FACT SHEET AND SUPPLEMENTAL INFORMATION

FOR THE REISSUANCE OF A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER GENERAL PERMIT FOR SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) IN THE STATE OF NEW MEXICO (NMR040000)

June 23, 2015

U.S. Environmental Protection Agency
Region 6
1445 Ross Ave.
Dallas, TX 75202

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FACT SHEET AND SUPPLEMENTAL INFORMATION

I. SUMMARY

The Director of the EPA Region 6 Water Quality Protection Division is proposing reissuance of NPDES general permit ID NMR040000 for storm water discharges from small municipal separate storm sewer systems (MS4s) located in the State of New Mexico, except those MS4s located in the Middle Rio Grande Watershed in the permit area of NPDES Permit NMR04A000, Indian lands, Los Alamos County, or within the area of another MS4 permit. MS4s located in Middle Rio Grande Watershed and Indian lands are coverage under the NPDES permit ID NMR04A000. The proposed permit offers discharge authorization to regulated MS4s within the boundaries of the Bureau of the Census-designated 2000 and 2010 Farmington, Santa Fe, Los Lunas, Las Cruces and El Paso Urbanized Areas and any other MS4s in the State of New Mexico designated by the Director as needing a MS4 permit, other than those primarily located in Los Alamos County. This permit is intended to replace the expired general permits NMR040000.

At the time general permit NMR040000 was issued, general permit NMR04000I was issued for MS4s on Indian Country in New Mexico and general permit OKR04000I was issued for MS4s on Indian Country lands in Oklahoma. MS4 General Permit OKR04000I expired June 30, 2012, without any MS4s submitting a Notice of Intent to be covered. Since no MS4 operators took advantage of the authorization offered by that permit during its five year term and there are no administratively continued permittees covered by the permit, EPA Region 6 considers the permit terminated as of the expiration date. Any MS4 operators on Indian Country lands in Oklahoma requiring permit coverage should contact EPA Region 6 for information on how to obtain permit coverage.

II. BACKGROUND

The following is an overview of the basic requirements of the NPDES storm water permit program and the requirements of the general permit. Additional information may be obtained via the EPA Storm Water Program website at: http://www.epa.gov/npdes/stormwater.

A. Basis for Permit Conditions

1. Statutory and Regulatory Basis for Permit Conditions

The discharge control conditions established by this permit are based on Section 402(p)(3)(B) of the Act which mandates that a permit for discharges from MS4s must effectively prohibit the discharge of non-stormwater to the MS4; and require controls to reduce pollutants in discharges from the MS4 to the maximum extent practicable (MEP) including best management practices (BMPs), control techniques, and system, design and engineering methods, and such other provisions as the Administrator or the State deems appropriate for the control of pollutants. MEP is the statutory standard that established the level of pollutant reductions that both Phase I and Phase II MS4 operators must achieve. MS4 permits requiring implementation of Best Management Practices (BMPs) addressing the Six Minimum Control Measures at 40 CFR 122.34(b) are generally deemed to be an appropriate means of meeting the MEP standard. The overall intent of the permit conditions is to

support the statutory goals of Section 101 of the Act to restore and maintain the chemical, physical and biological integrity for the Nation's waters. The 1987 Water Quality Act (WQA) amended the Clean Water Act (CWA) by adding section 402(p) which requires that NPDES permits be issued for various categories of storm water discharges. Section 402(p)(2) requires permits for five categories of storm water discharges, commonly referred to as Phase I of the NPDES Storm Water Program. Included in Phase I are discharges from large MS4s (systems serving a population of 250,000 or more and medium MS4s (systems serving a population of 100,000 to 250,000). Phase I regulations (40 CFR 122.26) published November 16, 1990 (55 FR 47990) addressed discharges from large MS4s. The proposed permit does not offer coverage to large MS4.

Section 402(p)(6) of the CWA requires permitting for certain additional storm water discharges (Phase II of the storm water program) to protect water quality. EPA promulgated final Phase II storm water regulations on December 8, 1999 (64 FR 68722). These regulations set forth the additional categories of discharges to be permitted and the requirements of the program. The additional discharges to be permitted included small MS4s located in Urbanized Areas designated by the Bureau of the Census and those designated by the Director on a case-by-case basis to protect water quality. Provisions and criteria for waivers were included for MS4s with a population under 1,000 (40 CFR 122.32(d) and under 10,000 (40 CFR 122.32 (e). These waivers must be reconsidered every five years.

Section 402(p)(3)(B) of the Act is silent on the issue of compliance with water quality standards for MS4 discharges. Protection of water quality and compliance with TMDLs are addressed through the CWA 402(p)(3)(B)(iii) authority for "other such provisions as the Administrator deems appropriate for the control of pollutants." Note also that under section 402(p)(6), "stormwater discharges" from certain small MS4s were designated "to be regulated to protect water quality . . .". On August 1, 1996, EPA issued the Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits policy that addressed use of Best Management Practices (BMPs) in storm water permits to provide for attainment of water quality standards. The memorandum explains the rationale being implemented for the permit. As described in the memorandum, the Clean Water Act (Act) does not always require numeric effluent limitations to meet technology and water quality requirements. Section 502 defines "effluent limitations" to mean any restriction on quantities, rates and concentrations of constituents discharged from point sources. EPA has, through regulation, interpreted the statute to allow non-numerical limitations to supplement or replace numeric limitations in specific instances that meet the criteria at 40 CFR §122.44(k). This is consistent with the court's decision in NRDC v. Costle, 568 F.2d 1369 (D.C. Cir. 1977), in which the court held that EPA need not establish numeric effluent limitations where such limitations were infeasible. In September 1999, the Ninth Circuit Court addressed the water quality standards issue and ruled that water quality standards compliance by MS4s is discretionary on the part of the permitting authority (Defenders of Wildlife v. Browner, 191 F.3d 1159 (9th Cir. 1999)). On November 26, 2014 the Director of EPA's Office of Wastewater Management clarified NPDES permit requirements based on Total Maximum Daily Loads (TMDLs) addressing storm water sources in Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs memo to regional Water Division Directors. .Where the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations as necessary to meet water quality standards. For the purpose of the 2014 Memorandum, and in the context of NPDES permits for stormwater discharges, "numeric" effluent limitations refer to limitations with a quantifiable or measurable parameter related to a pollutant (or pollutants). Numeric WQBELs may include other types of numeric limits in addition to end-of-pipe

limits. Numeric WQBELs may include, among others, limits on pollutant discharges by specifying parameters such as on-site stormwater retention volume or percentage or amount of effective impervious cover, as well as the more traditional pollutant concentration limits and pollutant loads in the discharge. . With respect to requirements for post-construction stormwater management, consistent with guidance in the 1999 Phase II Rule, EPA recommends, where feasible and appropriate, numeric requirements that attempt to maintain pre-development runoff conditions (40 CFR § 122.34(b)(5)) be incorporated into MS4 permits. Note that this permit is certainly not the only one across the nation with post-construction design standards and water quality-based requirements (see *Post-Construction Performance Standards & Water Quality-Based Requirements*, EPA 833-R-14-003, June 2014).

The permit includes conditions requiring controls to mimic predevelopment runoff for up to the 90th percentile storm event associated with new development sites and 80th percentile storm event associated with redevelopment sites intended to reduce the pollutants in discharges from new or significant re-development sites. The controls will also have benefits for flood control and reduction on impacts on natural channels due to changes in hydrology. Note that there are a number of places in section 402(p) where "stormwater discharges" rather than "pollutants" are covered. For example, under section 402(p)(1) and (2), "stormwater discharges composed entirely of stormwater" from large and medium MS4s are required to have NPDES permits. Under section 402(p)(6), "stormwater discharges" from certain small MS4s were designated "to be regulated to protect water quality . . .". Even in section 402(p)(3)(B)(iii) where the statute requires that MS4 permits include "controls to reduce pollutants" in MS4 discharges, the means for requiring reduction in pollutants includes "management practices, control techniques and system design and engineering methods, . . .".

