electricity consumption come from RE sources by FY 2013 and 20 percent by FY 2020. The statute provides for a double bonus if the RE is produced onsite and the RECs are retained. The language in EO 13423 is viewed as encouragement to sites to increase their total annual thermal energy consumption from onsite RE sources to the maximum extent possible and stipulates that each site must install an RE project or show that RE is not feasible at the site because of economic or renewable resource barriers.

The RE goals are based on the total energy consumption at all facilities, including those excluded from the energy intensity reduction requirements.

2.8.1 FY 2014 Performance Status

Sandia meets the electric RE objective through the purchase of RECs and through onsite and existing RE projects and strives to add onsite RE generation capacity when cost effective. See the CEDR worksheets, “Operating Onsite Renewables” and “Purchased Renewables,” for more information.

Sandia leverages its photovoltaic (PV) R&D technologies to support its RE and sustainability objectives. Sandia allows high-energy users on site to take advantage of power generated by SNL R&D activities. SNL high-energy users, such as computer services, partner with R&D solar researchers to cost-share PV acquisition and installation costs in return for reduced energy charges. In FY 2014, these activities generated approximately 308 MWh of electric power from systems totaling 280 kW.

The estimated total RE generation at SNL for FY 2014 is approximately 459 MWh for electric and 445 MMBtu for thermal. Onsite renewable electricity generation represents only 0.328 percent of SNL’s total electricity consumption. Because onsite RE generation capacity is limited, Sandia satisfies the required 7.5 percent electricity consumption from RE sources through purchases of RECs (to cover site electric consumption). Sandia will increase the purchase of RECs in subsequent years to meet the 20 percent goal by 2020. Figure 2.17 shows Sandia’s renewable electric generation through FY 2014.

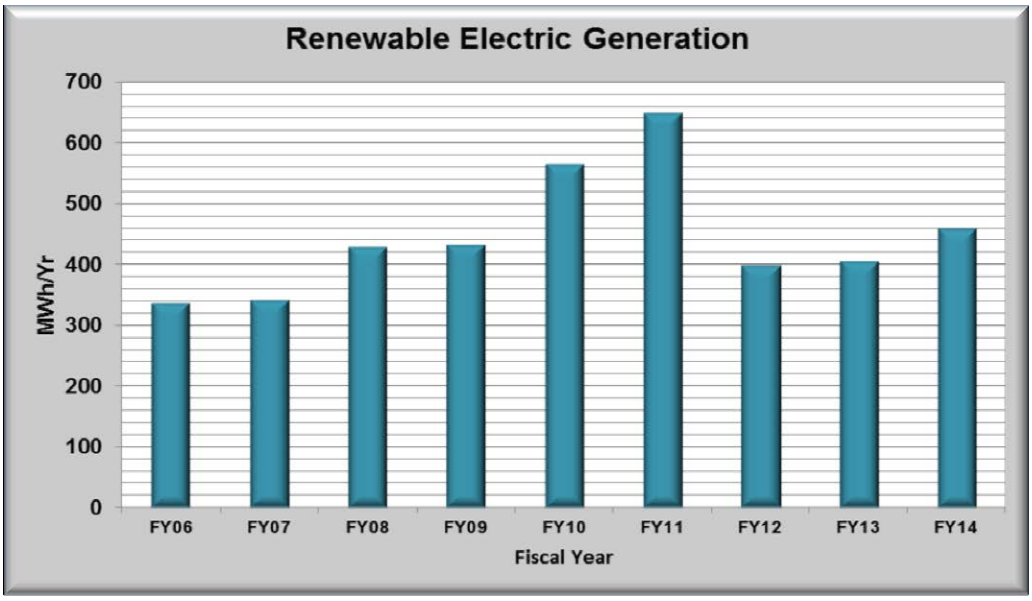


Figure 2.17. SNL Renewable Electric Generation

Actual metered data from some RE systems at SNL was unavailable during FY 2014. Where metered data was unavailable, energy produced by non-metered PV systems was estimated based on the system capacity and an assumed 5 sun-hours per day and 365 days of operation per year.

The PV arrays at Building 833 were retrofitted with metering capability in late FY 2010 and report actual metered data to date. Performance data for those PV systems identified in the CEDR worksheet as installed in FY 2012 represent full-year operation. Several SNL RE systems are associated with mission-related RE R&D activities. As a result, these specific systems are not considered permanent installations and may not be continuously operated. The Stirling Engine concentrated solar systems at the NSTTF site stopped running in October 2011, which decreased RE generation in FY 2012.

In FY 2012, Sandia installed the infrastructure for a 1MW RTC at SNL/NM. This test bed allows solar vendors to test their PV systems at the SNL/NM site. This site is located south of the NSTTF Solar Tower and is referred to as Site Zero. A 5,100W system was installed at Site Zero in FY 2014.

Sandia promotes solar-powered LED lights for all new parking lots and walkways. These systems are typically small but reduce construction costs for projects (by avoiding digging, trenching, and running wire and conduit), avoid increases in lighting energy use, and promote solar and LED technologies. In FY 2014, Sandia installed an additional 15 solar-powered LED pathway lights in SNL/CA and a solar-powered LED lighting system for a flag on the SNL/NM site.

Another solar technology that Sandia uses to reduce infrastructure costs and energy are solar-powered carts. Currently, Sandia has a total of 32 solar carts at SNL/NM and SNL/CA.

In FY 2014, Sandia Facilities and R&D organizations collaborated on the following initiatives:

- Completed studies to evaluate PV and energy storage installations

2.8.2 Planned and Projected Performance

Sandia continues to add onsite RE capacity as shown on the CEDR worksheet, “Conservation and RE Measures,” where life-cycle cost effective. Sandia’s projected performance includes the following:

- Install approximately 100,000W of grid-tied PV systems in FY 2015.
- Purchase RECs to meet the goal for FY 2015 and beyond.

- Continue to identify, analyze, and select development opportunities for small- and large-scale PV and concentrating photovoltaic systems at SNL/NM and SNL/CA locations, where life-cycle cost effective.
- Continue to leverage R&D activities to reduce and offset energy consumption.
- Investigate use of purchased power agreements (PPAs) to construct and operate renewable generation systems. Specifically, pursue third-party PPAs to support energy security for mission-critical buildings at SNL/NM.
- Install solar-powered LED lights for all new external installations (parking lots and walkways), where life-cycle cost effective.
- Investigate incorporation of RE systems in new buildings, especially solar hot water heaters.
- Use SNL locations as test beds for R&D technologies.
- Evaluate microgrid for mission-critical energy-security applications.
- Expand R&D concentrated solar activities at the NSTTF.
- Install R&D concentrated solar activities at SNL/CA.
- Explore uses of power from fuel cells, wind, geothermal, and nuclear R&D work at SNL locations.

Table 2.9 projects RE generation, RECs, and other information over a 10-year period.

Table 2.9. SNL Renewable Energy Generation

Renewable Energy	Actual FY 2014	Planned FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Renewable Energy (MWh)	456	660	660	660	660	660	660	660	660	660
Renewable Energy Credits (MWh)	24,000	30,800	44,800	44,800	51,800	51,800	58,800	58,800	58,800	58,800
Actual/Planned/ Est. Cost to Install*	131,600	529,260	42,560	42,560	49,209	49,209	55,859	55,859	55,859	55,859
Unit Costs ($/MWh)	$5.48	$17.072	$0.950	$0.950	$0.950	$0.950	$0.950	$0.950	$0.950	$0.950

Notes:
*Costs for REC purchases are estimated beyond FY 2014 and are unknown beyond FY 2020.
Numbers shown are for projects installed in FY 2014. Generation for FY 2015 and beyond is based on the addition of a total of 100kW at the 853 site.

2.9 Goal 9: Climate Change Resilience

In accordance with EO 13514 and subsequent Council on Environmental Quality Implementing Instructions, DOE developed and submitted a *Climate Change Adaptation Plan* in 2012. The DOE *Climate Change Adaptation Plan* directed DOE programs to ensure that all sites address climate change adaptation in their FY 2013 SSPs. DOE updated the plan in 2014, which reaffirmed its commitment to making DOE more resilient to climate change and changed site requirements.

Table 2.10. Current FY 2014 Performance Status and Planned and Projected Performance

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
Risks to Missions, Operations, and People		
Objective 1: DOE Climate Change Adaptation Screening Assessment	N/A	Sandia will complete the screening assessment survey as much as possible for the NM location by December 8, 2014. Sandia will complete the survey for the CA and NV locations by the end of FY 2015.
Objective 2: Determining Risk	Table 2.11 lists the applicable climate hazards, the Sandia sites where they are relevant, the types of impacts associated with the hazard, an estimate of the risk, and the rationale for that estimate. The information is a high level look at the types of impacts and associated risks that could manifest as a result of climate change at each location. Near term challenges to Sandia locations could include exposure to climate change effects (e.g., more frequent/intense severe storm events, heat waves, drought, wildfire, related power disruptions). Longer term challenges could include exposure to other climate change effects (e.g., sustained/more frequent water/energy shortages, increased water/energy costs, workforce, and transportation/supply chain issues).	Table 2.11 will serve as the foundation from which detailed vulnerability analyses can be implemented over future years, in order to refine the assessments and prioritize the adaptation strategies in a cost effective manner. Better understanding of the potential risks, impacts, and adaptation strategies will allow for building an educational and awareness program for site personnel that is focused and effective. Currently, no such programs exist at any of the locations.
Building Resilience		
Objective 3: Current Activities	Currently, there are no formalized activities specific to addressing climate impacts to Sandia's missions, operations, and people. However, Sandia maintains several activities that implicitly address climate change and that help increase Sandia's resilience to its impacts. Through its Climate and Environment Program, Sandia is involved in research activities that helps Sandia understand and prepare for national security impacts of climate change. These activities include sensing and monitoring, modeling and analysis, carbon management, and water security. Because Sandia's mission includes "anticipating and resolving emerging national security challenges", disruptions in Sandia's operations and mission are themselves a risk to national security. Many of the lessons and tools developed through these activities can be refocused for high-level self-assessments although more detailed analyses may require developing new tools or adapting existing tools to Sandia's specific circumstances. Sandia's standing in the climate change community has led to several of its researchers contributing to the 2013 National Climate Assessment. Sandia also maintains its EMS that is used to identify the	N/A

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
	environmental consequences of activities, products, and services and develops measureable targets to mitigate potential impacts to the environment. It also serves as a foundation for implementing this SSP as the need arises. The EMS promotes behaviors among the workforce that implicitly aid in increasing Sandia's resilience to climate change such as encouraging: • Alternatives to single-passenger commuting • Implementation of the Federal HPSB Guiding Principles • Certification of new construction projects under the U.S. Green Building Council's LEED Green Building Rating System • Conversion of existing building controls and environment systems • Installation of cool roofs to help reduce heating and cooling power requirements.	
Objective 4: Future Activities	N/A	Sandia plans to conduct a preliminary high-level assessment/analysis of potential major site-specific/local vulnerabilities to climate change in FY 2016. Based on plan findings, Sandia may consider undertaking specific efforts to better quantify, understand, and prioritize those vulnerabilities and/or begin implementing counter measures against local climate change effects at its facilities. Inherent in those assessments will be to identify and update Sandia's climate adaptation-related plans and strategies to address climate change adaptation considerations (e.g., continuity of operations, fire management, infrastructure and construction specifications, etc.). Long-range vulnerabilities due to chronic climate change stresses will also be assessed and used to update Sandia's Long-Range Development Framework to include impacts to Sandia's mission, facilities, and infrastructure. Upon completion of the high-level assessment, Sandia will undergo a thorough, vulnerability risk assessment that includes direct impacts on Sandia's facilities and mission, as well as indirect impacts due to impacts on systems and infrastructure (e.g., electrical and transportation networks leading to Sandia facilities, water supply reliability, natural gas supplies, etc.) that are outside of Sandia's control. Included in this activity will be an economic assessment that will determine the effectiveness of different adaptation strategies by comparing the cost of each strategy to the increase in resiliency that it returns. Sandia will use this information to create for each of its sites a

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
		prioritized list of adaptation strategies that can be implemented in future development plans.
Objective 5: Real Property and Supply Chain Resilience	Currently, Sandia has no existing procedure or mechanism that considers climate adaptation and resilience into its procurement, acquisition, real property, or leasing decisions.	It is anticipated that the vulnerability risk assessments described in Future Activities in Objective 4 will include vulnerabilities to real property and supply chains. Consideration will need to be given to develop methodologies that can be quickly and easily applied during the procurement process or when acquiring or modifying real property. Identifying back-up sources of goods will need to be included as will identifying alternatives and plans for bringing critical facilities and infrastructure back online as quickly as possible.
Regional and Local Coordination		
Objective 6: Regional and Local Coordination	Through its EC Program Management Unit, Sandia supports DOE/EERE who in turn supports other agencies in the area of climate change research. Locally, Sandia partnered with the Bureau of Reclamation to research the impacts of climate change in the Middle Rio Grande Region of New Mexico, which includes SNL/NM while regionally, Sandia researchers partnered with DOE to generate the first truly integrated assessment of climate risk among the contiguous 48 states. Globally, Sandia leads a global research team that supports the DOE Office of Science Atmospheric Radiation Measurement program, which is DOE's largest global climate change research effort. Sandia has also partnered with the National Aeronautics Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Agriculture (USDA), and several major academic institutions over the last decade and a half on a range of climate change activities that include cataloging and quantifying global greenhouse gas emissions, high resolution global circulation modeling, developing advanced risk assessment methodologies to evaluate climate uncertainty, and evaluating climate change impacts on human activity.	Sandia is continually pursuing and seeking opportunities for future collaborations and coordination that includes institutions at the local, regional, and national level. As future activities begin to focus on Sandia site specific risks and vulnerabilities, coordination with local and regional authorities will be important to insure the accuracy of our assessments as well as to avoid redundant efforts and/or share data and results.
Modernization of Programs		
Objective 7: Removing and Reforming Barriers	As a leader in climate change risk assessment research, Sandia is on the cutting edge in its use of the latest available data and science to examine climate related vulnerabilities. However, to date, the tools and methodologies developed through these research activities have never been focused inward to examine site specific vulnerabilities to	In order for Sandia to meet current and future objectives regarding climate resiliency, funding must be made available to allow researchers to focus on Sandia-specific needs and circumstances. Several steps have been identified that will help remove the cultural and intellectual barriers to Sandia meeting its climate change objectives:

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
	Sandia's mission, facilities, and personnel.	1. Sandia management needs to be educated with regards to the economics of climate change vulnerability to help them understand the positive payback that can occur when an effective risk assessment program is implemented. 2. The Sandia workforce also needs to be educated to help them understand the implications of climate related impacts on Sandia's mission, national security, and their own specific tasks. 3. Short-term funding needs to be put in place to allow Sandia researchers to conduct high-level preliminary risk vulnerability assessments at each Sandia site. 4. Long-term funding also needs to be established to periodically update these assessments as new data, methodologies, and/or understanding become available. In addition, long-term funding will be needed to monitor and evaluate any investments or procedural changes that are made to adapt to, or fortify against, the impacts of climate change. It is anticipated that progress towards these goals will be done in an iterative manner using small focused analyses prior to performing full integrated assessments. These small focused analyses can be used to identify the hazards, risks, and consequences that could be addressed in the larger assessments. This also allows for incremental changes to procedures and operations that when implemented over time, will add up to be a fully implemented climate resiliency and adaptation plan. To date, there is no funding for these activities and it is unrealistic to predict that funding will become available without a DOE-level policy change that mandates their completion.