As authorized by 40 CFR 122.44(k), the permit utilizes controls in the form of a comprehensive SWMP, as the mechanism to implement the statutory requirements. Section 402(p)(3)(B)(iii) of the Act clearly includes structural controls as a component of the MEP requirement. EPA encourages permittees to explore opportunities for pollution prevention measures, while reserving the more costly structural controls for higher priority watersheds, or where pollution prevention measures are unfeasible or ineffective. See Table 1 for a list of potential permittees.

References to regulations at 40 CFR 122 are those effective as of May 26, 2015.

Table 1. Potential Permittees Eligible for Coverage under the Permit.

Permittee Class Type	**Description**	**Entity**
Class B	MS4s designated under 40 CFR 122.32(a)(1). Based on 2000 Decennial Census Map	<u>*Farmington Urbanized Area*</u>: - City of Farmington - San Juan County (CDPs *: Flora Vista, Lee Acres, Spencerville, West Hammond) - City of Aztec - New Mexico Department of Transportation (NMDOT) – District 5 <u>*Santa Fe Urbanized Area*</u>: - City of Santa Fe - Santa Fe County (CDPs *: Agua Fria and La Cienaga)

		- New Mexico Department of Transportation (NMDOT) – District 5 <u>*Las Cruces Urbanized Area*</u> - Town of Mesilla - New Mexico State University - Dona Ana County (CDPs *: Village of Dona Ana, San Ysidro, Fairacres, San Pablo, University Park, Organ) - City of Las Cruces - New Mexico Department of Transportation (NMDOT) – District 1 <u>*El Paso Urbanized Area*</u> - City of Anthony - Dona Ana County (CDPs *: City of Santa Teresa, Mesquite, Vado, Berino) - City of Sunland Park - New Mexico Department of Transportation (NMDOT) – District 1
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 **	*Los Lunas Urbanized Area* - Belen - Los Lunas - Bosque Farms - Village of Peralta - Valencia County (CDPs *: Meadow Lake, El Cerro Mission, El Cerro, Los Chaves, Tome Adelino, Los Trujillos Gabaldon, Rio Communities, Jarales, Las Maravillas, Sausal) - New Mexico Department of Transportation (NMDOT) – District 1

* CDP Census Designated Place are delineated solely to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located. CDPs are populated areas that lack separate municipal government, but which otherwise physically resemble incorporated places. In terms of implementing the NPDES storm water program, it should be noted that the Counties should include those areas as part of their jurisdictional areas.

** Some areas previously under the jurisdiction of counties have or may incorporate and thus could change who has operational control of the MS4 discharges and thus is the entity requiring permit coverage

2. **Discharge goals**

MS4s expected to be covered by this permit would discharge into waters under the jurisdiction of the State of New Mexico. The State of New Mexico has EPA-approved water quality standards. The goal of the permit is for implementation of the SWMP and other permit conditions to provide a reasonable

assurance that the permitted activity will be conducted in a manner which will not violate applicable Water Quality Management Plan and Water Quality Standards, including but not limited to the following:

No discharge of toxics in toxic amounts. It is the National Policy that the discharge of toxics in toxic amounts be prohibited (Section 101(a)(3) of the Act). The State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4.13 F.) state that "Surface waters of the State shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can be reasonably expected to bio-accumulate in tissues of fish, shellfish, and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odor or health risks to human consumers of aquatic organisms."

No discharge of pollutants in quantities that would cause a violation of State or Tribal water quality standards. Section 301(b)(1)(C) of the Act and 40 CFR 122.44(d) require that NPDES permits include "...any more stringent limitations, including those necessary to meet water quality standards, treatment standards, or schedule of compliance, established pursuant to State law or regulations. EPA is using CWA 402(p)(3)(B)(iii) authority for "other such provisions as the Administrator deems appropriate for the control of pollutants" to include permit requirements supporting protection of water quality standards and compliance with TMDLs.

No discharge of floatable debris, oils, scum, foam, or grease in other than trace amounts. The State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4.13 B) states that "Surface waters of the State shall be free of oils, scum, grease and other floating materials resulting from other than natural causes that would cause the formation of a visible sheen or visible deposits on the bottom or shoreline, or would damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life."

No discharge of non-stormwater from the municipal separate storm sewer system, except in accordance with Part I.A.4. Permits issued to MS4s are specifically required by Section 402(p)(3)(B) of the Act to "...include a requirement to effectively prohibit non-stormwater discharges into the storm sewers..." 40 CFR 122.26(d)(2)(iv)(B)(1) and 122.34(b)(3)(iii) allows the permittee to accept certain non-stormwater discharges where they have not been identified as significant sources of pollutants. The definition of "illicit discharge" at 40 CFR 122.26(b)(2) excludes discharges subject to its own NPDES permit, so such permitted non-storm water discharges would not be subject to the prohibition on non-stormwater.

No degradation or loss of State or Tribal -designated uses of receiving waters as a result of stormwater discharges from the municipal separate storm sewer (unless authorized in accordance with the State or Tribal Antidegradation Policy). The State of New Mexico and the Navajo Nation have adopted Antidegradation Policies and Implementation Plans as part of their Water Quality Standards which provide for maintenance of existing in-stream water uses; existing water quality levels where existing water quality exceeds the levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water (except where the State or Tribe has determined that lowering water quality is necessary to accommodate important economic or social development in the area where the waters are located); existing water quality where high quality waters constitute an outstanding national or tribal resource (e.g. waters of National and State parks and wildlife refuges or exceptional recreational or ecological significance); and compliance with

Section 316 of the Act where potential water quality impairment is associated with a thermal discharge.

EPA Region 6 is unaware of any discharges that would be directly to waters under the jurisdiction of a Tribe (Tribal waters), but Tribal waters may be located downstream of discharge points. For example, the San Juan River flows through the Navajo Nation downstream of the Farmington Urbanized Area; some arroyos and drains may flow downstream of the Santa Fe UA to the Pueblo of Cochiti' s waters. Permit conditions are also expected to be protective of downstream Tribal waters.

B. **Existing Stormwater Permits in the State of New Mexico**

1. **Region 6 Middle Rio Grande Watershed Based MS4 Permit**

Medium and large MS4s are subject to the permit application requirements found at 40 CFR 122.26(d) unless a general permit is available. Previously, Phase I permittees in Albuquerque were covered by an individual permit (NMS000101) based on information submitted in the permit application. Information required in the application included a physical description of the MS4, legal authority of the MS4 operator, a characterization of the surrounding sources and the pollutants found in the storm water discharge, and a description of fiscal resources. Co-permittees with the City of Albuquerque (COA) included the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA); University of New Mexico; and New Mexico State Highway Transportation Department.

The most significant portion of the application is the development of a proposed storm water management program that meets the standard of "reducing pollutants to the Maximum Extent Practicable (MEP)." Storm water management programs for medium and large MS4s include measures to:

- Identify major outfalls and pollutant loadings;
- Detect and eliminate non-storm water discharges to the system;
- Reduce pollutants in runoff from industrial, commercial, and residential areas; and
- Control storm water discharges from new development and redevelopment areas.

On December 11, 2014, EPA Region 6 announced issuance of the NPDES general permit (NMR04A000) for storm water discharges from MS4s located in the Middle Rio Grande watershed in the State of New Mexico. The permit offers discharge authorization to regulated MS4s within the boundaries of the Bureau of the Census-designated 2000 and 2010 Albuquerque Urbanized Areas and any other MS4s in the watershed designated by the Director as needing a MS4 permit, including the City of Albuquerque and its former co-permittees. Permit NMR04A000 is intended to replace both the individual NPDES Permit NMS000101 issued on January 31, 2012, and the expired general permits NMR040000 and NMR04000I for dischargers in this watershed area.

Permit NMR04A000 was designed to accommodate a general permit approach using a Notice of Intent (NOI) to be covered by the general permit in lieu of an individual permit application. The operator of a regulated MS4 must include with its NOI, summaries of its chosen BMPs and measurable goals for each minimum control measure. The NOI may include schedules to fully develop and implement the stormwater program consistent with compliance schedules included in the permit. To help identify the most appropriate BMPs for programs, EPA has posted a list of BMPs that can be used to meet the Stormwater Phase II Rule's six minimum control measures to serve as guidance.

(http://water.epa.gov/polwaste/npdes/swbmp/index.cfm)

2. **Region 6 Small MS4 Permit**

Phase II small MS4s operators in the State of New Mexico and Indian Lands would have previously been covered by (or could have been covered by) the final general permits for small MS4s in New Mexico (NMR040000) and Indian Country in New Mexico (NMR04000I) that were issued on May 31, 2007, and expired June 30, 2012. Known potential MS4s covered by this general permit include the City of Farmington, San Juan County, City of Aztec, New Mexico Department of Transportation (NMDOT), City of Santa Fe, Santa Fe County, Town of Mesilla, New Mexico State University, Dona Ana County, City of Las Cruces, Village of Dona Ana, City of Anthony, City of Santa Teresa, and City of Sunland Park. . Note that an NPDES permit cannot establish an independent duty to apply for a permit – only those MS4s required by statute and implementing regulations to have a permit will need permit coverage, so it possible that not all listed entities will require a permit.

C. **Waivers for Small MS4s in Urbanized Areas**

The Phase II regulations at 40 CFR 122.32(d) and (e) provides a mechanism for granting permitting waivers from needing a permit for automatically designated small MS4s in urbanized areas provided the following criteria can be met:

1. MS4s with a Population Less than 1,000 Within the Urbanized Area

Available where the MS4 is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program; and

If discharges include any pollutant(s) that have been identified as a cause of impairment of any receiving water body, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established "total maximum daily load" (TMDL) that addresses the pollutant(s) of concern.

2. MS4s with a Population of Under 10,000 Within the Urbanized Area

Available where the permitting authority has evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from the MS4;

For all such waters, the permitting authority has determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern. Pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that receives a discharge from the MS4; and

The permitting authority has determined that future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

3. **Claiming Waivers**

As described above, waivers may generally be granted for MS4s with a population of 1,000 to 10,000 only if comprehensive information is available showing that current and future MS4 discharges would not be a threat to water quality. For the MS4s with a population less than 1,000, however, a waiver may generally be granted unless the MS4 is contributing substantially to the pollutant loadings of a physically interconnected regulated MS4s or is discharging a pollutant of concern directly to an impaired water (unless a TMDL has been approved finding MS4 controls are not needed). Eligible MS4s wishing to obtain a waiver should submit information required in Addendum B to:

William K. Honker P. E.
Director Water Quality Protection Division (6WQ)
Environmental Protection Agency
1445 Ross Ave, Suite 1200
Dallas, TX 75202-2733

Only the portion of a MS4's population located within an urbanized areas is used for deciding whether or not a waiver may be available. Maps of urbanized areas are available at http://cfpub.epa.gov/npdes/stormwater/urbanmaps.cfm. See Section E below for guidance on estimating population for state and federal facilities. The New Mexico Environment Department CWA 303(d) list of impaired waters is available online at http://www.nmenv.state.nm.us/.

D. **Facilities Operated by the Federal or State Government, or Other Public Entity**

The definition of a small MS4 in the Phase II regulations (40 CFR 122.26(b)(16)(iii)) includes storm sewers at facilities operated by the Federal or State government (or other public entities such as a sewer or port district) such as military bases, universities, hospitals and prisons. However, the definition does not include facilities which consist of very discrete areas, such as an individual post office; elementary, middle, or high school; state, county or federal building; etc. which do not have a "system" of municipal storm sewers. For example, a few buildings in a complex (e.g. a federal or state courthouse) and their associated parking lots and driveways with storm drains connecting to the surrounding city's MS4 would not be likely to operate a MS4. On the other hand, a military base with interior roads and storm sewer infrastructure operated by the base would have an MS4.

Potentially affected facilities within urbanized areas are also eligible for the permitting waiver discussed above in Section II.D based on population. The Phase II regulations do not provide guidance on how to determine population for these facilities. Region 6 believes that a reasonable method is to combine the total resident population and the number of full-time workers. Facility operators should use this method to determine their population, and the applicability of the Phase II regulations to their specific facilities.

It should also be noted that county or city facilities (such as hospitals or prisons) with systems of separate storm sewers that are located within a permitted area for the same county or city generally would not need a separate permit. The discharges from these facilities would be covered by the county or city-wide MS4 permit. However, if a county or city operates a facility with a system of separate storm sewers within a municipal separate storm sewer system and the facility is outside its permitted area (e.g., county hospital complex located in an incorporated city, etc.), the facility would also need permit coverage for that facility. This extended coverage under on NOI is available by indicating on the MS4 map that those facilities are considered part of the larger MS4 and including applicable conditions for the facilities in the operator's SWMP rather than filing a separate NOI for that facility. Facilities with regulated discharges

of storm water associated with industrial or construction activities do require separate permit coverage based on those activities, which could be obtained by the currently available general permits for storm water associated with construction activity (NMR120000/NMR12000I) and storm water associated with industrial activity (NMR050000/NMR05000I).

E. Environmental Impacts of Discharges from MS4s

1. National Reports and Studies

The 1987 decision by Congress to require NPDES permitting for the storm water discharges discussed above was based on a growing awareness of the environmental significance of nonpoint sources of pollutants. For example, EPA's report entitled "National Water Quality Inventory, 1998 Report to Congress" (EPA, 2000) shows that storm water related discharges from non-point and point sources are the leading causes of existing water quality impairments.

The Nationwide Urban Runoff Program (NURP), which was sponsored by EPA in the years 1978 through 1983, also showed that storm water runoff is a significant source of pollutants (EPA, 1983). The study identified 77 priority toxic pollutants in storm water runoff discharged from residential, commercial and light industrial areas. Of these toxic pollutants, heavy metals such as copper, lead and zinc were detected most frequently and at levels of greatest concern. More information and copies of documents with additional information on the environmental impacts of storm water discharges are available via EPA's storm water web page at www.epa.gov/npdes/stormwater.

More recently, EPA asked the National Research Council (NRC) to conduct a review of its stormwater program, considering all entities regulated under the program, i.e., municipal, industrial and construction. In October 2008, the National Research Council released the report Urban Stormwater Management in the United States (The National Academies Press, 2009) finding, among other things, that "the rapid conversion of land to urban and suburban areas has profoundly altered how water flows during and following storm events, putting higher volumes of water and more pollutants into the nation's rivers, lakes, and estuaries. These changes have degraded water quality and habitat in virtually every urban stream system.

This report recommends a number of actions, including conserving natural areas, reducing hard surface cover (e.g., roads and parking lots—impervious surface areas), and retrofitting urban areas with features that hold and treat stormwater (NRC, Report in Brief, 2008). The Report in Brief can be accessed at: http://dels.nas.edu/dels/rpt_briefs/stormwater_discharge_final.pdf. A full copy of the report can be obtained from The National Academies Press, http://books.nap.edu/catalog.php?record_id=12465. A prepublication copy is available at: http://www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf.

EPA shares the NRC Committee's perspective that it is imperative that the stormwater regulations be as effective as possible in protecting water quality. The NRC Report has provided EPA with the opportunity to reexamine the effectiveness of its stormwater programs, some of which are nearly 20 years old. For instance, EPA is interested in assessing the level of accountability that the regulations and the permits issued under the regulations provide to MS4s to minimize the discharge of pollutants in stormwater. The role of MS4s in reducing stormwater impacts from the built environment is crucial and growing, given that these sources of adverse water quality impacts are continually expanding. As the urban, suburban and exurban human environment expands, there is an increase in impervious land cover and therefore an

increase in stormwater discharges. This increase in impervious land cover reduces or eliminates the natural infiltration of precipitation, which greatly increases the volume of stormwater discharges. This increased volume of stormwater discharges results in the scouring of rivers and streams; degrading the physical integrity of aquatic habitats, stream function and overall water quality. In addition, the increase in impervious land cover results in the increase of the pollutant load discharged from storm sewers. As precipitation moves across roads, rooftops, and other impervious surfaces, it picks up pollutants that are then discharged, either directly or through storm sewers, to our Nation's waters.