Table 2.11. High-Level Description and Estimate of Climate Risk by Hazard and Location

Identified Risk	Description	Location(s)	Impact	Associated Risks	Affected Policies/ Programs/ Operations	Risk Estimation	Rationale
Wildfire	Increased frequency and intensity due to a decrease in annual precipitation and an increase in daily average temperature	Albuquerque Tonopah	Property damage, human health, loss of infrastructure (water, power, communications, transportation), work stoppage, environmental damage	Increases in peak flood flows due to vegetation losses, irrecoverable damage to sensitive/ expensive facilities, human health due to blowing dust, soil loss and increased erosion	TBD	Medium to high in forested areas Low to medium in grassland areas	Decreases in precipitation and increases in temperature will cause vegetation to dry out. Fuel for wildfires are highest in the forested areas, such as in the Cibola National Forest area of Kirtland, and lowest in the grasslands area. High fuel availability increases the intensity, speed of spreading, and the difficulty in fighting them.
Extreme storm events	While total annual rainfall is projected to decrease due to climate change, rainfall storm events are projected to become more extreme and intense with regards to both rainfall rates and wind speed.	Albuquerque Livermore Tonopah Kauai	Property damage, human health, loss of infrastructure (water, power, communications, transportation), work stoppage, environmental damage	Increased erosion, inability of storm drainage systems to cope	TBD	Medium	Most of the flooding would occur in low lying areas such as the Tijeras arroyo, where there are few facilities, so damage is likely be confined to infrastructure that crosses those areas, such as roads, electrical lines, water lines, etc.. Local flooding in other areas is possible where storm drainage systems have been under-engineered to handle increases in storm intensity. Wind gusts can cause damage to under-engineered facilities or from impacts by blowing debris.
Temperature	Extreme hot and cold temperature events are projected to increase	Albuquerque Livermore Tonopah Kauai	Increased power requirements for heating and cooling, health risks for outdoor workers, equipment damage, and power loss.	Work stoppages due to interruptions in regional power and gas supplies.	TBD	Low to medium	The damages from extreme temperature events will likely be less catastrophic than damages from wildfire or floods but can be more wide spread and affect a greater portion of the workforce.

Identified Risk	Description	Location(s)	Impact	Associated Risks	Affected Policies/ Programs/ Operations	Risk Estimation	Rationale
Drought	The magnitude and intensity of regional droughts are projected to increase	Albuquerque Livermore Tonopah Kauai	Increased power requirements and costs for heating and cooling, disruptions in water supply	Regional water supplies will become strained possibly resulting in water supply disruptions or legislated conservation measures.	TBD	Low to medium	The damages from drought will be less catastrophic than from other hazards but can be more wide spread and affect a greater portion of the workforce.
Sea Level Rise	Mean sea levels are projected to rise with increases in storm surge magnitude	Kauai	Property damage, loss of infrastructure (water, power, communications, transportation), work stoppage	Supply chains cutoff due to seaport and airport damage, salt water intrusion impacting water supply	TBD	Medium	Damages from sea level rise can range from extreme flood events to long-term water supply problems. Extreme events are likely to manifest earlier than the more chronic events.

2.10 Goal 10: Energy Performance Contracts

Sandia does not use energy performance contracts. Several years ago Sandia investigated ESPCs with several vendors. It was determined that because Sandia had already implemented many energy conservation measures, pursuing ESPCs wouldn't be cost effective. Sandia has continued to implement energy conservation measures using corporate funding.

3.0 Budget and Funding

The SSPP commits the DOE to establish a process to prioritize projects that most cost effectively meet sustainability goals, while generating the greatest cost savings for DOE as it executes its mission.

3.1 FY 2014 Performance Status

In FY 2014, Sandia did the following:

- Allocated $5.0 million to energy and water projects; this funding was generated from actual cost reductions from a new electric utility contract and energy conservation projects
- Considered projected energy and water savings when prioritizing all projects regardless of funding source; these projects are reported in the CEDR worksheets, "Conservation and RE Measures" and "Building Inventory Changes."

3.2 Planned and Projected Performance

Sandia will do the following:

- Continuing in FY 2015, invest $5.0M electric utility cost savings in energy and sustainability projects and R&D support over the next two years.

Assuming stable footprint and no increase in mission energy use over the planning period, expected outcomes include the following:

- Reduced long-term operational costs
- Reduced out-year utility costs
- Larger, more-difficult/expensive projects
- Greater support for R&D energy initiatives, including renewable-energy initiatives

4.0 Training and Awareness

4.1 FY 2014 Performance Status and Projected Performance

See "Training" in Table 1-4 of the CEDR for more information.

Table 4.1. Current Performance Status and Planned and Projected Performance

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
Train personnel at each site to direct energy- and water-management programs and dedicate all or a substantial portion of their time to the effective implementation of energy- and water-management plans.	Sandia-required training courses are tracked by individual using Sandia's Training and Employee Development System. FY 2014 training and related activities included the following: Energy and Water Management Program Staff • Maintained existing Certified Energy Manager (CEM) certifications. Certified two new CEMs • Maintained LEED AP status. Certified one new LEED Green Associate • Energy Program Manager earned Professional Engineering (PE) • Participated in the Energy Efficiency Working Group of Energy Facilities Contractor Operations Group. • Attended the World Energy Engineering Congress in Washington DC • Energy Program Manager active member in local Energy Engineering Congress chapter. Organized local CEM training and served as organization treasurer Operations and Maintenance Personnel, Building Operators, and Systems Engineers: • No specific energy and water management program training occurred in FY 2014. • Certified three new CEMs Fleet Services Training completed by Fleet Services Environmental Program staff is included in the training matrix maintained by the Fleet Services training coordinator. Note: Specific ES&H staff training is not included.	Continue training efforts pending funding availability.
Implement outreach programs to motivate employees to become more efficient in their use of energy, water, and green products and services and to minimize waste.	Activities included the following: • Conducted energy-awareness campaigns, including Earth Day (April) and Energy Action Month (October). • Provided energy tips periodically in the email-based Sandia Daily News • Provided Energy Bulletins to the FMOC personnel on over 62 SNL/NM buildings. Energy Awareness Bulletins provide energy	Continue outreach and awareness programs. Conduct Guiding Principles training for DOE and non-DOE agencies. Conduct an overview of the Sandia Sustainability Program for SFO to increase employee awareness about energy, water, sustainable acquisition, and pollution prevention.

DOE Goal/ Sandia Objective	FY 2014 Performance Status	Planned and Projected Performance
	trend information; occupants use this information to promote energy conservation and general awareness • Conducted FEMP sponsored Guiding Principles training sessions for other DOE and NNSA sites • Conducted FEMP sponsored Guiding Principles training sessions for other federal agencies • Developed internal "SNL Energy and Sustainability" web site.	
Implement employee incentive programs to reward exceptional individual and team performance in increasing energy efficiency and water conservation, deploying renewable energy, minimizing waste, reducing utility costs, and reducing GHG emissions.	• SNL ES&H EMS sponsors annual EMS Excellence Awards, which recognize individual and team achievements in water conservation/energy reduction, risk mitigation and environmental protection, waste minimization, and recycling. • SNL Individual Performance Awards, Employee Recognition Awards (ERAs) and Presidential Quality Awards may also be used to recognize environmental achievements.	Continue existing efforts.

APPENDIX A: CONSOLIDATED ENERGY DATA REPORT (CEDR)

CEDR Worksheets

Section	Title
2.1	Funds, Metering, Training
1-1	Direct Agency Obligations
1-2	Awarded Energy Savings Performance Contracts – N/A for SNL
1-3	Awarded Utility Energy Services Contracts – N/A for SNL
1-4	EPAct 1992 Training
1-5a	EPAct 2005 Metering of Electrical Use
1-5b	EISA 2007 Metering of Natural Gas Use
1-5c	EISA 2007 Metering of Steam Use – N/A for SNL
1-5d	DOE O 436.1 and SSPP Metering of Chilled Water Use
1-5e	Water Management Best Practice Metering of Water Use
2.2	Sustainable Acquisition
3.1	Energy and Water
3.2a	Operating Onsite Renewables
3.2b	Purchased Renewables
3.3a	Active Conservation and RE Measures
3.3b	Cancel ECM and RE Measures
3.4	Building Inventory Changes
4.1	Source Energy Savings Credit – N/A for SNL
5.1	Data Centers
5.2	Electronics Acquisition and Disposal
5.3	Electronics Operations and Maintenance
6.1	Mixed Refrigerants
6.2.	Fugitive F-gases
6.3	Industrial Process
7.1a	Onsite Wastewater
7.1b	Contractor Wastewater
8.1	Air Business Travel
8.2	Ground Business Travel
8.3.	Commuter Travel
9.1a	Onsite Landfill Municipal Solid Waste
9.1b	Offsite Landfill Municipal Solid Waste
9.1c	Municipal Solid Waste and C&D Diversion
10	Fleet Fuel (optional)
11	Covered Facilities

Note: CEDR worksheets are provided in separate attachments.

APPENDIX B: BASELINE AND CURRENT INFORMATION TABLES

All data is current as of November 10, 2014. The tables support the SSP's objectives and graphs.

GHG Emissions: FY 2008 Baseline and Current Information

Table B-1. SNL GHG Emissions Footprint in Metric Tons CO2e

FY	Scope 1				Scope 2	Scopes 1 and 2 Total	% Scopes 1 and 2 Change (from prior year)	Scope 3	% Scope 3 Change (from prior year)	Total
	Stationary Combustion	Fleet	Sulfur Hexafluoride (SF6)	Other Process/ Fugitive Gases	Purchased Electricity					
08	27,975	1,585	369,381	8,678	166,117	573,736	–	56,682	–	630,418
09	24,143	1,496	212,119	6,135	163,391	407,284	-29%	54,460	–4	461,744
10	24,169	1,966	273,684	6,651	172,473	478,943	18%	64,182	18	543,125
11	22,587	2,738	250,888	9,895	158,892	445,000	-7%	54,996	–14	499,996
12	20,475	1,401	129,204	8,251	149,866	309,197	-31%	53,843	-2%	363,040
13	20,277	1,307	191,716	9,682	144,613	351,041	14%	59,174	10%	410,215
14	20,326	1,653	98,794	9,946	140,334	255,371	-27%	58,401	-1%	313,772

Notes: Starting in FY 2013, Scopes 1 and 2 total is reduced by a credit for purchasing RECs.

Energy Consumption and Intensity: FY 2003 Baseline and Current Information

Table B-2. SNL Total Energy Consumption and Energy Intensity

FY	Electricity in (BBtu)	Fuel Oil (BBtu)	Natural Gas (BBtu)	Liquid Propane (LP) (BBtu)	Total Energy Consumption (BBtu)	Energy Intensity (Btu/ GSF/yr)	% Energy Consumption Change (from prior year)	% Energy Intensity Change (from prior year)	% Intensity Change from Baseline	GSF
03	858.300	0.817	606.363	19.220	1,484.700	236,866.26	–	–		6,268,094
04	895.374	0.872	491.546	18.711	1,406.503	222,060.57	–5.27	–7.10	-6.25	6,333,871
05	993.741	1.022	503.929	16.809	1,515.501	235,527.76	7.75	7.03	-.57	6,434,490
06	1,044.943	21.820	623.570	14.207	1,704.540	231,827.88	12.47	–1.57	-2.13	7,352,610
07	1,154.887	0.180	666.273	16.816	1,838.156	232,363.42	7.84	0.23	-1.90	7,910,716
08	1,063.667	0.152	533.001	23.347	1,620.160	232,367.04	–11.86	–0.22	-1.9	6,987,676
09	1,061.742	0.186	460.100	22.820	1,544.848	222,367.97	–4.65	–4.10	-6.12	6,947,572
10	1,045.236	0.186	419.151	24.734	1,489.307	215,357.64	–3.60	–3.15	-9.08	6,915,493
11	1,016.065	0.223	391.425	22.223	1,429.936	206,848.24	–4.15	–3.95	-12.67	6,912,971
12	1001.954	0.220	352.266	22.819	1,377.259	201,219.97	-3.68	–2.72	-15.05	6,844,541
13	970.410	0.263	350.827	19.258	1,340.758	194,814.46	-2.65	-3.18	-17.75	6,882,229
14	955.340	.198	349.019	23.694	1,328.25	190,292.71	-.93	-2.32	-19.66	6,980,035

Notes:

- Collected data reflects consumption at NM, CA, and NV locations.
- FY 2009 –2014 includes offsite leases where Sandia pays for energy costs separately from the lease cost.
- Data in this table has been rounded to two or three decimal places.