Phase I MS4s and Phase II MS4s are required through the MS4 permit to address stormwater discharges from new development and redevelopment in their SWMPs, but the regulations do not include specific management practices or standards to be implemented. Among the Phase I requirements for a SWMP is a "comprehensive master plan to develop, implement, and enforce controls to reduce the discharge of pollutants from municipal storm sewers, which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed." (40 CFR 122.26(d)(2)(iv)(A)(2)).

Phase II regulations include post construction requirements as one of the six minimum control measures to be addressed in the SWMP. Small MS4s must "develop, implement, and enforce a program to address" stormwater discharges from new development and redevelopment projects of one acre or greater to "ensure that controls are in place that would prevent or minimize water quality impacts." 40 CFR 122.34(b)(5). The program must include strategies including structural and/or non-structural best management practices (BMPs) appropriate for the community; use of ordinances or other regulatory mechanisms to the extent allowable under State, Tribal or local law; and measures to ensure adequate long-term operation and maintenance of BMPs. The Phase II rule recommends (but does not require) that the program to address stormwater from new development and redevelopment should attempt to maintain pre-development runoff conditions by installing and implementing stormwater control measures.

EPA is updating its stormwater strategy to focus now on pursuing a suite of immediate actions to help support communities in addressing their stormwater challenges and deferring action on rulemaking to reduce stormwater discharges from newly developed and redeveloped sites or other regulatory changes to its stormwater program. EPA is providing incentives, technical assistance, and tools to communities to encourage them to implement strong stormwater programs; leverage existing requirements to strengthen municipal stormwater permits; and continue to promote green infrastructure as an integral part of stormwater management. EPA believes this approach will achieve significant, measurable, and timely results in reducing stormwater pollution and provide significant climate resiliency benefits to communities.

2. State of New Mexico Water Quality Standards and Clean Water Act 303 (d) Lists of Water Quality Impaired Waterbodies

New Mexico's Water Quality Standards define water quality goals by designating uses for rivers, streams, lakes and other surface waters, setting criteria to protect those uses, and establishing provisions to preserve water quality in the State of New Mexico. Table 2 shows the major surface waterbodies located in the Farmington, Santa Fe, Los Lunas, Las Cruces and El Paso UAs by their assessment unit names, water quality segment ID, and their designated uses.

Section 303(d) of the Clean Water Act requires each state to identify surface waters within its boundaries

that are not meeting, or expected to meet, water quality standards. Section 303 further requires the states to prioritize their listed waters for development of a Total Maximum Daily Load (TMDL). The 303(d) program serves to link the water quality goals to the NPDES permit limits. Table 2 shows the surface waters listed on the 2014-2016 State of New Mexico Clean Water Act §303(d) list. *E.coli* is the most comment pollutant in the urban settings in the State of New Mexico. Table 2 also lists TMDLs developed by NMED for several impaired water located in the Farmington, Santa Fe, Los Lunas, Las Cruces and El Paso UAs.

Common pollutants of concern in the NM Urbanized Areas include *E.coli*, sedimentation/siltation, temperature, turbidity, nutrients, and dissolved oxygen. The presence of *E. Coli* is an indicator of the possible presence of other microbial pathogens that may interfere with designated uses. There are also many potential surface water quality issues and problems due to a combination of urban and rural land uses in the regulated areas. NPDES permitted facilities and non-point sources (e.g., wildlife, agricultural activities and domesticated animals, urban runoff, failing onsite wastewater disposal system, and domestic pets) could contribute to exceedences of the water quality criteria.

Table 2: NMED Water Quality Standards, Impaired Waters, and TMDLs

Urbanized Area	**Water Body**	**Assessment Unit Name**	**Water Quality Segment ID**	**Designed Uses**	**303(d) Pollutants**	**TMDLs**
Farmington UA	San Juan River	San Juan River (Navajo bnd at Hogback to Animas River) NM-2401_10	20.6.4.401	LW PC WH IRR MCWAL MWWAL IW PWS	*E. coli* Sedimentation/Siltation Turbidity	fecal coliform and *E. Coli* (8/26/2005)
		San Juan River (Animas River to Canon Largo) NM-2401_00	20.6.4.408	LW PC WH IRR MCWAL MWWAL IW PWS	Sedimentation/Siltation	Sedimentation/Siltation 8/26/2005
	La Plata River	La Plata River (San Juan River to McDermott Arroyo)	20.6.4.402	LW PC WH IRR MCWAL MWWAL	*E. coli* Dissolved Oxygen Sedimentation/Siltation	*E. Coli* (2/26/2010) Dissolved Oxygen (2004) est Sedimentation/Siltation

		NM-2402.A_00				(8/26/2005)
	Animas River	Animas River (San Juan River to Estes Arroyo NM-2403.A_00	20.6.4.403	LW PC WH IRR MCWAL MWWAL IW Supply PWS	Nutrient/Eutrophication *E. Coli* Temperature	Nutrient/Eutrophication (1/17/2006) *E. Coli* (**) (9/30/2013) Temperature (**) (9/30/2013)
		Animas River (Estes Arroyo (*) to Southern UTE Indian Tribe BND) 2404_00	20.6.4.404	LW PC WH IRR ColdWAL IW Supply PWS	Turbidity Temperature Phosphorus, total *E. coli*	Temperature 2004 (est.) Phosphorus, total (**) 9/30/2013 *E. coli* (**) 9/30/2013
Santa Fe UA	Santa Fe River	Santa Fe River (Paseo del Canon to Santa Fe WWTP) NM-2110_00	20.6.4.113	PC WH IRR CoolWAL LW	Nutrient/Eutrophication	
		Santa Fe River (Santa Fe WWTP to Guadalupe St) NM-9000.A_061	20.6.4.136	PC WH IRR LAL LW	PCB in Water Column *E. coli* Aluminum	
	Cienega Creek	Cienega Creek (Perennial prt of Santa Fe R to headwaters) NM-2110_10	20.6.4.113	PC WH IRR CoolWAL LW		
Los Lunas UA	Rio Grande	Rio Grande (Rio Puerco to Isleta Pueblo boundary) NM-2105_40	20.6.4.105	LW PC WH IRR MWWAL PWS	Temperature *E. Coli*	*E. Coli* (6/30/2010)
Las Cruces UA	Rio Grande	Rio Grande (Anthony	20.6.4.101	LW PC	*E. Coli*	*E. Coli* (6/11/2007)

		Bridge to NM192 bridge W of Mesquite) NM-2101_01		WH IRR MWWAL		
El Paso UA	Rio Grande	Rio Grande (International Mexico boundary to Anthony Bridge) NM-2101_00	20.6.4.101	LW PC WH IRR MWWAL	*E. Coli* Dissolved Boron	*E. Coli* (6/11/2007)

IRR: Irrigation
LW: Livestock Watering
WH: Wildlife Habitat
PC: Primary Contact
MWAL: Marginal Warm Water Aquatic Life
MCWAL: Marginal Cold Water Aquatic Life
IW Supply: Industrial Water Supply, Public Water Supply
PWS: Public Water Supply
COOLWAL: Coolwater Aquatic Life
LAL: Limited Aquatic Life
Notes:
(*) Estes Arroyo was included in the UA in the 2000 Census
(**) The TMDL assigned WLAs to regulated MS4s.
(est) Estimated date to be finalized

Table 3. State of New Mexico specific criteria

Segment	Criteria
Segment 20.6.4.401	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.
Segment 20.6.4.408	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.
Segment 20.6.4.402	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 32.2°C (90°F) or less.
Segment 20.6.4.404	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: phosphorus (unfiltered sample) 0.l mg/L or less.
Segment 20.6.4.403	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses.

Segment 20.6.4.113	The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses, except that the following segment-specific criterion applies: temperature 30°C (86°F) or less.
Segment 20.6.4.136	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses.
Segment 20.6.4.105	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses. At mean monthly flows above 100 cfs, the monthly average concentration for: TDS l,500 mg/L or less, sulfate 500 mg/L or less and chloride 250 mg/L or less.
Segment 20.6.4.101	The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses except that the following segment-specific criterion applies: temperature 34°C (93.2°F) or less. At mean monthly flows above 350 cfs, the monthly average concentration for: TDS 2,000 mg/L or less, sulfate 500 mg/L or less and chloride 400 mg/L or less.
Segment 20.6.4.99 PERENNIAL WATERS	All perennial unclassified waters of the state. The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses, except that the following site-specific criteria apply: the monthly geometric mean of *E. coli* bacteria 206 cfu/100 mL or less, single sample 940 cfu/100 mL or less.
Segment 20.6.4.98 INTERMITTENT WATERS	All non-perennial unclassified waters of the state, except those ephemeral waters included under 20.6.4.97 NMAC. Designated Uses: livestock watering, wildlife habitat, marginal warmwater aquatic life and primary contact. The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses, except that the following site-specific criteria apply: the monthly geometric mean of *E. coli* bacteria 206 cfu/100 mL or less, single sample 940 cfu/100 mL or less.

Discharges from MS4s could also reach various arroyos, agricultural drains, acequias, and irrigation channels flowing through state. Many of these conveyances are listed waters of the State where NMWQS 20.6.4.98 applies and would likely be considered waters of the United States. Even should a particular drain not be a water of the United States, it couldf still serve as a conduit to a surface water and thus provide a route for MS4 discharges to reach a water of the United States. The applicable New Mexico WQS for drains are set forth in 20.6.4.98. See Table 3: State of New Mexico specific criteria.

3. Local Discharge Monitoring Data and Receiving Water Issues

Storm water discharges from MS4s in urbanized areas are a concern because of the higher concentration of pollutants typically found in these discharges. Concentrated development in urbanized areas increases impervious surfaces, such as city streets, driveways, parking lots, and sidewalks, on which pollutants

from concentrated human activities settle and remain until a storm event washes them into nearby storm drains. Common pollutants include pesticides, fertilizers, oils, salt, litter and other debris, and sediment. Another concern is the possible illicit connections of sanitary sewers, which can result in pathogenic organisms entering the storm sewer system. Storm water runoff can pick up and transport these and other harmful pollutants, typically discharging them – untreated – to waterways via storm sewer systems. If left uncontrolled, these discharges can result in any number of environmental woes, including fish kills, destruction of spawning and wildlife habitats, loss in aesthetic value, and contamination of drinking water supplies and recreational waterways that can threaten public health. Polluted storm water runoff can have many adverse effects on plants, fish, animals and people, including:

- *Sediment* can cloud the water and make it difficult or impossible for aquatic plants to grown. Sediment also can destroy aquatic habitats.

- *Excess nutrients* can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.

- *Bacteria and other pathogens* can wash into swimming areas and create health hazards.

- *Debris* - plastic bags, six-pack rings, bottles, and cigarette butts - washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.

- *Household hazardous wastes* like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick from eating diseased fish and shellfish or ingesting polluted water.

The Storm water Phase II Final Rule continues EPA's effort to preserve, protect, and improve the Nation's water resources from polluted storm water runoff. The Phase II program expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted storm water runoff. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of storm water discharges that have the greatest likelihood of causing continued environmental degradation.

a. Farmington Urbanized Area

Watersheds and Receiving Waters: Three major rivers cross the Farmington UA, the San Juan River, La Plata River and Animas River. The San Juan River originates in the San Juan Mountains of southwestern Colorado. It enters New Mexico northeast of Farmington and flows westward for about 93 mi (150 km) to exit the state near the "Four Corners." Upstream of Four Corners, the river drains about 6,918,372 ac (2,799,780 ha), including portions within Colorado. Associated key perennial aquatic habitats are a large reservoir, 3rd and 4th order streams, and 5th order streams. La Plata River is a 70-mile-long tributary to the San Juan River in La Plata County, Colorado County, and San Juan County, New Mexico. It flows in a southerly direction until it joins the San Juan at the western edge of the city of Farmington, New Mexico, about 19 miles south of the Colorado State line. The Animas River, rises high in San Juan Mountains of Colorado and flows south into New Mexico through the town of Aztec to its confluence with the San Juan River at Farmington. The only major tributary of the Animas River is the Florida River which confluences just north of the Colorado–New Mexico border.

Urbanized Area: The Farmington Urbanized Area (UA) as defined by the 2010 Census is shown in Addendum A. Jurisdiction over the approximately 35.12 square miles of the UA is split between the City of Farmington (COF), City of Aztec (COA), San Juan County (SJC) and other populated areas (Flora Vista, Lee Acres, Spencerville) that lack separate municipal government designated as Census designated Places (CDP). New Mexico Department of Transportation operates an MS4 within the UA related limited to the right-of-ways associated with federal and state roadways.

The City of Aztec (COA) and City of Farmington (COF) report operation of multiple municipal storm water outfalls into the Animas River. The COF has identified approximately fifty-five (55) outfalls, the majority of which discharge into the Animas River. One of the COF outfalls discharges to the La Plata River. COA has identified no municipal storm water discharges into the Animas River upstream of the Estes Arroyo. SJC managed drainages discharge to the Animas River from unincorporated areas of the UA between Farmington and Aztec (Flora Vista) and to the San Juan River from areas south and west of the COF.

Water Quality: The State of New Mexico performs water quality assessments of surface waters on a scheduled basis and publishes, under Section 303(d) of the Clean Water Act, a list of waters that are impaired and still require a TMDL. The list identifies whether or not a particular surface water of the state is currently meeting its designated uses as detailed in the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC. Copies of the list and any of the supporting documents may be obtained via download from the NMED website www.nmenv.state.nm.us/swqb/303d-305b/2014-2016.

San Juan River: NM WQS designated segment 20.6.4.401 (from the Navajo Nation boundary at the Hogback upstream to its confluence with the Animas River) has been designated by NMED for the following uses: industrial water supply, public water supply, irrigation, livestock watering, wildlife habitat, primary contact, warmwater aquatic life, and marginal coldwater aquatic life. Ambient water quality in this stretch of the river does not fully support the uses of marginal coldwater aquatic life, and primary contact. The 303(d) assessment lists *E. coli*, sedimentation/siltation and turbidity as the probable causes of impairment. According to NMED, potential sources of sedimentation/siltation and turbidity include drought related impacts, municipal point source discharges, on-site waste treatment (septic system), rangeland grazing and unknown sources. TMDLs were prepared for fecal coliform and *E. coli* (NMED Integrated List, November 18, 2016).

The designated uses for the other stretch of the San Juan River (Segment 20.6.4.408, from Animas River to Canon Largo) include industrial water supply, public water supply, irrigation, livestock watering, wildlife habitat, primary contact, warmwater aquatic life, and marginal coldwater aquatic life. Ambient water quality in this stretch of the river does not fully support the uses of marginal coldwater aquatic life, and primary contact. According to NMED, the potential cause of impairment is sedimentation and siltation due to petroleum/natural gas activities (permitted), drought-related impacts, loss of riparian habitat and petroleum/natural gas activities.

La Plata River: La Plata River reaching from its confluence with the San Juan River upstream to the McDermott Arroyo and designated as segment 20.6.4.402, Middle San Juan River basin, watershed HUC 14080105, has designated uses of: irrigation, livestock watering, wildlife habitat, primary contact, marginal warmwater aquatic life, and marginal coldwater aquatic life. Ambient water quality in this stretch of the river does not fully support the uses of marginal coldwater aquatic life and primary contact.