Data Sources:

- CEDR: Collects data on energy consumption and cost, broken down by energy type; water consumption and cost; and non-fleet fuel consumption and cost
- FIMS: Collects site footprint and stores data on buildings that have been assessed for HPSB goals
- BAS
- Electric metering systems
- Location and building NG meters

Table B-3. SNL Regular Buildings Energy Consumption and Energy Intensity

FY	Electricity (BBtu)	Fuel Oil (BBtu)	Natural Gas (BBtu)	Liquid Propane (LP) (BBtu)	Total Energy Consumption (BBtu)	Energy Intensity (Btu/ GSF/yr)	% Energy Consumption Change (from prior year)	% Energy Intensity Change (from prior year)	% Intensity Change from Baseline	GSF
03	569.366	0.817	488.309	19.220	1,077.72	194,532.99	–	–	0	5,540,041
04	594.400	0.872	420.848	18.711	1,034.84	184,959.73	-3.98	-4.92	-4.92	5,594,943
05	639.875	1.022	455.823	16.809	1,113.54	196,513.3	7.60	6.25	1.02	5,666,466
06	655.747	21.820	565.826	14.207	1,257.60	183,007.10	12.94	–6.87	-5.92	6,871,890
07	622.409	0.180	523.104	16.816	1,162.52	162,653.39	-7.56	–11.12	-16.39	7,147,201
08	580.934	0.152	371.481	23.340	975.91	168,132.30	–16.05	3.37	-13.57	5,804,448
09	579.435	0.186	309.429	22.820	911.87	158,192.98	–6.56	–5.91	-18.68	5,764,344
10	567.044	0.184	292.065	24.734	884.03	155,089.14	–3.05	–1.96	-20.28	5,700,117
11	556.134	0.223	270.365	22.223	848.95	149,000.58	-3.97	-3.93	-23.41	5,697,595
12	537.086	0.220	242.262	22.819	802.39	142,814.30	-5.48	-4.15	-26.59	5,618,381
13	535.106	0.263	234.110	19.258	788.737	139,443.43	-1.7	-2.36	-28.32	5,656,324
14	533.563	.198	230.178	23.694	787.63	136,881.21	-.14	-1.84	-29.64	5,754,129

Notes:

- Collected data reflects consumption at NM, CA, and NV locations.
- FY 2009 –2014 includes offsite leases where Sandia pays for energy costs separately from the lease cost.
- Data in this table have been rounded to 2 or 3 decimal places.

Data Sources:

- CEDR: Collects data on energy consumption and cost, broken down by energy type, water consumption and cost, and non-fleet fuel consumption and cost
- FIMS: Collects site footprint and stores data on buildings that have been assessed for HPSB goals
- BAS
- Electric metering systems
- Location and building NG meters

Tables B-4 and B-5. SNL Regular Buildings and Excluded Buildings GSF Adjustments

SNL FY14 GSF: Regular Buildings				
	NM	**CA**	**NV**	**Total**
Reported by HQ	4,649,993	872,373	108,877	5,631,243
Sandia adjusted	4,757,996	874,196	121,937	5,754,129

Note: Sandia moved 726 and 858J to excluded buildings because those CUBs only serve buildings that are in the excluded category. Sandia moved 858K to the excluded buildings because it is part of the 858 complex. Sandia also moved 9980D (Molten Salt) to the excluded buildings.

SNL FY14 GSF: Excluded Buildings				
	NM	**CA**	**NV**	**Total**
Reported by HQ	1,150,378	—	—	1,150,378
Sandia adjusted	1,225,906	—	—	1,225,906

Note: Sandia added the 2 leased facilities that SNL pays the utilities (Computer Science Research Institute, Hangar). Total GSF added = 75,838

Water Consumption and Water Intensity: FY 2007 Baseline and Current Information

Table B-6. SNL Total Water Consumption and Water Intensity

FY	Water Consumption (gal)	Water Intensity (gal/GSF/yr)	% Intensity Change from Baseline	% Intensity Change from Previous Year	% Consumption Change from Baseline	% Reduction Target from Baseline	GSF
07	585,491,000	75.42	–	–	–	–	7,763,585
08	511,621,799	74.60	–1.09	–1.09	–12.62	2	6,858,172
09	441,827,763	64.80	–14.08	–13.14	–24.54	4	6,818,088
10	362,185,883	52.63	–30.02	–18.80	–38.14	6	6,881,993
11	344,243,773	50.04	–33.65	–4.92	–41.20	8	6,879,471
12	357,174,462	52.65	–30.19	5.21	–39.00	10	6,784,023
13	357,894,267	52.46	-30.44	-0.36	-38.87	12	6,821,711
14	367,805,734	53.15	-29.53	1.32	-37.18	14	6,919,517

Notes:

- FY 2007–2009 does not include the NV location.
- Leased buildings are not included in water consumption or GSF.

Data Sources:

- CEDR: Collects data on energy consumption and cost, broken down by energy type and whether they are excluded, water consumption and cost, and non-fleet fuel consumption and cost
- FIMS: Collects site footprint and stores data on buildings that have been assessed for HPSB goals
- BAS

Transportation Fuels: FY 2005 Baseline and Current Information

Table B-7. SNL Total Fuel Usage (Gasoline Gallons Equivalent)

FY	Alternative Fuel Use				Petroleum Fuel Use (Diesel and Gasoline)	Total Fuel Use	% of Alternative Fuel Use	% Diesel and Petroleum Change (from prior year)
	E-85	Electricity	CNG	B-20				
05	39,306	417	706	6,294	202,691	249,414	19	0
06	35,387	0	528	5,946	230,523	272,384	15	14
07	55,590	0	1,071	6,418	228,957	292,036	22	-1
08	65,348	0	2,243	6,545	172,671	246,807	30	-25
09	94,676	0	1,755	5,618	102,049	251,470	41	-14
10	98,951	0	3,596	5,638	174,382	282,567	38	17
11	105,169	0	3,803	6,094	145,340	260,406	44	-17
12	98,682	0	639	5,392	133,635	238,348	44	-8
13	107,693	0	198	8,387	123,112	239,391	49	-8
14	47,548	0	0	8,197	165,586	221,330	27	32.3

Notes:

- All locations
- Alternative fuels for electricity includes SNL/NM only

Data Source: FAST – Collects current and past federal fleet fuel use, vehicle inventory, and vehicle acquisitions for the current year and plans two years into the future

Total GSF Information

Table B-8. SNL Total GSF FY 2009 Greater than 5,000 GSF (Baseline)

SNL> 5,000 GSF	SNL/NM	SNL/CA	SNL/HI	SNL/NV	Total
Owned	5,269,237	806,981	21,240	53,382	6,150,840
Owned (not in FIMS)	24,880	-	-	-	24,880
Leased offsite	381,217	5,238	-	-	386,455
Leased onsite	48,649	-	-	-	48,649
Permitted	12,997	-	-	-	12,997
Total	**5,736,980**	**812,219**	**21,240**	**53,382**	**6,623,821**

Table B-9. SNL Total GSF FY 2014 Greater than 5,000 GSF

SNL> 5,000 GSF	SNL/NM	SNL/CA	SNL/HI	SNL/NV	Total
Owned	5,368,656	801,373	12,146	41,859	6,224,034
Owned (not in FIMS)	24,880	-	-	-	24,880
Leased offsite	365,884	5,238	-	-	366,122
Leased onsite	-	5,760	-	-	5,760
Permitted	12,997	-	-	-	12,997
Total	**5,767,417**	**812,371**	**12,146**	**41,859**	**6,633,793**

Workforce Information

Table B-10. SNL Total Workforce FY 2008–2014

Location	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
SNL/CA	1,216	1,175	1,272	1,214	1,269	1,314	1,242
SNL/HI	N/A	N/A	N/A	N/A	N/A	8	12
SNL/NV	N/A	N/A	N/A	N/A	N/A	49	59
SNL/NM							
TA-I	7,139	7,105	7,243	7,457	7291	7,631	7,617
TA-II	575	572	556	541	521	453	512
TA-III	115	111	113	128	131	145	138
TA-IV	835	839	820	767	717	797	782
TA-V	198	198	201	202	197	213	185
26000 Igloo	20	19	20	9	14	14	15
Coyote Test Field	92	101	116	97	93	95	86
Manzano	0	0	0	0	0	0	0
KAFB	93	97	29	103	102	124	115
Leased – NM	1,360	1,168	1,134	1,013	1,062	1,119	1,066
Leased – Other	N/A	N/A	N/A	16	18	16	16
GSA Assigned	N/A	N/A	N/A	3	3	3	4
Subtotal SNL/NM	10,427	10,210	10,232	10,336	10,149	10,610	10,536
Total	**11,643**	**11,385**	**11,504**	**11,550**	**11,418**	**11,981**	**11,849**

Notes:

- Data 10/30/2014 (Data Source: SNL SAPLE/Directory)
- Total workforce minus SNL/HI is used to generate per capita amount for metric
- Data is end of FY data except FY 2010 (June) and FY 2009 (April)

Cost Information

Table B-11 SNL Total Cost FY 2008–2014

Cost Burdened Amount (M)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Labor	$1,972	$2,050	$2,210	$2,477	$2,562	$2,648	$2,716
Other Direct Costs (ODC)	$1,984	$1,864	$1,985	$1,899	$1,836	$1,959	$2,097
Total	**$3,956**	**$3,913**	**$4,195**	**$4,376**	**$4,398**	**$4,607**	**$4,813**

Notes:

- Data 9/30/2014 (Data Source: SNL Oracle)
- Analytical Reporting Capability (ARC) used to generate budget amount for metric
- SSP SharePoint site

Data Source: SNL ARC

HPSB Guiding Principle Information

Table B-12 Federal Sustainability Portfolio Report

Building	Sustainability Path	Date Third-Party Certification Anticipated	Date Third-Party Certification Achieved	Date Federal Guiding Principles Compliance Anticipated	Date Federal Guiding Principles Compliance Achieved	Checklist Completion Percentage				Building Square Foot
						Yes	No	In Process	Not Assessed	
Bldg. 1090 – ES&H	**Guiding Principles for Sustainable Existing Building**			**09/30/2013**	**9/30/2013**	**100%**	**0%**	**0%**	**0%**	**15960**
Bldg. 518 – Center for Integrated Nanotechnologies	**Third-Party Green Building Certification**		**06/30/2006**			**100%**	**0%**	**0%**	**0%**	**95929**
Bldg. 6584 – Administrative Center for Test Engineering	**Guiding Principles for Sustainable Existing Building**			**12/31/2014 (?)**		**96%**	**4%**	**0%**	**0%**	**18894**
Bldg. 6585 – Technology Support Center (TSC)	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		81%	0%	4%	15%	98193
Bldg. 6586 – Gamma Irradiation Facility (GIF)	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		88%	0%	8%	4%	12526
Bldg. 6587 – Photometrics and Data Acquisition Facility	**Guiding Principles for Sustainable Existing Building**			**12/15/2015**		**96%**	**0%**	**4%**	**0%**	**13082**
Bldg. 700 – Advanced Manufacturing Prototyping Facility	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		88%	0%	4%	8%	22776
Bldg. 701 – Process and Environmental Tech Laboratory	Guiding Principles for Sustainable Existing Building			12/15/2015		85%	0%	4%	12%	151055
Bldg. 704 – Collaborative Office Building #1	**Third-Party Green Building Certification**	**6/23/2014**			**9/30/2013 (met GP)**	**100%**	**0%**	**0%**	**0%**	**26419**
Bldg. 705 (Proposed New Building)	Third-Party Green Building Certification	12/15/2015				0%	0%	0%	100%	New Building

Building	Sustainability Path	Date Third-Party Certification Anticipated	Date Third-Party Certification Achieved	Date Federal Guiding Principles Compliance Anticipated	Date Federal Guiding Principles Compliance Achieved	Checklist Completion Percentage				Building Square Foot
						Yes	No	In Process	Not Assessed	
Bldg. 720 – Ion Beam Laboratory	**Third-Party Green Building Certification**		**07/21/2010**			**100%**	**0%**	**0%**	**0%**	**27854**
Bldg. 726 – SCA Central Utility Building (South of 880)	**Guiding Principles for Sustainable Existing Building**				**9/30/2014**	**100%**	**0%**	**0%**	**0%**	**5568**
Bldg. 727 – INSRC (South of 880)	**Guiding Principles for Sustainable Existing Building**				**5/31/2014**	**100%**	**0%**	**0%**	**0%**	**19949**
Bldg. 730 (New Building Under Construction)	**Third-Party Green Building Certification**	**12/31/2014**			**6/30/2014 (met GP)**	**100%**	**0%**	**0%**	**0%**	**24349**
Bldg. 750 – TAOS MOB (South of 832)	**Third-Party Green Building Certification**		**06/30/2010**			**100%**	**0%**	**0%**	**0%**	**14683**
Bldg. 752 – Space Management Office Building (North of 890)	**Guiding Principles for Sustainable Existing Building**				**9/30/2013**	**100%**	**0%**	**0%**	**0%**	**17167**
Bldg. 753 – Integrated Systems Support Group	**Guiding Principles for Sustainable Existing Building**				**09/30/2012**	**100%**	**0%**	**0%**	**0%**	**8366**
Bldg. 755 – Manufacturing Science Surety Components Instr. Lab	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		88%	0%	12%	0%	18667
Bldg. 758 – Limited Office Building One – IGPP#7	**Guiding Principles for Sustainable Existing Building**				**9/30/2014**	**100%**	**0%**	**0%**	**0%**	**19336**
Bldg. 770 – Limited Office Building Three	**Guiding Principles for Sustainable Existing Building**			**12/15/2015**		**92%**	**0%**	**8%**	**0%**	**15699**
Bldg. 809 – High Bay Lab and Machine Shop	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		81%	0%	4%	15%	15401
Bldg. 811 –	**Guiding Principles for**				12/1/2013	100%	0%	0%	0%	10560

Building	Sustainability Path	Date Third-Party Certification Anticipated	Date Third-Party Certification Achieved	Date Federal Guiding Principles Compliance Anticipated	Date Federal Guiding Principles Compliance Achieved	Checklist Completion Percentage				Building Square Foot
						Yes	No	In Process	Not Assessed	
Administration	**Sustainable Existing Building**									
Bldg. 827 – Primary Standards Lab	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		88%	0%	8%	4%	58683
Bldg. 836 – Weapons Engr. and Drafting	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		81%	0%	4%	15%	93461
Bldg. 856 – Education and Training	**Guiding Principles for Sustainable Existing Building**			**12/15/2015**		**92%**	**0%**	**8%**	**0%**	**12649**
Bldg. 859 – Rocket System Development Lab	**Guiding Principles for Sustainable Existing Building**			**12/15/2015**		**92%**	**0%**	**8%**	**0%**	**21031**
Bldg. 858EF – MESA Microfab – East Facility	**Third-Party Green Building Certification**		**09/30/2007**			**100%**	**0%**	**0%**	**0%**	**95046**
Bldg. 858EL – MESA MICROLAB – EAST LAB	**Third-Party Green Building Certification**		**04/30/2008**			**100%**	**0%**	**0%**	**0%**	**171500**
Bldg. 858J – MESA Central Utilities Building 1	**Guiding Principles for Sustainable Existing Building**				**11/30/2013**	**100%**	**0%**	**0%**	**0%**	**8925**
Bldg. 861 – Cafeteria	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		85%	0%	0%	15%	13914
Bldg. 877 – Independent Vuln. Assessment	**Guiding Principles for Sustainable Existing Building**				**10/31/2013**	**100%**	**0%**	**0%**	**0%**	**9609**
Bldg. 879 – Integrated Mfg. Design Facility	**Guiding Principles for Sustainable Existing Building**				**9/30/2013**	**100%**	**0%**	**0%**	**0%**	**10560**
Bldg. 885 – Facilities	**Guiding Principles for**			**12/15/2015**		**92%**	**0%**	**4%**	**4%**	**5120**