E.coli, low dissolved oxygen and sedimentation/siltation are probable causes of the water quality impairments with non-point source runoff from animal feeding operations, drought related impacts, flow alterations, rangeland grazing, streambank modifications and destabilization, and loss of riparian habitat listed as the probable sources. NMED reported conflicting results between 2002 dissolved oxygen sonde data and equipment failure in 2010. NMED was unable to verify dissolved oxygen data in 2012. (NMED Integrated Report, November 18, 2014).

The Animas River, segment 20.6.4.403 of the Animas River basin, watershed HUC 14080104, reaches from its confluence with the San Juan River upstream to the Estes Arroyo. The segment is designated for the following uses: industrial water supply, public water supply, irrigation, livestock watering, wildlife habitat, primary contact, warmwater aquatic life, and marginal coldwater aquatic life. New Mexico's assessment finds the river water quality not supporting its designated marginal coldwater aquatic life, warmwater aquatic life, and primary contact uses probably due to drought-related impacts, flow alterations from water diversions, municipal (urbanized high density area), municipal point source discharges, streambank modifications/destabilization, etc. (NMED Integrated Report, November 18, 2014).

b. Santa Fe Urbanized Area

Watershed and Receiving Waters: The Santa Fe River is a tributary of the Rio Grande in northern New Mexico. Its watershed is defined as Hydrologic Unit Area (HUA) #1302020103. The Santa Fe Watershed is partially located within the Santa Fe National Forest in the Sangre de Cristo Mountains. The Santa Fe River is perennial and almost runs the entire length of the watershed. The headwaters lie in the Sangre de Cristo Mountain Range. The catchment covers an area of 18.2 squares miles and contains two reservoirs, the Mc. Clure and Nichols, which are used entirely for supplying water to the City of Santa Fe and its surroundings. The elevation runs from 3635-3838 meters in the mountains to 1997-2201 meters in the town.

The moderate winter snowpack is hydraulically balanced with the high intensity summer rain events. Typical of the New Mexico climate, the sun often shines and the temperature remains moderate most of the year. According to the Oregon Climate service, the 1961-2014 annual mean monthly precipitation for the area ranges from 731-1286 centimeters in the mountains to 184-304 centimeters in the lower elevations.

Urbanized Area: The Santa Fe Urbanized Area (UA) as defined by the 2010 Census is shown in Addendum A. Jurisdiction over the approximately 53.52 square miles of the UA is split between the City of Santa Fe, Santa County, and two CDPs (Agua Fria and La Cienega). The City of Santa Fe is the fourth-largest city in the state with a population of 67,947 in the 2010 census and a total area of 33.95 sq mi. Santa Fe is located at 7,199 feet (2134 m) above sea level, making it the highest state capital in the United States. The city usually receives 6 to 8 snowfalls a year between November and April. Heaviest rainfall occurs in July and August, with the arrival of the North American Monsoon. MS4s located in the Santa Fe UA potentially discharge into the Santa Fe River (Assessment Units: AU NM-2110_00 and AU NM-9000.A_061) and various arroyos and drainages.

Water Quality: The main source of impairment in the Santa Fe River appears to be delivery of sediment from runoff. This include flushing of arroyos after precipitation events, head-cutting from increased channelized flows from urban areas, removal of riparian vegetation, and related stream bank

destabilization (2000 NMED TMDL).

The Santa Fe River, NM WQS Segment 20.6.4.113 (AU NM-2110_00), is listed in the 2014-2016 State of New Mexico CWA303(d)/305 Integrated Report as "not supporting" coolwater aquatic life and primary contact designated uses due to high levels of nutrients. Previous 303(d) listings have included pH, DO, chlorine, and sedimentation as pollutants of concern in this assessment unit, Source of impairment include impacts from abandoned mines, urbanized high density, waste water treatment plants discharges and rangeland grazing. During the last reporting assessment, NMED reported delisting of those parameters in this stretch of the river. TMDLs for streams bottom deposits, chlorine, pH and dissolved oxygen were developed in 2000. According to the 2000 NMED TMDL document, no waste load allocations for stormwater municipal discharges were assigned.

NM WQS Segment 20.6.4.136 (AU NM-9000.A_061) is listed as "not supporting" primary contact, wildlife habitat, and limited aquatic life designated uses. Potential sources of impartment include PCBs, *E. coli*, and Aluminum. According to NMED (2014-2016 NMED Integrated List), additional data are needed to determine if this water is impaired for total recoverable aluminum prior to TMDL scheduling for this parameter.

Total Maximum Daily Loads (TMDLs) for streams bottom deposits and chlorine were approved by EPA in March 2000. The TMDL for pH and dissolved oxygen were approved by EPA in January 2001. No waste load allocations for stormwater have been assigned in their TMDL, a load allocation of 57,568 lbs/day of TSS was assigned to non-point sources. Previous Integrated Reports attributed impairment in the Santa Fe River stretching from the Santa Fe Waste Water Treatment Plant outfall to the Cochiti Pueblo to impacts from abandoned mines, urbanized high density, waste water treatment plants discharges and rangeland grazing.

c. Los Lunas Urbanized Area

Watershed: Los Lunas UA lies in the Middle Rio Grande Basin (HUC 13020203) in Valencia County New Mexico (NM). Geologically, the Albuquerque Basin slopes down towards the east to terminate on the Sandia and Manzano mountains. It has a semi-arid climate, with large areas that count as desert. Intense irrigation began in the late nineteenth century with new dams, levees and ditches and has caused environmental problems. In times of low water levels in the Rio Grande, this area relies on groundwater for its potable water supply. Average annual rainfall ranges from 190 millimetres (7.5 in) at Belen to 760 millimetres (30 in) at Sandia Crest. Precipitation comes from local thunderstorms in summer and from storm fronts in winter. The amount of rain that falls in a given year or place in the basin is unpredictable. Droughts lasting several years are not unusual. Throughout the basin, potential evapotranspiration is much higher than rainfall, meaning the ground is dry most of the time unless it is irrigated. Vegetation includes desert scrub and grassland in the lower levels, riparian woodland along the Rio Grande, and woods on the mountain slopes.

Urbanized Area: Jurisdiction over the approximately 69.84 square miles of the UA is split between the City of Belen, Valencia County, Villages of Los Lunas, Bosque Farms, Village of Peralta, and various CDPs (Meadow Lake, EL Cerro Mission, El cerro, Los Chaves, Tome Adeino, Los Trujillos Gabaldon, Rio Communities, Jarales, Las Maravillas, Sausal). According to the U.S. Census Bureau, Valencia County has a total area of 1,068 square miles, of which 1,066 square miles is land and 2.1 square miles (0.2%) is water. It is the second-smallest county in New Mexico by area. The Village of Los Lunas had a population of 14,835 in 2010 over approximately 10.1 square miles. The city of Belen, with a population

of 7,269, has a total area of 4.7 square miles, all land. The City of Belen lies in the basin on the west bank of the Rio Grande. The population of Bosque Farms was 4,092 at the 2010 census. According to the United States Census Bureau, the village has a total area of 4.0 square miles and it is also part of the Albuquerque Metropolitan Statistical Area. See map of the UA in Appendix A.

Water Quality in the Receiving Waters: According to NMED (2014-2016 Integrated List, Segment 20.6.4.105 (AU NM-2105_40) is impaired with temperature and *E. Coli*. Potential sources of pollution include discharges from municipal point source, waterfowl, on-site treatment systems (septic), wastes from pets, and runoff from impervious surface/parking lot in municipal high density areas. A TMDL for *E. coli* was developed by NMED in 2010. Since there are new MS4 discharges in the area, NMED may designate WLAs to those new point sources.

d. Las Cruces and El Paso Urbanized Areas

Watersheds: Many of the river tributaries in the Lower Rio Grande watershed (US Geological Survey [USGS] Hydrologic Unit Codes [HUCs] 13030102 are intermittent streams and much of the flow is controlled by numerous reservoirs in the basin. Throughout the basin, an extensive system of water structures captures and controls the flow of water in the subbasins to meet regional needs for flood control, power generation, and storage for domestic, agricultural, and industrial purposes. Ranching and irrigated agriculture is a major component of the economy in the basin.