Building	Sustainability Path	Date Third-Party Certification Anticipated	Date Third-Party Certification Achieved	Date Federal Guiding Principles Compliance Anticipated	Date Federal Guiding Principles Compliance Achieved	Checklist Completion Percentage				Building Square Foot
						Yes	No	In Process	Not Assessed	
Management and Purchasing	**Sustainable Existing Building**									
Bldg. 886 – Facilities Info Technology Building	**Guiding Principles for Sustainable Existing Building**			**9/30/2014 (?)**		**96%**	**0%**	**4%**	**0%**	**10565**
Bldg. 895 – Robotic Manufacturing Science and Engineering Lab	Guiding Principles for Sustainable Existing Building			12/15/2015		84%	0%	0%	15%	75265.00
Bldg. 898 – Weapons Integration Facility	**Third-Party Green Building Certification**		**05/31/2008**			**100%**	**0%**	**0%**	**0%**	**177216**
Bldg. 899 – Joint Computational Engineering Lab (JCEL)	**Third-Party Green Building Certification**		**05/30/2008**			**100%**	**0%**	**0%**	**0%**	**62201**
Bldg. 899A – JCEL – MESA Ctrl Utility Building (CUB)	**Guiding Principles for Sustainable Existing Building**				**11/15/2013**	**100%**	**0%**	**0%**	**0%**	**6925**
Bldg. 905 – Explosive Component Facility	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		77%	0%	0%	23%	101592
Bldg. 954 – Maintenance Warehouse	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		77%	0%	0%	23%	36223
Bldg. 957 – Shipping and Receiving	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		88%	0%	0%	12%	53323
Bldg. 962 – Strategic Defense Facility	Guiding Principles for Sustainable Existing Building			12/15/2015		88%	0%	0%	12%	151425
Bldg. 969 – TA-IV Secure Office Building	**Guiding Principles for Sustainable Existing Building**				**09/30/2012**	**100%**	**0%**	**0%**	**0%**	**17987**

Building	Sustainability Path	Date Third-Party Certification Anticipated	Date Third-Party Certification Achieved	Date Federal Guiding Principles Compliance Anticipated	Date Federal Guiding Principles Compliance Achieved	Checklist Completion Percentage				Building Square Foot
						Yes	No	In Process	Not Assessed	
Bldg. 971 – Emerging Threats	**Guiding Principles for Sustainable Existing Building**				**10/31/2013**	**100%**	**0%**	**0%**	**0%**	**18672**
Bldg. C903 – Combustion Research Comp/Viz (CRCV)	**Third-Party Green Building Certification**		**09/15/2011**			**100%**	**0%**	**0%**	**0%**	**8364**
Bldg. C905 – Combustion Research Office	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		42%	0%	35%	23%	37778
Bldg. C940 – Integrated Manufacturing Technology Lab Offices	Guiding Principles for Sustainable Existing Building			12/15/2015		61%	0%	27%	12%	22777
Bldg. C943 – Integrated Manufacturing Technology Lab Equipment Room	Guiding Principles for Sustainable Existing Building			Beyond 12/15/2015		54%	0%	27%	19%	7003
Bldg. C960 – Facilities Management Building	Guiding Principles for Sustainable Existing Building			12/15/2015		61%	0%	31%	8%	12260

APPENDIX C: NNSA EXCLUDED BUILDINGS AND SELF-CERTIFICATION FORM

SNL FY14 GSF: Excluded Buildings				
	NM	**CA**	**NV**	**Total**
Reported by HQ	1,150,378	—	—	1,150,378
Sandia adjusted	1,225,906	—	—	1,225,906
Note: Sandia added the two leased facilities for which SNL pays the utilities (CSRI, Hangar). Total GSF added = 75,838.				

DOE BUILDING EXCLUSION
SELF-CERTIFICATION FORM
FY2015

FROM: Sandia National Laboratories
National Nuclear Security Administration – Sandia Field Office

TO: Sustainability Performance Office

DATE: December 8, 2014

SUBJECT: SELF-CERTIFICATION FORM FOR THE ENERGY INTENSITY GOAL OF EISA 2007

Each buildings or group of buildings excluded under the criteria for a Part G or Part H exclusion is/are metered for energy consumption and their consumption is reported annually.

If any building has been excluded under the criteria for Part H for impracticability, then all practicable energy and water conservation measures with a payback of less than 10 years have been installed. A justification statement that explains why process-dedicated energy in the facility may impact the ability to meet the goal has been provided in the FIMS Report 063.

I certify that the buildings listed on the Excluded Buildings List produced by FIMS as Report 063 dated 10 November 2014 for Sandia National Laboratories in Appendix C meet the exclusion criteria in *Guidelines Establishing Criteria for Excluding Buildings* published by FEMP on January 27, 2006.

Joe Estrada
DOE Site Office Official – printed name

Joe Estrada J Estrada
DOE Site Office Official

12·08·2014
Date

Contact Information:
Joe Estrada
Title: General Engineer, Sustainability Program Manager
Phone: (505) 845-5326
Email: joe.estrada@nnsa.doe.gov

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U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22001 SNL - New Mexico

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
701	136781	PROCESS ENVIRONMENT & TECH LAB	H - Impracticability	Building	151,055	151,055
The building is driven by laboratory loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are metered and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
725	143687	SUPER COMPUTING ANNEX (SCA) (S OF 726)	G - Metered intensive loads	Building	25,232	25,232
The building is a computing facility fully process driven. The facility is metered.						
827	125799	WPNS PROD PRIM STANDARDS LAB (S OF 880)	H - Impracticability	Building	58,683	58,683
The building is driven by loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are metered and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
829	129626	COMM SWITCH BLDG	G - Metered intensive loads	Building	4,938	4,938
The building is fully process driven and includes loads that are not influenced by conventional building energy conservation methods. Building energy consumption is metered and reported annually.						
840	87266	DEV SHOP & OFFICE	E - Skewed energy usage	Building	83,070	83,070
The building is currently being evaluated for major renovation and future use. Therefore, the energy consumption will be skewed.						
840A	126504	MECHANICAL BLDG	D - Essentially only lighting	Building	252	252
The building is essentially a storage building and all energy consumption is represented by building 840.						

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

(FIMS 063)

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11/20/2013

U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22001 SNL - New Mexico

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
840C	126506	EQUIP BLDG	D - Essentially only lighting	Building	195	195
The building is essentially a storage building and all energy consumption is represented by building 840.						
858EF	203970	MESA MICROFAB - EAST FACILITY	H - Impracticability	Building	95,046	95,046
This LEED certified building implemented all life cycle cost effective measures. The building is part of a group of buildings and driven by loads that operate 24/7. It is impracticable to meet all energy reduction requirements. Building energy streams are partially metered individually and as a group and are reported annually. Audits are performed on a four year cycle to identify potential ECMs.						
858EL	203971	MESA MICROLAB - EAST LAB	H - Impracticability	Building	171,500	171,500
This LEED Silver certified building implemented all life cycle cost effective ECMs. The building is part of a group of buildings and driven by loads that operate 24/7. It is impracticable to meet all energy reduction requirements. The building energy streams are partially metered individually and as a group and are reported annually. Audits are performed to identify potential ECMs.						
858G	126529	WAREHOUSE STORAGE BLDG. (E OF 858)	D - Essentially only lighting	Building	4,000	4,000
The building is essentially a storage building and consumes very little energy consumption.						
858I	204279	MICROFAB STORAGE	D - Essentially only lighting	Building	815	815
The building is essentially a storage building and consumes very little energy consumption.						
858L	132331	858 SAFETY BUILDING	D - Essentially only lighting	Building	347	347
The building is essentially a storage building and consumes very little energy consumption. The building is metered as part of the 858 complex						

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

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U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22001 SNL - New Mexico

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
858N	140088	RADIATION-HARDENED INTEGRATED CIRCUITS	H - Impracticability	Building	179,443	179,443
Part of a group of buildings and driven by loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are partially metered individually and partially as a group and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
858S	87286	MICROELECTRONICS LAB	H - Impracticability	Building	73,452	73,452
Part of a group of buildings and driven by loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are partially metered individually and partially as a group and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
878	87312	PROCESS DEVELOPMENT LAB	H - Impracticability	Building	138,298	138,298
Part of a group of buildings and driven by loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are partially metered individually and partially as a group and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
880A	140089	COMPUTING, 880 ANNEX	G - Metered intensive loads	Building	50,197	50,197
The building is driven by process loads that are critical to fulfilling its mission. Building's natural gas metered with building 880. Electricity is separately metered.						
986	88112	COMPONENT DEVELOPMENT-LAB	G - Metered intensive loads	Building	17,615	17,615
Part of a group of buildings and driven by loads that operate 24/7. Therefore it is impracticable to meet all energy reduction requirements. The building energy streams are partially metered individually and partially as a group and reported annually. Energy and water audits are performed on a four year cycle to identify potential ECMs. ECMs are implemented as funds become available.						
AANC	125841	CITY HANGAR	C - Fully serviced lease	Building	27,018	27,018
Fully Serviced Lease						

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

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U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22001 SNL - New Mexico

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
AML Fully Serviced Lease	125835	ADVANCED MATLS LAB	C - Fully serviced lease	Building	29,753	29,753
CB4100 Fully Serviced Lease	201337	CARLSBAD-4100 NATIONAL PARK HWY	C - Fully serviced lease	Building	19,852	19,852
CERL Fully Serviced Lease	209518	CYBER ENGINEERING RESEARCH LABORATORY	C - Fully serviced lease	Building	25,450	25,450
CSRI Sandia pays for the energy of this facility under separate contract but are not allowed to make any modifications to the facility.	203796	COMPUTER SCIENCE RESEARCH INSTITUTE	C - Fully serviced lease	Building	33,500	33,500
IPB Fully Serviced Lease	140539	INTERNATIONAL PROGRAMS BLDG (aka 10600)	C - Fully serviced lease	Building	67,013	67,013
IPOC Fully Serviced Lease	204427	INNOVATION PARKWAY OFFICE CENTER	C - Fully serviced lease	Building	150,000	150,000

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

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U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22001 SNL - New Mexico

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
SSC200 Fully Serviced Lease	202691	SANDIA SYNERGY CENTER	C - Fully serviced lease	Building	3,437	3,437
SSC300 Fully Serviced Lease	203907	SANDIA SYNERGY CENTER	C - Fully serviced lease	Building	4,340	4,340
A-APTS Fully Serviced Lease	135347	POINT BARROW APARTMENTS (BLDG 354)	C - Fully serviced lease	Building	4,322	4,322
A-BARC Fully Serviced Lease	205887	ALASKA BARROW ARCTIC RESEARCH CENTER	C - Fully serviced lease	Building	1,141	1,141
MINNESOTA Fully Serviced Lease	141387	MINNESOTA OFFICE	C - Fully serviced lease	Building	8,298	8,298

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

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U.S. Department of Energy
Facilities Information Management System
Energy Consuming Excluded Buildings and Trailers List

Program Office NNSA

Site 22002 SNL - California

Property ID Justification Comments:	Real Property Unique ID	Property Name	Exclusion Part	Property Type	Gross SQFT	Excluded SQFT
C-ARB Fully Serviced Lease	135348	ARBORS APARTMENTS - CALIFORNIA	C - Fully serviced lease	Building	5,238	5,238

This report qualifies DOE Owned, DOE Leased, and Contractor Leased buildings and trailers where the Energy Consuming Metered Process (Excluded) Facilities gsft is greater than zero.

APPENDIX D: SANDIA NATIONAL LABORATORIES FY 2015 SITE SUSTAINABILITY COMMITMENTS

Sandia National Laboratories FY 2015 Site Sustainability Commitments

SSPP Goal #	DOE/NNSA Goals and Performance Measures	DOE/NNSA FY 2015 Target	Site FY 2015 Target
GOAL 1: Greenhouse Gas (GHG) Reduction			
1.1	28% Scope 1 and 2 GHG reduction by FY 2020 from an FY 2008 baseline $\frac{229{,}494\ CO2E}{573{,}736\ CO2E}$ = 40%	-19%	-40%
1.2	13% Scope 3 GHG reduction by FY 2020 from an FY 2008 baseline $\frac{2{,}834\ CO2E}{56{,}682\ CO2E}$ = 5%	-6%	-5%
GOAL 2: Sustainable Buildings			
2.1	30% energy intensity (Btu per GSF) reduction by FY 2015 from an FY 2003 baseline $\frac{58{,}360\ Btu}{194{,}534\ Btu} = 30\%$	-30%	-30%
2.2	EISA Section 432 energy and water evaluations	25% evaluated	25% evaluated
2.3	Individual buildings metering for 90% of electricity (by October 1,2012); for 90% of steam, natural gas, and chilled water (by October 1, 2015)	90% electric and 90% steam/gas/chilled water	90% electric and 70% gas/chilled water --
2.4	Cool roofs, unless uneconomical, for roof replacements unless project already has CD-2 approval. New roofs must have thermal resistance of at least R-30.	--	--
2.5	15% of existing buildings greater than 5,000 GSF are compliant with the Guiding Principles for HPSB by FY 2015 $\frac{29\ Buildings}{193\ Buildings} = 15\%$	15%	15%
2.6	All new construction, major renovations, and alterations of buildings greater than 5,000 GSF must comply with the Guiding Principles		
GOAL 3: Fleet Management			
3.1	10% annual increase in fleet alternative fuel consumption by FY 2015 relative to an FY 2005 baseline $\frac{75{,}328\ gallons}{50{,}219\ gallons} = 150\%$	159%	150%
3.2	2% annual reduction in fleet petroleum consumption by FY 2020 relative to an FY 2005 baseline $\frac{99{,}984\ gallons}{249{,}961\ gallons} = 40\%$	-20%	-40%
3.3	100% of light duty vehicle purchases must consist of AFV by FY 2015 and thereafter (75% FY 2000–2015)	75%	100%

SSPP Goal #	DOE/NNSA Goals and Performance Measures	DOE/NNSA FY 2015 Target	Site FY 2015 Target
GOAL 4: Water Use Efficiency and Management			
4.1	26% potable water intensity (Gallons per gross square foot) reduction by FY 2020 from an FY 2007 baseline $\frac{175{,}647{,}300\ gallons}{585{,}491{,}000\ gallons} = 30\%$	-16%	-30%
4.2	20% water consumption (gallons) reduction of ILA water by FY 2020 from an FY 2010 baseline	-10%	Included in above
GOAL 5: Pollution Prevention and Waste Reduction			
5.1	Divert at least 50% of non-hazardous solid waste, excluding C&D debris, by FY 2015	—	SNL/NM – 65% SNL/CA – 80%
5.2	Divert at least 50% of C&D materials and debris by FY 2015	—	SNL/NM – 80% SNL/CA – 80%
GOAL 6: Sustainable Acquisition			
6.1	Procurements meet requirements by including necessary provisions and clauses in 95% of applicable contracts	—	—
GOAL 7: Electronic Stewardship and Data Centers			
7.1	All core data centers are metered to measure a monthly PUE by FY 2015	100%	100%
7.2	Core data centers maximum annual weighted average PUE of 1.4 by FY 2015	1.40	Unknown
7.3	Power Management – 100% of eligible personal computers, laptops, and monitors with power management actively implemented and in use by FY 2012 and continuously thereafter.	100%	Unknown
7.4	Electronic Stewardship – 95% of eligible electronics acquisitions meet EPEAT standards	95%	95%
GOAL 8: Renewable Energy			
8.1	20% of annual electric consumption from renewable sources by FY 2020	9.3	9.3
GOAL 9: Climate Change Resilience			
9.1	Address DOE Climate Change Adaptation Plan goals	—	—
GOAL 10: Energy Performance Contracts			
10.1	Utilization of Energy Performance Contracts	—	N/A

APPENDIX E: DATA CENTER WHITE PAPER – FINAL DRAFT

Exceptional service in the national interest

Sandia National Laboratories

Sandia National Laboratories and Los Alamos National Laboratory

Approach to Defining and Metering Data Centers and Calculating Data Center Energy Efficiency

August 2014
Revision 0

Note: This document has **not** been submitted through Sandia National Laboratories' Formal Review and Approval process. Currently, this document is unclassified, not meant for public release.

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Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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Change Log

Rev	By	Date	Type	Change Description	Pages
0	Carol Meincke	8/8/14	New	Develop and publish white paper.	All

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Acronyms

Acronym	Definition
BTU	British Thermal Unit
CRAC	Computer room air conditioner
CRAH	Computer room air handler
DOE	Department of Energy
DR	Disaster Recovery
FY	Fiscal Year
HVAC	Heating, Ventilating, and Air Conditioning
IT	Information Technology
kW	Kilowatt
kWh	Kilowatt Hour
LANL	Los Alamos National Laboratory
NNSA	National Nuclear Security Administration
NOC	Network Operations Center
OMB	Office of Management and Budget
PDU	Power Distribution Unit
PUE	Power Utilization Effectiveness
Sandia	Sandia National Laboratories
SSP	Site Sustainability Plan
SSPP	Strategic Sustainability Performance Plan
UPS	Uninterruptible Power Supply

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1.0 Introduction

The purpose of this white paper is to answer the following questions:

- What is a data center?
- Which rooms should be metered?
- What is Power Utilization Effectiveness (PUE) and what is the best method to consistently measure it?
- What equipment/components should be metered to get an accurate PUE?
- Where should meters be installed to enable effective PUE measurements?
- How is the annual weighted average PUE calculated?

The goal is to determine common definitions for terms such as "data center," "server room," and "server" and to develop a standard, consistent, and repeatable measurement strategy that allows Sandia National Laboratories (Sandia) and Los Alamos National Laboratory (LANL) data center managers, operators, and systems administrators to monitor and improve data center energy efficiency. A consistent measurement approach will also facilitate communication of PUE among data center owners and operators across different locations and sites, different laboratories, and ultimately the National Nuclear Security Administration (NNSA) and Department of Energy (DOE) complex.

2.0 Requirements

The DOE Strategic Sustainability Performance Plan (SSPP) established agency goals associated with data centers in fiscal year (FY) 2011. These goals flow down to NNSA sites through annual DOE and NNSA Site Sustainability Plan (SSP) and Metering Plan guidance documents. The current goals from the FY14 SSP are as follows:

- All data centers are metered to measure a monthly PUE (100 percent by FY15).
- There is a maximum annual weighted average PUE of 1.4 by FY15.

The current goals from the FY13 Metering Plan are as follows:

- Independently meter 40 percent of agency data centers by October 1, 2011, working toward a goal of 100 percent by October 1, 2015.

Sandia and LANL consider the achievement of these goals high risk as the definition of data center is ever changing and unclear, and the methodology to determine PUE is inconsistent.

3.0 Definitions

The SSP and Metering Plan goals use several terms that need further definition. The most critical term is "data center." Over the years, DOE has defined "data center" in a variety of ways in multiple documents:

- In the FY12 SSP Consolidated Energy Data Report, August 2012, DOE defines "data center" as "any facility/structure/room that is greater than or equal to 500 square feet and has one or more racks of computing equipment that perform data processing, data storage, web services, etc. while a server room is defined as any facility/structure/room that is less than 500 square feet with at least one rack of computing equipment."

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Further, "regardless of classification, all DOE data centers are required to meet the SSPP performance goals."

- The DOE Sustainability Program Office and the Office of the Chief Information Officer provided the following Office of Management and Budget (OMB) definition for "data center" and recommended SSP data center reporting on September 28, 2012:

  Data center refers to a closet, room, floor, or building for the storage, management, and dissemination of data and information. Such a repository houses computer systems and associated components, such as databases, applications, and storage systems and data stores. A data center generally includes redundant or backup power supplies; redundant data communications connections; environmental controls (e.g., air conditioning, fire suppression); and special security devices housed in, leased (including by cloud providers), owned, collocated, or situated in stand-alone facilities. This definition excludes facilities exclusively devoted to communications and network equipment (e.g., telephone exchanges, telecommunications rooms). Neither square footage nor Uptime Institute tier classifications are required to define a facility as a data center. This definition of a data center applies to all agency [information technology] IT assets, mission or otherwise. See March 2012 OMB Federal Data Center Consolidation Initiative Memorandum for more detail. (This definition is per the OMB Guidance on Exhibits 53 and 300 – Information Technology and E-Government for FY14, http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/fy14_guidance_on_exhibits_53_and_300.pdf).

  Note: The OMB definition does not distinguish between a data center and a server room.

Sandia and LANL use the following definitions for server room and data center:

- **Server Room:** Any room, regardless of stated purpose, with one or more servers. Room uses a maximum of 20 kilowatts (kW) total (calculated either by using nameplate data, including all IT-related equipment in the room, or by validating that the power supply to the room is less than 20 kW), does not require cooling beyond the normal heating, ventilating, and air conditioning (HVAC) provided for a standard office, and does not require an uninterruptible power supply (UPS).

  Metering and PUE calculations - No room or IT load sub-metering required. No PUE calculations required.

- **Data Center:** Any room, regardless of stated purpose, with one or more servers. Room uses greater than 20 kW total (calculated using nameplate data, including all IT-related equipment in the room). Rooms dedicated to telecommunications (Interior Distribution Rooms or Main Distribution Rooms) are not considered data centers; however, if these rooms contain non-telecommunications IT equipment (such as servers, etc.) greater than the 20 kW total, then these rooms shall be considered data centers.

  Metering and PUE calculations - Room and IT load sub-metering and PUE calculations required in the top 75 percent of enduring data centers, based on total enduring data center IT equipment energy load. No room or IT load sub-metering or PUE calculations required in the remaining enduring data centers or other rooms meeting the definition of data center.

  Note: Servers kept for spare parts or utilized part time for testing or troubleshooting do not need to be included in the 20 kW calculation.

Sandia and LANL also use the following additional definitions:

- **Server:** A central processing unit that supports a multi-user system.

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- **Enduring Data Center:** Data center anticipated to remain active in its current location for more than three years. Enduring data centers may be corporate or line-organization owned, operated, and maintained.
- **Dedicated Data Center:** Standalone data center (room or building)
- **Mixed-Use Data Center:** Mixed use facility that contains one or more "data center" rooms
- **PUE:** PUE is a metric to measure data center energy utilization. It is the ratio of two numbers—total data center energy load over IT equipment energy load.

$$\text{PUE} = \frac{\text{Total Data Center Energy Load}}{\text{IT Equipment Energy Load}}$$

- **Total Data Center Energy Load:** Includes all IT equipment energy plus everything that supports the IT equipment using energy (physical infrastructure, including power delivery components, cooling, lighting, etc.).
- **IT Equipment Energy Load:** Includes all consumption or input energy associated with all IT equipment (computer, storage, and network equipment) and supplemental equipment (switches, monitors, workstations/laptops used to monitor or otherwise control the data center) in the data center. (See detailed description in the Section 4.0.)
- **Network Information System:** Sandia system used to track networked IT equipment

4.0 Discussion

Not all rooms meeting the definition of data center should be metered or track PUE. Sites are already having a difficult time meeting the individual building metering requirements for energy use. Sites have limited budgets for energy conservation measures. Metering is an effective way to measure energy savings but does not save energy. More effective ways to save energy in data centers include increasing room temperature, increasing chilled water temperature and implementing other innovative cooling strategies, installing energy efficient racks and servers, and eliminating and virtualizing servers.

4.1 Metering and PUE Calculation

Sites should carefully consider whether or not to sub-meter individual rooms and, within those rooms, meter individual PDUs to measure IT equipment energy use. For example, if a data center is a candidate for consolidation, metering and monthly PUE calculations should not be a requirement.

If rooms are contiguous (i.e. 880A at Sandia), metering each room separately should not be a requirement. If building energy use is dominated by data center use (i.e. MO324, 325 at Sandia), building data can be used as whole room data.

To effectively meter a data center and calculate PUE, the site has to meter at the outlet of each PDU for IT energy use and meter the whole room for total energy use. If the room uses chilled water, metering the whole room may require an electric meter and a BTU meter; a minimum of two, probably three meters.

The SNL Metering Plan estimates $14K each for an electrical meter unit and installation, $8K for a BTU meter unit and installation for a building (may be more at the room level). LANL estimates may be higher. A minimum of two electric meters (one at room level, one at each PDU to measure IT equipment energy) mean a minimum total cost of $34K to meter a room. Smaller data centers may only use $2 – 5K of energy/year. Should sites spend $34K (or more) to meter a room that uses only $2 – 5K/year in energy cost?

The cost of metering and measuring PUE goes beyond first cost. Life cycle cost issues include:

- Maintaining meters is an on-going cost which sites are struggling with.

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- Monitoring meters, collecting the data, analyzing the data, and taking action based on the data is not happening effectively.
- Monthly PUE calculating and reporting.
- Meters do not last forever. Some sites have meters which are no longer supported by the manufacturer, no longer communicate with the BAS, or are at the end of their useful life.
- Meters need calibration. Just having a meter is not enough, it needs to be reading energy use accurately.

Metering and measuring PUE is of minimal benefit in small data centers. Taking a before and after snapshot when changes are made to the data center or when a data center is consolidated may be useful. For many situations, this can be done at the building level (as long the rest of the building remains relatively constant). Monthly PUE measuring is a lot of work for minimal benefit. PUE is not an indication of how much energy is being used.

Sandia and LANL propose that:

> Room and IT load sub-metering and PUE calculations are required in the highest energy using enduring data centers comprising the top 75% of IT energy use, based on total enduring data center IT equipment energy load. No room or IT load sub-metering or PUE calculations required in the remaining enduring data centers or other rooms meeting the definition of data center.
>
> Methodology - Determine all rooms meeting the definition of data center. Determine which ones are enduring. Estimate total IT equipment energy use for each of these rooms and sum. Calculate 75% of total IT equipment energy use. Determine which data centers comprise the top 75% energy users. These will be the ones to fully meter and calculate PUE.

Large corporate data center rooms will dominate the list.

Based on the definitions in Section 3.0 and the previous discussion, those buildings or rooms that need to be metered and their PUE tracked can be determined. This section addresses how to determine the PUE and where to locate the meters.

The benefits of determining data center infrastructure efficiency as part of an effective energy management plan are widely recognized. The PUE metric has emerged as the recognized industry standard. PUE is defined as the ratio of two numbers—**total data center energy load** over **IT equipment energy load:**

$$\textbf{PUE} = \frac{\textbf{Total Data Center Energy Load}}{\textbf{IT Equipment Energy Load}}$$

While it at first appears to be a problem of simply obtaining two measurements and taking their ratio, it is rarely this simple.

The goal is to determine a standard, consistent, and repeatable measurement strategy that allows data center managers and operators to monitor and improve the energy efficiency of their data center. A consistent measurement approach will also facilitate communication of PUEs among data center owners and operators. Caution must be exercised when an organization tries to use PUE to compare different data centers across different locations and sites, different laboratories, and the NNSA and DOE complex; appropriate data analyses must first be conducted to ensure that other factors, such as levels of reliability and climate, are not impacting the PUE.

There are a number of practical issues with establishing the PUE of specific data centers. Some of the issues that can cause difficulty in classifying power-consuming subsystems as IT loads, physical infrastructure, or neither are presented below:

- Devices are encountered in data centers that draw power, but how (or if) the power data should be counted in the efficiency calculations is unclear.

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- Certain data center subsystems are not present in some data centers (e.g., outdoor lighting or network operations center [NOC]).
- Some subsystems support a mixed-use facility and are shared with other non-data center functions (e.g., cooling towers and chiller plants). Therefore, the fraction of power attributable to the data center cannot be directly measured and must be estimated. These systems may be measureable with properly placed British thermal unit (BTU) meters.
- Some subsystems are extremely impractical or costly to instrument for power consumption (e.g., power distribution units [PDUs] due to the number of output connections or switchgear)
- Some practical power measurement points include loads that are unrelated to the data center but cannot be separated during measurement.

One or more of the above practical issues are frequently present in typical data centers, especially at the room level, and are almost always present in data centers that exist in a mixed-use facility, like an office building.