Las Cruces Urbanized Area: Las Cruces Urbanized Area (UA) is located within Dona Ana County, New Mexico and encompasses an area of approximately 64.76 square miles (See Appendix A). Municipal storm water is discharged from storm sewer systems outfalls within the UA into the lower Rio Grande River. Several applicants with operational control of the municipal storm sewer systems (MS4s) within the Las Cruces UA include Dona Ana County, the City of Las Cruces, DOT District 1, New Mexico State University, and the Towns of Mesilla. These MS4s are anticipated to apply for authorization to discharge municipal storm water under the proposed permit. Six CDPs with lack of separate municipal government were defined by the 2010 Census: Fairacres, Organ, San Pablo, San Ysidro, University Park, and Dona Ana. In terms of implementing the NPDES storm water program, it should be noted that the Counties should include those areas as part of their jurisdictional areas.

The City of Las Cruces storm water management plan encompasses all areas within the city limits covering over 76 square miles. The City has a population of 79,618 residents, more than 400 miles of roadways and numerous storm drain outfalls discharging into the waters of the United States.

El Paso Urbanized Area: El Paso Urbanized Area (UA) is located in the westernmost corner of Texas, right where Texas, New Mexico, and Mexico come together. El Paso has been ranked as one of the fastest-growing communities in the United States for the past decade. The population has risen dramatically since 1900 and is expected to continue to grow at a rapid pace during the next 20 years. According to the United States Census Bureau, the city had a population of 649,121 as 2010. It is the sixth-largest city in Texas and the 19th largest city in the United States. In Texas, its metropolitan area covers all of El Paso County. The metropolitan area has a population of 804,123. El Paso stands on the Rio Grande (Río Bravo del Norte), across the border from Ciudad Juárez, Chihuahua. The two cities form a combined International Area with Juarez being the significantly larger of the two. Together they have a combined population of 2,049,648, with Juárez accounting for 2/3 of the population.

City of Anthony, DOT District 1, and Sunland Park are potential applicants in the El Paso UA. Four

CDPs were defined in the 2010 Census, these include Berino, Mesquite, Santa Teresa, and Vado. The City of Anthony, New Mexico was at one time called Halfway House because it is located half-way between Las Cruces, New Mexico and El Paso, Texas. Population of the City is about 9,360 people living in the little hamlets and the wide open spaces, and encroaching seriously on the farm land in the Mesilla Valley. Sunland Park and Santa Teresa are also cities located in Doña Ana County, New Mexico. The population for Sundland Park was 18,204 in the 2010 census. Sunland Park is at the foot of Mount Cristo Rey, next to the Rio Grande, and the city has a total area of 11.6 square miles. Santa Teresa City has a total area of 10.8 square miles.

El Paso and Texas Department of Transportation, which operate the City of El Paso Municipal Separate Storm Sewer System (MS4) under the Texas Permit TXR040000, are authorized to discharge storm water to the local surface water in the state of Texas. It is expected NMDOT District 1 will apply under the proposed permit to be authorized to discharge stormwater in the receiving waters in the State of New Mexico.

Water Quality in the Receiving Waters: NM WQS Segment 20.6.4.101 (AU NM-2101_01) is listed as "not supporting" primary contact designated use. Potential sources of impartment include *E. coli*. NM WQS Segment 20.6.4.101 (AU NM-2101_00) is listed as "not supporting" primary contact and irrigation designated uses. Potential sources of impartment include *E. coli* and dissolved boron (NMED 2014-2016 NMED Integrated List). Stormwater discharges from the designated MS4s reach several surface waters in the State of New Mexico. According to NMED, potential source of pollutants include, but not limited to, on-site septic treatment systems, confined animal feeding operations (CAFOs), waste from wildlife and pets, rangeland grazing, runoff from impervious surface/parking, etc. A TMDL for *E. coli* for both assessment units, AU NM-2101_01 and NM-21-1_00, was issued by the NMED in 2007.

4. Total Maximum Daily Loads (TMDLs) – Specific Waste Load Allocations

A TMDL can be best described as a water body, watershed or basin-wide budget for pollutant influx to a watercourse. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. See Table 2 with a list of TMDLs developed by NMED for several impaired water located in the Farmington, Santa Fe, Los Lunas, Las Cruces and El Paso UAs. Tables 4 and5 show a list of specific waste load allocations assigned to MS4s by NMED. Note that the terms and content of the TMDL itself are outside the scope of this permit and comments on the TMDL (as opposed to implementation of the TMDL by the permit) cannot be considered as part of this permitting action. Information on NMED TMDL is available online at: http://www.nmenv.state.nm.us/swqb/TMDL/List. The permit includes control and monitoring requirements for *E. coli* and measurable goals based on the TMDL WLA must be adopted by affected permittees.

NMED has completed several TMDLs for the San Juan River, La Plata River, and Animas River during 2005 – 2013 timeframe. WLAs for *E-coli* and temperature were assigned to regulated MS4s discharging to the Animas River, AU 2403.A_00 (San Juan River to Estes Arroyo). Similarly, WLAs to address E-coli and total phosphate were calculated in the Animas River (AU 2404_00: Estes Arroyo to southern Indian Tribe boundary), see Table 4.

Table 4. Waste Load Allocations to regulated MS4s discharging to the Animas River

Assessment Unit / Segment ID	Stream Name	Permittee Class[1]	FLOW CONDITIONS & ASSOCIATED WLA				
			Pollutant	Critical Low Flow	WLA (cfu/day)	WLA (lbs/day)	WLA (j/m^2/s) [2]
2403.A_00/ Segment 20.6.4.402	ANIMAS RIVER (SAN JUAN RIVER TO ESTES ARROYO) (based on flow at USGS Stations 09364500, 09364010, and 09363500)	Class B	*Escherichia Coli* (*E.coli*)	4Q3	1.6×10^{10}		
		Class B	Temperature	4Q3			8.93
2404_00 Segment 20.6.4.404	ANIMAS RIVER (ESTES ARROYO to Southern UTE Indian Tribe BND) (based on flow at USGS Stations 09364500, 09364010, and 09363500)	Class B	*Escherichia Coli* (*E.coli*)	4Q3	4.8×10^{9}		
		Class B	Total Phosphate	4Q3		0.8	

Source: Final Total Maximum Daily Load (1MDL) for the Animas River Watershed San Juan River to Southern Ute Indian Tribe Bnd.2013

1 Small MS4s based on the 2000 census

2 joules per square meter per second per day

A Total Maximum Daily Load (TMDL) for the main stem of the lower Rio Grande, from the international boundary with Mexico and north to Elephant Butte Dam, was completed in June 11, 2007. The stretch of the river, identified in the study as the Rio Grande between the international Mexico boundary to Leasburg Dam, which passes through the Las Cruces UA was found to be impaired for bacteria. Intensive sampling in 2004 by the New Mexico Surface Water Bureau found sixteen of fifty-three samples collected between February and November to exceed the New Mexico Water Quality Standards for *E. coli* of a monthly geometric mean of 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less. The TMDL report suggests discharges from waste water treatment plants located in the area as the cause for some *E. coli* exceedances.

According ot the TMDL report, the waste load allocation (WLA) for sMS4s is based on the percent jurisdictional area approach. In the case of the Lower Rio Grande, two percent of the watershed falls within the jurisdiction of sMS4 communities. The WLAs are established dependent on flow conditions and are anticipated to be addressed by the best management practices required by this permit.