For a dedicated data center, the total data center energy in the PUE equation will include all energy sources at the point of utility handoff to the data center owner or operator. For a mixed-use facility data center, the total energy will include all energy required to operate the data center, similar to a dedicated data center, as well as the energy required for cooling, lighting, and data center operations infrastructure support.

Some of the loads will need to be estimated, especially in mixed- use data centers. However, all loads should be measured if possible.

4.2 Standard Categorization of Data Center Subsystems

To perform data center PUE calculations, it is critical to clearly define which energy constitutes **IT equipment energy load** and which energy constitutes **physical infrastructure load**. Some designations are obvious, such as servers and storage devices being IT loads and UPS and cooling/air-handling units being physical infrastructure loads, but there are many power-consuming subsystems in the data center that have a less obvious designation in the efficiency calculation, including personnel spaces, switchgear, and network operations center.

If these power-consuming subsystems are not uniformly classified for all data centers, it will not be possible to directly compare computed efficiency results across different data centers. Although there are ongoing efforts to benchmark data center efficiency, accepted standards for PUE calculations have not been established. Sandia and LANL have, therefore, established standard guidelines for what is considered to be **IT equipment energy load** (included in the PUE "numerator" as part of the total data center energy load and calculated separately to be used as the PUE "denominator"), what is considered to be **physical infrastructure load** (sometimes called site infrastructure and part of the PUE "numerator"), and what is **not included** in data center PUE calculations. In addition, there are often practical issues with obtaining key data required to calculate PUEs.

The following guidelines are applied to construct the categorization system in this paper:

- If managing the energy use of a particular subsystem is a realistic and desirable outcome of data center energy management, then the subsystem load should be included in the PUE metric.
- If it is typically not practical to separate the measurement of a specific load during a measurement process, then it should not be prescribed that the specific load be separated for computation of the metric.

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- A comprehensive list of the types of devices found in a data center should be standardized, with a clear assignment of "IT equipment energy load," "physical infrastructure load," or "not included" for the purposes of data center efficiency calculations.

It should also be noted that the PUE becomes more accurate (but more difficult to measure) and results in a higher number the farther "downstream" the IT energy load is measured.

4.2.1 IT Equipment Energy Loads: Data Center IT Subsystems

Data center IT systems considered as part of the IT equipment energy load include the following:

- Servers
- Storage equipment
- Networking gear
- Keyboard video mouse and monitors
- Disaster recovery (DR) IT loads – If DR is on the same site and shares resources with the physical infrastructure, then it must be included as another business process that is supported within the main data center
- IT equipment in NOC – This load consists primarily of computers and displays for data center control; include it in the IT consumption when it is shared within the same facility and it shares grey space resources

4.2.2 IT Equipment Energy Loads: Data Center Power Subsystems

Data center power systems considered as part of the IT equipment energy load include the following:

- PDUs – This is the highest "downstream" level that can be used to measure IT load)
- Disaster recovery power systems
- Rack distribution units
- All step down transformers

4.2.3 Physical Infrastructure Loads: Data Center Power Subsystems

Power subsystems that can be found in a typical data center but are not considered IT equipment energy loads include the following:

- Switchgear and panel boards (outdoor or indoor) – Many sites do not have definitive calculations for determining switchgear power, so it would need to be estimated if included; energy, space, and resources are consumed to provide and operate this equipment and are an essential part of all data centers
- Automatic transfer switches
- Static transfer switches
- Generators, including block heaters, jacket water heaters, strip heaters, generator controls, and generator battery chargers
- UPS

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These subsystems are considered infrastructure support.

Often, alternative energy generation systems are "grid-tied" and mask the true total energy use of the data center. If alternate energy generation systems, such as wind turbines and solar panels, augment data center energy use, their energy contribution should be incorporated into PUE.

4.2.4 Physical Infrastructure Loads: Data Center Cooling Subsystems

Various cooling subsystems include, but are not limited to, the following:

- Chillers
- Chilled water pumps (primary, secondary, tertiary)
- Condenser water pumps
- Cooling towers (fans, basin heaters) – In mixed-use facilities, these items may be difficult to separate out; in these cases, a method of estimation of the assigned power to the data center is required
- Water treatment (sand filter pumps and injectors) – Water treatment includes water filtration and chemical systems.
- Pipe freeze protection (heat tape, heat trace, strip heaters)
- Air compressors – Air compressors oftentimes support pneumatic valves in chilled water plants
- Centralized humidifiers (computer room air handlers [CRAH]/computer room air conditioners [CRAC]), including fans, reheat coils, and humidification

In addition to the IT space of the data center, the following units are sometimes used to condition the mechanical and electrical rooms, which should also be accounted for:

- Condensate pumps
- Make-up air/fresh air system power
- Unit heaters – Small heaters (usually ceiling-mounted) are sometimes used in mechanical and electrical rooms during winter months
- Condensers – Condensers are used only for air-cooled CRAC units
- Dry coolers
- Supply fans, including return fans; direct and indirect air economizer; direct and indirect evaporative cooling; water-side economizer; humidifier; in-row, in-rack, and in-chassis cooling solutions
- Cooling for NOC
- Disaster recovery cooling systems
- Well pumps – Water as a resource requires energy to cool, store, and move it and considerable water can be consumed by cooling systems; some data centers pump their own water but others purchase water as a utility that is pumped by remote utility pumps
- Fire pumps
- Boilers

4.2.5 Physical Infrastructure Loads: Data Center Other Subsystems

This category includes lighting, physical security, fire protection, and other devices that are typically found within data centers but do not appear in the previous sections, including the following:

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- Lights in the data center's "white space"
- Lights in mechanical and electrical rooms
- Physical security, including fire suppression, water detection, and physical security servers/devices
- Building management systems – This includes computer-based control systems that control and monitor the building's mechanical and electrical equipment, such as ventilation, lighting, power systems, fire systems, and security systems
- Outdoor lights

These loads are not included in the PUE calculation:

- Personnel offices
- Lights in personnel areas of a data center

4.3 Estimation of Shared Resources

Correctly and consistently classifying data center energy loads is an important part of determining the PUE for a data center. However, some devices that consume power and are associated with a data center are shared resources. For example, a data center may share a chiller plant with an adjacent office building, or the data center UPS may also provide power to a call center. As much as possible, these loads should be metered to provide an accurate measurement for PUE calculations. However, even an exact measurement of the energy use of such a shared device may be unhelpful because the losses of that device associated with loads other than the data center should not be included in the PUE.

Oftentimes, when a device is shared, it is omitted from the PUE calculations. However, this omission can result in major errors, especially if the device is a major energy user, such as a chiller. Such an approach invalidates the PUE calculation for benchmarking purposes. A better strategy is to estimate (or indirectly measure) the fraction of the losses of the shared device that are associated with the data center and then use these losses in the PUE calculations. This approach can yield surprisingly accurate results.

These indirect measurements and estimations are typically made during an expert data center energy audit but can be attempted by sophisticated data center operators. Once the technique is established and documented for a specific data center, it is easy to recalculate for future measurements for efficiency trending.

4.4 Estimation of Devices Impractical to Measure

Every power-consuming device in a data center can have its energy use measured. However, it can be complex, expensive, and impractical to measure the energy use of some devices. In many cases, indirect measurement and estimation of devices can support PUE determinations in a practical and cost-effective manner.

4.5 Meter Location

Data centers are often part of a building that has multiple purposes, so it can be impossible to find either a single point to measure the total data center input power or to measure the IT load. This means that the appropriate measurement points to capture all data center energy use need to be identified, and typically the power use data from different subsystems needs to be combined to find the total data center input

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power. To further complicate the matter, some of these power measurements may be impractical to obtain, or the devices may be shared with non-data center applications.

Data center IT energy consumption should, at a minimum, be measured at the output of the PDU. PDU output is defined as the output of the PDU that serves IT equipment loads. PDU output does **not** include efficiency losses from the PDU system but does include losses from downstream electrical distribution components. It may include non-IT ancillary devices installed in IT racks, such as fans. If there is non-IT equipment supported by the PDU system (e.g., CRAC/CRAH, in-row coolers, etc.), it must be metered and subtracted from the PDU output reading.

If the data center does not have a PDU, the data center IT loads should be measured from the incoming power source on or before the secondary transformers. If these loads are measured after the transformer load, then the transformer percentage losses should be included in the calculation.

Dedicated data centers and buildings with mixed-use facility data centers should be metered at the data center point of entry for the energy stream. If the building housing a data center uses chilled water from a central utility building, a BTU meter should be installed at the data center point of entry.

4.6 Calculating PUE

PUE is a consumption-based calculation. The IT load is represented by a 12 month total kilowatt hour (kWh) reading of the PDU system output (or sum of outputs if there is more than one PDU system installed). This is a cumulative measurement and requires the use of kWh consumption meters at all measurement points. The total energy must include all energy streams that enter the data center boundary (electricity, natural gas, chilled water, etc.). In a dedicated data center building, this will include all energy captured on utility bills; for a mixed-use facility data center, all the same energy streams must be sub-metered if they cross into the data center boundary. Annual readings should reflect 12 consecutive months of energy data. This measurement method captures the impact of fluctuating IT and cooling loads.

Total annual energy is calculated as the weighted sum of the annual energy consumption for **all** energy types entering the data center at the data center boundary. In a dedicated data center building, this will include all energy captured on utility bills; for a mixed-use facility data center, all the same energy streams must be sub-metered if they cross into the data center boundary, including electricity, natural gas, fuel oil, and district utilities, such as supplied chilled water or condenser water. All energy types must be converted into the same units before they are summed. The total annual energy must also include supporting infrastructure and dedicated ancillary services.

4.7 Weighting PUE

To calculate a weighted PUE, the total input energy of all enduring data centers at a site should be divided by the total IT equipment energy load of all enduring data centers at a site.

5.0 References

- Electrical Efficiency Measurement for Data Centers, White Paper 154, Schneider Electric
- Guidance for Calculation of Efficiency (PUE) in Data Centers, White Paper, Schneider Electric
- Energy Star Portfolio Manager Data Center Guidance, Environmental Protection Agency
- Recommendations for Measuring and Reporting Overall Data Center Efficiency, Version 2 – Measuring PUE for Data Centers

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5.0 References

- Energy Essential: Rethinking Power and Cooling for the Modern Data Center, E-Guide. Tech Target
- DOE/IG-0865 Efforts by DOE to Ensure Energy-Efficient Management of its Data Centers, Audit Report, May 2012
- SNL and LANL Facilities and IT staff

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Appendix F: Water Quality Standards, TMDLs, and §303(d) List

No.	Description	Format[3]
F-1	Calculation of *E. coli* Waste Load Allocation	attached
F-2	20.6.4 NMAC: Water Quality Standards for Interstate and Intrastate Surface Waters http://water.epa.gov/scitech/swguidance/standards/wqslibrary/upload/nmwqs.pdf	hyperlink; CD with hard copy
F-3	Pueblo of Isleta Surface Water Quality Standards http://water.epa.gov/scitech/swguidance/standards/upload/2005_12_14_standards_wqslibrary_tribes_isleta_6_wqs.pdf	hyperlink; CD with hard copy
F-4	U.S. EPA Approved Total Maximum Daily Loads (TMDLs) for the Middle Rio Grande Watershed, June 30, 2010 http://www.nmenv.state.nm.us/swqb/documents/swqbdocs/MAS/TMDLs/MRG/Online/USEPA-ApprovedMRG_TMDL06-30-10.pdf	hyperlink; CD with hard copy
F-5	Appendix A of the 2014-2016 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report, U.S. EPA-Approved November 18, 2014 http://www.nmenv.state.nm.us/swqb/303d-305b/2014-2016/2014-2016NMList.pdf	hyperlink; CD with hard copy
F-6	§303(d) Integrated List Spreadsheet http://www.nmenv.state.nm.us/swqb/303d-305b/2014-2016/2014IntegratedList-ByIR_CategoryWQCC-Approved.pdf	hyperlink; CD with hard copy

[3] Hyperlinks are provided for documents readily available to the public online. Hard copies of the SWMP Plan that are made available by DOE and/or Sandia Corporation will include a compact disc (CD) containing these documents. The CD is located after the appendices cover page.

Appendix F-1

Calculation of *E. coli* Waste Load Allocation
for Sandia National Laboratories
Using the Percent Jurisdictional Approach

1. Introduction

The SNL MS4 is required by the MS4 Permit to meet total maximum daily load (TMDL) requirements for one constituent, *E. coli*. The applicable TMDL is for the Middle Rio Grande (MRG) reach that flows from the Alameda Bridge to the Isleta Pueblo boundary. The maximum amount of *E. coli* that can be discharged in any given day from the SNL MS4 is defined as the Waste Load Allocation (WLA), and is calculated based on TMDL criteria for the MRG Watershed. Each MS4 within the MRG Watershed is allowed to discharge a certain proportion of the TMDL for *E. coli* based on the drainage area (size in square miles) of the MS4. The method used to calculate numerical values for *E. coli* waste load allocations is called the Percent Jurisdiction Approach (PJA).

Detailed guidance on the TMDL, WLA, and PJA is provided in the document *US EPA-Approved TMDL for the Middle Rio Grande Watershed, June 30, 2010* (U.S. EPA, 2010; see Appendix F of the SWMP Plan). The method for calculating WLAs for MS4s within the Albuquerque Urbanized Area (UA) is summarized in Appendix B of the NPDES MS4 Permit NMR04A000. Appendix B of the Permit does not include all necessary information to understand the derivation of the WLAs, and discrepancies in the WLAs occur (presumably as errors or typos). Specifically, the WLAs for the high flow condition included the Appendix B, Section B.1 table are inconsistent with the WLAs presented in U.S. EPA, 2010. However, the WLAs presented in the Appendix B, Section B.2 table appear to be consistent with U.S. EPA, 2010. These values were used to calculate the WLAs for the SNL MS4 in accordance with the methods presented in Appendix B.

As described in further detail below, DOE and Sandia are required to determine a WLA for the portion of the SNL MS4 that falls within the Albuquerque UA. The UA consists of only a portion of the SNL MS4. Maps of the UA, MS4 area, and sampling locations proposed for evaluating TMDL compliance are included in Appendices B of the SWMP Plan.

2. Total Maximum Daily Load (TMDL)

The TMDL varies based on flow rates in the MRG; the higher the flow, then the higher the TMDL for any given day. Flow duration curves were used to establish ranges for five separate flow conditions, referred to as high, moist, mid-range, dry, and low (U.S. EPA, 2010). The flow duration curves were developed using a 35 year record (1974-2009) from a U.S. Geological Survey (USGS) flow gauge located near Central Avenue in Albuquerque, NM (USGS Gauge 08330000). The flow conditions are defined by the flow rates listed in Table 1.

Table 1: Flow conditions for the Alameda Bridge to Isleta Pueblo reach of the Middle Rio Grande

Flow Condition	High	Moist	Mid-Range	Dry	Low
Flow Rate (cfs)	> 3,360	929 to 3,360	664 to 929	319 to 664	< 319

A TMDL for each of these flow conditions was determined from water quality standards established by the New Mexico Water Quality Control Commission and the Pueblo of Isleta. From the TMDL, a Margin of Safety (MOS), Load Allocation (LA), and Total Waste Load Allocation (TWLA) is determined such that the sum of all allocations does not exceed the TMDL. The MOS is used to produce conservative allocations, in order to ensure that the TMDL is not exceeded. The general relationship can be expressed as:

TMDL = TWLA + LA + MOS

Where:

TWLA = Total Waste Load Allocation
LA = Load Allocation
MOS = Margin of Safety

The TMDLs and associated data that are relevant to the SNL MS4 (recreated from Table 4.11 in U.S. EPA, 2010) are included in Table 2 below. A detailed description of the methods used to develop the values in Table 2 can be found in U.S. EPA, 2010.

Table 2: TMDL and WLE for *E. coli*: Middle Rio Grande (Alameda Bridge to Isleta Pueblo boundary)

Flow Condition	High	Moist	Mid-Range	Dry	Low
Flow Rate (cfs)	> 3,360	929 to 3,360	664 to 929	319 to 664	< 319
TMDL (cfu/day)	5.27×10^{12}	1.65×10^{12}	9.03×10^{11}	5.77×10^{11}	1.89×10^{11}
Margin of Safety (cfu/day)	1.40×10^{12}	5.77×10^{11}	1.38×10^{11}	2.10×10^{11}	1.89×10^{9}
Total Waste Load Allocation[a] (cfu/day)	5.08×10^{11}	2.28×10^{11}	1.98×10^{11}	1.58×10^{11}	1.40×10^{11}
Load Allocation (cfu/day)	3.36×10^{12}	8.41×10^{11}	5.66×10^{11}	2.09×10^{11}	4.86×10^{10}

[a] From U.S. EPA, 2010. TWLA includes both wastewater treatment plants and MS4s.

3. Waste Load Allocations

The MS4 WLA listed in Table 2 above is the total permitted WLA for all MS4s in the MRG watershed and represents the amount of *E. coli* that can be discharged from all identified and permitted point sources. These sources include multiple MS4s as well as two wastewater treatment plants (WWTPs).

In USEPA, 2010, EPA presents separate WLAs for the WWTPs and the MS4s. The WLA for the WWTPs was determined based on effluent limitations and discharge volumes. The WLA for all MS4s combined was determined based on the total Albuquerque UA of 210.41 square miles. By dividing the MS4 WLA by the total UA (210.41 square miles), the WLA for each square mile of urbanized MS4 was determined (cfu/ square mile/day). The values for Total WLA, WWTP WLA, MS4 WLA, and normalized MS4 WLA are shown in Table 3.

Table 3: Waste Load Allocations for *E. coli*: Middle Rio Grande (Alameda Bridge to Isleta Pueblo)

Flow Condition	High	Moist	Mid-Range	Dry	Low
Total WLA (cfu/day)	5.08×10^{11}	2.28×10^{11}	1.98×10^{11}	1.58×10^{11}	1.40×10^{11}
WWTP WLA (cfu/day)[a]	1.35×10^{11}	1.35×10^{11}	1.35×10^{11}	1.35×10^{11}	1.35×10^{11}
MS4 WLA (cfu/day)	3.73×10^{11}	9.35×10^{10}	6.29×10^{10}	2.32×10^{10}	5.19×10^{9}
Normalized MS4 WLA (cfu/square mile/day)[b]	1.79×10^{9}	4.48×10^{8}	3.02×10^{8}	1.11×10^{8}	2.58×10^{7}

[a] The WWTP WLA is referred to as the NPDES WLA in U.S. EPA, 2010. [b] The normalized WLA values were obtained from Appendix B of the MS4 Permit. Independent calculations using the WLAs in USEPA, 2010 and the UA of 210.41 square miles produced slightly different values.

4. SNL Waste Load Allocation

Each MS4's allowable discharge of *E. coli* is determined by multiplying the normalized WLA by the Permittee's total UA. The total area of the Northern SNL MS4 is 1.16 square miles, but the portion of the SNL MS4 that falls within the Albuquerque UA covers only 0.54 square miles. There is one stormwater inflow monitoring location, and four stormwater discharge monitoring locations within the Northern SNL MS4. The drainage area for each monitoring location was determined using GIS. Table 4 lists the size of each area, and the WLA for each. Maps of these areas are included in Appendix B of the SWMP Plan.

Table 4: SNL MS4 and Associated WLAs.

	Area (Miles^2)	WLAs by Flow Condition				
		High	Moist	Mid-Range	Dry	Low
Albuquerque UA	210.41	3.73×10^{11}	9.35×10^{10}	6.29×10^{10}	2.32×10^{10}	5.19×10^{9}
Normalized UA[a]	1.00	1.79×10^{9}	4.48×10^{8}	3.02×10^{8}	1.11×10^{8}	2.58×10^{7}
SNL UA	0.54	9.67×10^{8}	2.42×10^{8}	1.63×10^{8}	5.99×10^{7}	1.39×10^{7}
SWMP-05	1.05	1.88×10^{9}	4.70×10^{8}	3.17×10^{8}	1.17×10^{8}	2.71×10^{7}
SWMP-02[b]	0.03	5.37×10^{7}	1.34×10^{7}	9.06×10^{6}	3.33×10^{6}	7.74×10^{5}
SWMP-24	0.08	1.43×10^{8}	3.58×10^{7}	2.42×10^{7}	8.88×10^{6}	2.06×10^{6}
SWMP-35	0.02	3.58×10^{7}	8.96×10^{6}	6.04×10^{6}	2.22×10^{6}	5.16×10^{5}
SWMP-36	0.02	3.58×10^{7}	8.96×10^{6}	6.04×10^{6}	2.22×10^{6}	5.16×10^{5}
SNL Northern MS4[c]	1.16	2.08×10^{9}	5.20×10^{8}	3.50×10^{8}	1.29×10^{8}	2.99×10^{7}

[a] Values taken from Appendix B of Permit NMR04A000 [b] The drainage area within the SNL MS4 for SWSP-02 is approximately 0.03 square miles. The total drainage area for SWSP-02 is larger; it is estimated to be approximately 0.05 square miles because a portion of the runoff from KAFB properties drains to SWSP-02. The flow at 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. [c] The SNL Northern Area is the sum of areas from SWSP-05, SWSP-24, SWSP-35, and SWSP-36.

5. TMDL Monitoring and Reporting

The Permit specifies that the TMDL applies only to areas within the Albuquerque UA, however, the SNL MS4 extends outside the boundaries of the UA. Because of stormdrain access limitations, there are no monitoring locations that can be used to assess waste load for the UA only. Therefore, DOE and Sandia propose to monitor *E. coli* for the entire SNL Northern MS4 (not just the UA), and report the WLAs for each of the five monitoring location. Additionally, the amount of *E. coli* attributable to only the portion of the MS4 within the Albuquerque UA will be estimated on a proportional per area basis.

Flow rates at SWSP-02 and SWSP-05 will be determined by direct measurement using the slope-area method described in the Bureau of Reclamation Water Measurement Manual (Bureau of Reclamation, 2001). The depth of water will be determined using either a pressure transducer or sonic sensor. The specific methods, data, and calculations used to determine flow for these two monitoring locations will be fully described in the Monitoring Plan submitted by September 22, 2015. This will provide direct measurement of flow for all inflow to the MS4 jurisdiction, as well as approximately 90% of the Northern MS4 area.

Flow at the other three monitoring locations (SWSP-24, SWSP-35, and SWSP-36) cannot easily be measured because they are in enclosed subgrade storm drains with limited access. DOE and Sandia propose to estimate flow rates at these locations based on flow rates measured at SWSP-05. The measured flow rate at SWSP-05 will be scaled based on the drainage area of each monitoring location. For example, the drainage area for water that flows to SWSP-05 is 1.05 square miles, and the drainage area for SWSP-24 is 0.08 square miles. The flow at SWSP-24 will be estimated by multiplying the flow monitored at SWSP-05 by the ratio of the capture area for SWSP-24 to the capture area at SWSP-05 as follows:

$$Flow\ at\ SWSP\ 24 = Flow\ at\ SWSP\ 5 \times \left(\frac{Drainage\ Area\ of\ SWSP\ 24}{Drainage\ Area\ of\ SWSP\ 5}\right)$$

$$Flow\ at\ SWSP\ 24 = Flow\ at\ SWSP\ 5\ \times \left(\frac{0.08}{1.05}\right)$$

This same procedure will be used to estimate flow at monitoring locations SWSP-35 and SWSP-36. Waste loads will be calculated using the flows determined as described above, in conjunction with *E. coli* concentrations determined by sampling at each individual monitoring location. The load calculation will be made using the equation provided in Appendix C of the Permit as follows:

$$Load\left(\frac{lb}{day}\right) = Flow\left(\frac{MG}{day}\right) \times Concentration\left(\frac{mg}{L}\right) \times CF$$

Where CF is a conversion factor :

$$CF\left(\frac{L - lb}{MG - mg}\right) = 10^6\left(\frac{gal}{MG}\right) \times \left(\frac{3.785L}{gal}\right) \times \left(\frac{1\ lb}{454{,}000\ mg}\right) = 8.34$$

DOE and Sandia will evaluate the calculated waste loads against the waste load allocations for each monitoring location, in addition to the Albuquerque UA, and the entire MS4.

Appendix G: Supporting Documents for Construction Site Runoff Control Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix H: Supporting Documents for Post-Construction Stormwater Management Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix I: Supporting Documents for Pollution Prevention / Good Housekeeping Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix J: Supporting Documents for Illicit Discharge Detection and Elimination Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix K: Supporting Documents for Control of Floatable Discharges Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix L: Supporting Documents for Public Education and Outreach Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix M: Supporting Documents for Public Involvement and Participation Program

This appendix is reserved for documentation of SWMP elements as they are developed or revised (and approved for public release).

No.	Description
reserved	reserved

Appendix N: Delegation of Authority

This appendix is reserved for documentation of delegation of authority.

No.	Description
reserved	reserved

Appendix O: Training Documentation

No.	Description
O-1	Stormwater Team Training Documentation and Certificates

Appendix O-1

STATE OF CALIFORNIA
DEPARTMENT OF
Consumer Affairs

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

THIS IS TO CERTIFY THAT PURSUANT
TO THE PROVISIONS OF CHAPTER 7, DIVISION 3, OF THE BUSINESS AND PROFESSIONS CODE

KAREN LEIGH AGOGINO

IS DULY REGISTERED AS A

PROFESSIONAL ENGINEER

IN

CIVIL ENGINEERING

IN THE STATE OF CALIFORNIA, AND IS ENTITLED TO ALL THE RIGHTS AND
PRIVILEGES CONFERRED IN SAID CODE

DEPARTMENT OF CONSUMER AFFAIRS
STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS
STATE OF CALIFORNIA

WITNESS OUR HAND AND SEAL

CERTIFICATE No. 34261

THIS 18TH DAY OF AUGUST 1982

STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS

James W. Bridge
SECRETARY

Mary Jane LaBelle
PRESIDENT

THIS CERTIFICATE IS THE PROPERTY OF THE STATE OF CALIFORNIA AND IN THE EVENT OF ITS SUSPENSION, REVOCATION OR INVALIDATION FOR ANY REASON IT MUST UPON DEMAND BE RETURNED TO THE STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

CISEC, Inc.
Board of Directors

certifies that

Karen Agogino

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 15th day of June, 2010

CISEC, Inc. President

CISEC, Inc. Board of Director

0516

Certification Number

CISEC, Inc.

Certificate of Course Completion

May it be known that

Carolyn Daniel

has attended four inspector training modules for 9 professional development units (9 PDUs) or 0.9 continuing education units (0.9 CEUs) as given by

Certified Inspector of Sediment and Erosion Control, Inc.

on the 14th and 15th days of November, 2012 in Albuquerque, New Mexico

CISEC, Inc. Course Instructor

Certificate of Completion

This certificate acknowledges that

Carolyn Daniel

Has satisfactorily completed training in

NPDES STORM WATER POLLUTION PREVENTION QUALIFIED PERSON

Date: **April 18, 2013**

Expiration Date: **April 18, 2017**

Hours of Instruction: **8**

Training & Safety Director

ACNM - TTCP No.: **227364**

Executive Director

Certification No.: **00479**

An Equal Employment Opportunity Program

CISEC, Inc.

Board of Directors

certifies that

Kathie Deal

has demonstrated satisfactory evidence of sediment and erosion control inspection skills and successfully passed the certification examination and therefore, as required by CISEC, Inc., is authorized to use the title of

Certified Inspector of Sediment and Erosion Control

Given this 6th day of June, 2014

CISEC, Inc. President

CISEC, Inc. Board of Director

1477

Certification Number

EnviroCert International, Inc.®

certifies that

Kathie J Deal

Subscribes to the Code of Conduct and Ethics and has met the requirements established for the CPESC® Program as a

Certified Professional in Erosion and Sediment Control™

CPESC Number: 8036

Certificate Date: December 4, 2014

Alan Black, Director, Technical Committee Chair

Robert Anderson, EnviroCert Board President

The CPESC Certification was established in 1982

CERTIFIED STORMWATER INSPECTOR

KATHIE DEAL

HAS BEEN AWARDED THIS CERTIFICATE OF ACHIEVEMENT FOR HAVING SUCCESSFULLY COMPLETED ALL REQUIREMENTS OF THE NATIONAL STORMWATER CENTER TRAINING COURSE

THIS CERTIFICATION IS EFFECTIVE FOR A PERIOD OF FIVE YEARS AND INCLUDES 1.2 CONTINUING EDUCATION UNITS (CEUs)

DISCIPLINES DEVELOPED:
STORMWATER PERMIT COMPLIANCE AND INSPECTIONS OF INDUSTRIAL ACTIVITIES, COMMERCIAL FACILITIES, CONSTRUCTION PROJECTS, AND MUNICIPAL OPERATIONS

NPDES CERTIFIED STORMWATER INSPECTOR NATIONAL STORMWATER CENTER®

POLLUTION PREVENTION
ILLICIT DISCHARGE DETECTION AND ELIMINATION
PUBLIC EDUCATION AND INVOLVEMENT
CONSTRUCTION
POST CONSTRUCTION

MICHELE LOMAX, DIRECTOR OF OPERATIONS	6014	FEBRUARY 27, 2015
	CERTIFICATE NUMBER	DATE

THE NATIONAL STORMWATER CENTER
814 BRIDLE PATH BEL AIR, MD 21014
WWW.NPDES.COM

CISEC, Inc.

Certificate of Course Completion

May it be known that

Jamie Gomez

has attended the

Certified Inspector of Sediment and Erosion Control

training modules for nine 9.0 professional development units (9.0 PDUs) or 0.9 continuing education units (0.9 CEUs) as presented on the 3rd and 4th days of August 2014 in Portland, Oregon at StormCon 14

Yolanda Leal

CISEC, Inc. Course Instructor

Certified Stormwater Inspector

Jamie Gomez

Has been awarded this certificate of achievement for having successfully completed all requirements of the National Stormwater Center training course

This certification is effective for a period of five years and includes 1.2 Continuing Education Units (CEUs)

Disciplines Developed:
Stormwater Permit Compliance and inspections of Industrial Activities, commercial facilities, Construction projects, and Municipal operations

NPDES
CERTIFIED STORMWATER INSPECTOR
NATIONAL STORMWATER CENTER®

Pollution Prevention
Illicit Discharge Detection and Elimination
Public Education and Involvement
Construction
Post Construction

Michele Lomax, Director of Operations	6015	February 27, 2015
	Certificate Number	Date

The National Stormwater Center
814 Bridle Path Bel Air, MD 21014
www.NPDES.com

ENVIROSTAT
Training in Sampling for DEFENSIBLE DECISIONS

ENVIROSTAT, INC.

Certifies that

Jamie Lynn Gomez

has completed the course

Sampling for Defensible Environmental Decisions
August 11-14, 2014
Albuquerque, New Mexico

Charles Ramsey, Instructor

www.envirostat.org / chuck@envirostat.org / PO Box 636 / Fort Collins, CO 80522 / 970-689-5700 phone / 866-349-7272 fax

Certificate of Completion

is hereby granted to:

Jamie Gomez

for participation and attendance

"Construction Site SWPPP Compliance –

learning how to run a truly compliant program "

Stormwater Conference – Portland, Oregon

Awarded: August 4, 2014

.5 PDH's completed

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL
CPESC
Jennifer L. Hildebrand
No. 1712

CERTIFIED PROFESSIONAL IN STORM WATER QUALITY
CPSWQ
Jennifer L. Hildebrand
No. 0134

Jennifer Hildebrand, Environmental Compliance Manager

CERTIFIED STORMWATER INSPECTOR

JOHN KAY

HAS BEEN AWARDED THIS CERTIFICATE OF ACHIEVEMENT FOR HAVING SUCCESSFULLY COMPLETED ALL REQUIREMENTS OF THE NATIONAL STORMWATER CENTER TRAINING COURSE

THIS CERTIFICATION IS EFFECTIVE FOR A PERIOD OF FIVE YEARS AND INCLUDES 1.2 CONTINUING EDUCATION UNITS (CEUs)

DISCIPLINES DEVELOPED:
STORMWATER PERMIT COMPLIANCE AND INSPECTIONS OF INDUSTRIAL ACTIVITIES, COMMERCIAL FACILITIES, CONSTRUCTION PROJECTS, AND MUNICIPAL OPERATIONS

NPDES
CERTIFIED STORMWATER INSPECTOR
NATIONAL STORMWATER CENTER®

POLLUTION PREVENTION
ILLICIT DISCHARGE DETECTION AND ELIMINATION
PUBLIC EDUCATION AND INVOLVEMENT
CONSTRUCTION
POST CONSTRUCTION

MICHELE LOMAX, DIRECTOR OF OPERATIONS	6016	FEBRUARY 27, 2015
	CERTIFICATE NUMBER	DATE

THE NATIONAL STORMWATER CENTER
814 BRIDLE PATH BEL AIR, MD 21014
WWW.NPDES.COM

Appendix P: MS4 Technical Advisory Group

No.	Description
P-1	Middle Rio Grande Stormwater MS4 Technical Advisory Group Memorandum of Agreement

Appendix P-1

Middle Rio Grande Stormwater MS4 Technical Advisory Group

MEMORANDUM OF AGREEMENT

A COOPERATIVE AGREEMENT, CREATING THE MIDDLE RIO GRANDE MS4 TECHNICAL ADVISORY GROUP, IN SUPPORT OF COMPLIANCE EFFORTS FOR A STORMWATER DISCHARGE PERMITTING SYSTEM FOR THE MIDDLE RIO GRANDE VALLEY IN ACCORDANCE WITH THE FEDERAL CLEAN WATER ACT.

WHEREAS, the United States Environmental Protection Agency (EPA), Region 6 regulates the discharge of stormwater from municipal separate storm sewer systems (MS4s) in New Mexico through the issuance of an MS4 permit for the Middle Rio Grande valley urbanized area under the authority of the National Pollutant Discharge Elimination System (NPDES) regulations (40CFR122); and

WHEREAS, the Middle Rio Grande area is comprised of many diverse local, state, federal and tribal entities, each with separate and distinct authority and responsibilities; and

WHEREAS, the Middle Rio Grande area entities potentially eligible for authorization under the proposed NPDES General Permit No. NMR04A000 (hereinafter "MS4 Permit"), and therefore are eligible to enter into this Memorandum of Agreement (hereinafter "Agreement") in furtherance of the requirements of the MS4 Permit, are the City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), University of New Mexico, New Mexico Department of Transportation District 3, Bernalillo County, Sandoval County, Village of Corrales, City of Rio Rancho, Los Ranchos de Albuquerque, Kirtland Air Force Base, Town of Bernalillo, State Fairgrounds/Expo New Mexico, the Southern Sandoval County Arroyo Flood Control Authority (SSCAFCA), the Eastern Sandoval County Arroyo Flood Control Authority (ESCAFCA), Sandia National Laboratories/Department of Energy, Pueblo of Sandia, Pueblo of Isleta, and Pueblo of Santa Ana (collectively "Stormwater Management Entities"); and

WHEREAS, the proposed MS4 Permit encourages cooperative efforts among separate local, state, federal and Tribal governments to reduce the amount of pollutants discharged with stormwater from the Middle Rio Grande urbanized area MS4s; and

WHEREAS, continued cooperation among the Stormwater Management Entities in the MS4 Permit offers an enhanced opportunity for each entity to remain aware of the requirements in the MS4 Permit and facilitate compliance with conditions of the permit;

NOW, THEREFORE, BE IT AGREED THAT:

1. The signatories to this Agreement (hereinafter collectively referred to as "Parties" and individually referred to as "Party") support and encourage a cooperative commitment to assist one another with technical issues regarding compliance with the MS4 Permit and agree to form the Middle Rio Grande MS4 Technical Advisory Group (MS4TAG).

2. The purpose of the MS4TAG will be to exchange technical information regarding compliance with the MS4 Permit, exchange ideas among Parties regarding compliance efforts, and exchange information regarding illicit discharges detected within each Party's jurisdiction. The MS4TAG shall have no binding financial authority and shall be strictly advisory in nature.

3. Nothing in this Agreement shall be construed as obligating a Party to this agreement to expend funds for any purpose, and no Party shall be required to contribute any funds in order to participate in this Agreement. In the event the Parties determine that any joint expenditure of funds among multiple Parties becomes necessary in order to comply with the requirements of the MS4 Permit, a separate agreement shall be entered into between the affected Parties regarding any and all such expenditures at that time.

4. The term of this Agreement shall run from the date the MS4 Permit is issued by the EPA until the date the MS4 Permit is terminated or expires, whichever occurs first. This Agreement may be terminated in its entirety at any time upon the mutual agreement of all of the then-existing Parties to this Agreement. In the event any Party wishes to withdraw from this Agreement without terminating the other Parties' interests in this Agreement, withdrawal shall become effective upon ninety (90) days prior written notice to the other Parties. Withdrawal shall fully and completely terminate that Party's interest in and obligations under this Agreement. Following any Party's withdrawal, this Agreement shall continue in full force and effect as to all remaining Parties to the extent possible.

5. This Agreement does not address the "Public Education and Outreach" or "Cooperative Sampling" sections of the MS4 Permit. Any MS4TAG efforts regarding either of these sections of the MS4 Permit under this Agreement shall be strictly in furtherance of the spirit of cooperation intended among the Parties. Each Party acknowledges its obligations under the "Public Education and Outreach" and "Cooperative Sampling" sections of the MS4 Permit are separate and apart from its activities under this Agreement, and a separate agreement will be required for any collaboration among the Parties with respect to those permit requirements.

6. The Parties will appoint two (2) Co-Coordinators from among the Parties, one of which must be from a Party located within the Bernalillo County geographical area and one of which must be from a Party located within the Sandoval County geographical area. Appointment of a Co-Coordinator shall be by majority vote of the voting Parties, with only those Parties located in the county of Bernalillo voting on the Co-Coordinator from that area, and only those Parties located in the county of Sandoval voting on the Co-Coordinator from that area. Co-Coordinators must be appointed annually in each subsequent permit year, or earlier if the position becomes vacant for any reason. For the New Mexico Department of Transportation District 3, which operates stormwater management facilities in both counties, for the purposes of this section, they shall select one county affiliation in year one of the agreement and alternate affiliations is subsequent years of this Agreement. The Co-Coordinators will be expected to coordinate the Parties' efforts under this Agreement, including facilitating meetings of the MS4TAG at least monthly for the first year of the MS4 Permit. In years two through five of the permit, the frequency of meetings may be reduced to quarterly with additional meetings called as necessary to discuss issues regarding MS4 Permit compliance.

7. Each Party shall be entitled to one (1) vote on any action items.

8. This Agreement creates no obligations on behalf of any Party to any other Party to this Agreement, including for any requirements imposed or determinations made by EPA. The Parties acknowledge and agree that each shall at all times remain individually liable for full compliance with the requirements of the MS4 Permit, including EPA's determination regarding the implementation schedule.

9. This Agreement may be modified in writing at any time upon the mutual agreement of the Parties.

10. Parties can be added at any time during the life of this Agreement. A potential future Party's submittal of a signature page to the Co-Coordinators and approval by the Co-Coordinators shall add the Party to the Agreement.

Approved as to Form:

Bernard P. Metzgar
SSCAFCA Attorney

Date: 10/04/13

Southern Sandoval County Arroyo
Flood Control Authority

Date: 10/18/13

Donald Rudy, Chairman

City of Rio Rancho

Approved as to Form:

City Attorney

Date: 10/4/13

Recommended By:

Dolores Wood, Director

Date: 11.4.13

Approved By:

Keith Riesberg, City Manager

Date: 11/1/13

Approved as to Form:

George Perez
Town of Bernalillo Attorney

Date: 10/15/2013

Mayor Jack Torres, Town of Bernalillo

Date: 10/14/13

Attest: Date: 10/14/13
Ida Fierro, Town Clerk

VILLAGE OF CORRALES

By: _____ 10·08·13
Philip Gasteyer, Mayor Date

Attest:

_____ 10-08-2013
Juan Reyes, Village Clerk Date

IN WITNESS WHEREOF, the undersigned have caused this Agreement to be executed.

Albuquerque Metropolitan Arroyo Flood Control Authority

Date: 10/24/2013

Tim Eichenberg
Chair of the Board of Directors

Attest:

Bruce Thomson
Secretary/Treasurer

Date: 10/24/13

VILLAGE OF LOS RANCHOS DE ALBUQUERQUE

Date: November 14, 2013

LARRY P. ABRAHAM
MAYOR

(SEAL)

STEHANIE DOMINGUEZ
VILLAGE CLERK

Accepted on behalf of:

U.S. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
SANDIA FIELD OFFICE

By: _____ 14 NOV 2013
Geoffrey L. Beausoleil Date
Manager

MIDDLE RIO GRANDE STORMWATER
MS4 TECHNICAL ADVISORY GROUP
FINAL

Approved as to Form:

Bernard P. Metzgar
ESCAFCA Attorney

Date: 11/14/13

Eastern Sandoval County Arroyo Flood Control Authority

Date: NOV. 19, 2013

Salvador Reyes, Chairman

UNIVERSITY OF NEW MEXICO

Approved by:

Date: 12/12/13

David Harris, Executive Vice President

Recommended by:

Carla P. Domenici Date: 12-10-13

Carla P. Domenici, Director
Safety and Risk Services Department

New Mexico Department of Transportation

Approved By:

Tim Parker

Date: 12/22/13

Timothy L. Parker, M.S., P.E.
NMDOT District Three Engineer

Approved As To Form Only:

Date: 12/18/2013

Ken Swain, Assistant General Counsel
Office of the General Counsel

BC CCN 2014-0069

BERNALILLO COUNTY

Motion to: Approve a Memorandum of Agreement (MOA) joining the County with other local entities participating in the Middle Rio Grande MS4 Technical Advisory Group (MS4TAG).

Approved this 28th day of January, 2014

BOARD OF COUNTY COMMISSIONERS

Debbie O'Malley, Chair

Art De La Cruz, Vice Chair

Maggie Hart Stebbins, Member

Lonnie C. Talbert, Member

Wayne A. Johnson, Member

APPROVED AS TO FORM:

County Attorney

Date: 1/28/14

ATTEST:

Maggie Toulouse Oliver, County Clerk

Date: 1/28/14

BERNALILLO COUNTY COUNTY CLERK SEAL STATE OF NEW MEXICO

Approved as to Form:

Patrick F.Trujillo
Sandoval County Attorney

Date: 1/27/2014

Sandoval County

Date: 2/6/2014

Phillip Rios, County Manager

MIDDLE RIO GRANDE STORMWATER
MS4 TECHNICAL ADVISORY GROUP
FINAL

10-07-13

Approved as to Form:

David Tourek
City Attorney

Date: 2/24/14

Recommended By:

Michael J. Riordan, P.E.
Director, Department of Municipal Development

Date: 2/26/14

Approved By:

Robert J. Perry
Chief Administrative Officer

Date: 3/4/14