Table 5. Lower Rio Grande Basin[1] - (WLAs)

Stream Segment	Stream Name	FLOW CONDITIONS & ASSOCIATED WLA (cfu/day)[2]				
		High	Moist	Mid-Range	Dray	Low
2101_00	Texas Border (International Mexico Boundary to Leasburg Dam (based on flow at IBWC 08364000 and USGS 08362500)	6.77×10^{10}	3.74×10^{10}	1.8×10^{10}	2.43×10^{9}	0

1 Total Maximum Daily Load for the Lower Rio Grande Watershed, NMED, 207. Aggregate loads assigned to the expired small MS4 General Permit ID NMR040000.

2 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%.

On June 30, 2010, EPA approved an E. coli TMDL for the Middle Rio Grande (Isleta Pueblo boundary to Alameda bridge) that passes through the Los Lunas Urbanized Area. At that time, the Bureau of the Census had not yet designated the Los Lunas Urbanized Area resulting from the 2010 Census, so there were no regulated MS4s in the area and discharges from the these unregulated MS4s were considered as part of the non-point source Load Allocation (LA) in the TMDL development and no WLA was assigned to the Los Lunas Urbanized Area MS4s. Now that MS4s in the Los Lunas Urbanized Area are regulated, a WLA is required. Consistent with the November 26, 2014, guidance memorandum from EPA's Office of Wastewater Management (OWM) and Office of Wetlands, Oceans, and Watersheds (OWOW) "Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"" (available at http://www.epa.gov/npdes/pubs/EPA_SW_TMDL_Memo.pdf), a portion of the current LA covering the Los Lunas Urbanized Area may need to be re-allocated as part of the WLA needed by the regulated MS4s in the area. EPA is working with NMED on this issue, which may be accomplished as part of this permitting action.

5. Monitoring Data:

The discharges from the MS4 consist of surface runoff (non-stormwater and stormwater) and groundwater from various land uses in drainage basins. The quality and quantity of these discharges vary considerably and are affected by the hydrology, geology, land use characteristics of the watersheds, seasonal weather patterns, and frequency and duration of storm events. In this Section, EPA has evaluated monitoring data available from the major cities/MS4 operators in each urbanized area, including the cities of Farmington, Las Cruces, and Santa Fe.

a. City of Farmington

The City of Farmington has collected extensive monitoring data during the previous permit term. The

eighteen discharge points monitored for the prior permit were intended to provide representative data on the quality of discharges from the r MS4 as a whole. Monitoring data is intended to assist the permittees in determining appropriate stormwater management practices. Table 1 and 2 in Addendum F summarize monitoring data that the City of Farmington submitted under the previous permit term.

According to the City of Farmington's 2013-2014 Annual Report, the City if Farmington conducted baseline sampling at representative stormwater outfall locations throughout the City in February 2007. The purpose of the sampling was to assist in locating problem areas and to establish a baseline. Stormwater samples were measured in the field for pH, temperature, dissolved oxygen (DO), and specific conductivity. Laboratory samples were also collected and analyzed for chemical oxygen demand (COD), total suspended solids (TSS), oil and grease, and metals (aluminum, arsenic, cadmium, copper, iron, lead, nickel, and zinc). Stormwater analytical results from sampling conducted during February 2007 showed concentrations to be below USEPA stormwater benchmarks, with the following exceptions:

- Two samples (Outfall #1 and #2) collected from Farmington's Municipal Operations Center (MOC) showed elevated pH readings, specific conductivity, and COD, with specific conductivity in Outfall #1 at 13.88 mS/cm, which was approximately one order of magnitude higher than other samples collected. Note that specific conductivity is reflective of total dissolved solids (TDS) and may reflect an impact from materials stored at the MOC (such as magnesium chloride). The MOC Outfall #1 also had COD concentrations of 193 mg/L, which were above the EPA's Multi-Sector Stormwater General Permit for Industrial Activities benchmark value of 120 mg/L. The pH readings from both Outfall #1 and #2 were slightly elevated, with 9.13 and 9.62, respectively.

- Elevated specific conductance levels were also detected at several sampling locations, including El Paso/Middle Fork Square, Berg Park, Murray Bridge Settling Pond, South Side Lift Station #2, and Cannery Court.

During the 2013 – 2014 Annual Report, the City has measured stormwater flow, along with rainfall data, pH, temperature, DO, and specific conductivity. Laboratory analyses included oil and grease, TSS, COD, aluminum, arsenic, cadmium, copper, iron, lead, nickel and zinc, Fecal, *E. Coli*, and nutrients (including nitrate/nitrite, total nitrogen (TKN), ammonia, and phosphorus). During the same reporting period, the City also reported twenty two sampling locations across their jurisdictional area. One of the monitoring location (ID 22 - Civitan Pond Outlet/Glade Arroyo Outlet) has showed moderately low pH values. The city is currently investigating potential sources of pH upstream this location.

Specific conductivity has frequently exceeded the EPA's benchmark of 0.2 mS/cm in all twenty two sampling locations. Conductivity, or specific conductance, is a measure of how easily electricity can flow through a water sample. Conductivity is often strongly correlated with the total amount of dissolved material in water, known as Total Dissolved Solids. The utility of conductivity as an indicator depends on whether concentrations are elevated in "natural" or clean waters. In particular, conductivity is a poor indicator of illicit discharge in estuarine waters or in northern regions where deicing salts are used (both have high conductivity readings). Conductivity has some value in detecting industrial discharges that can exhibit extremely high conductivity readings (Robert Pitt, 2004). It should be noted elevated specific conductance levels are typical encountered in the arid Southwest regions. Additional sampling may be needed in high industrial areas to determine if the stormwater discharges from high industrialized areas are the cause of high levels of conductivity. In addition to runoff data in the regulated MS4 area, the City could obtain background runoff data in areas outside the urbanized areas to determine if high levels of conductivity is present in those areas.

Some of the measurable goals for the City of Farmington's IDDE program are to focus on locating problem areas, finding sources of the problems, removing or correcting illicit connections, and documenting actions taken.

b. City of Santa Fe

During September 2013, the City of Santa Fe sampled stormwater after a series of large storm events at two segments in the Santa Fe River (Segment ID 1: from Guadalupe St to Nichols Reservoir; Segment ID 2: from the Santa Fe Waste Water Treatment Plant to Guadalupe St). The samples were analyzed for: aluminum, magnesium, specific conductance, dissolved oxygen, dissolved oxygen saturation, *E. coli*. pH, temperature, salinity, and turbidity. See the results in Table 3 in Appendix G.

To help identify particular areas contributing higher levels of a pollutant of concern tied to a known water quality impairment, today's proposed permit require the permittee to establish sufficient screening points to adequately assess pollutant levels from all areas of the MS4. The result of the screening program should be tied with effective targeted SWMP strategies for these areas of the MS4. The permit also requires the permittees to coordinate wet and dry screening monitoring efforts to demonstrate compliance with any approved TMDL addressing discharges from the MS4.

c. Las Cruces

During 2010 and 2011 time frame, the City of Las Cruces selected four sites to carry out a source track analysis based on previous occurrence of *E. coli* in those sites. The Anthony river site and the Anthony drain site were chosen because of repeated exceedances observed in the river at Anthony. The two other sites chosen were the Leasburg site and the Sunland park site which are located near the upper and lower reaches of the lower Rio Grande respectively, and thus represent the water entering and leaving this reach of the Rio Grande.

Over the two year study, 376 *E. coli* samples were isolated and source tracked from the four samples sites and the number one source at the three river sites was birds, which in the absence of commercial chicken operations, is typically waterfowl. In contrast in the single drain site, the largest source was livestock. Averaging all four sites, birds (32% of all *E. coli* typed) were the main source, followed by livestock (23%) and wildlife (17%) (Figure 1 in Appendix G). The majority of livestock at the four sites were either bovine (12%) or horse (8%), with the remaining 3% distributed between pig, sheep and goat. The top four sources of wildlife (other than ducks and geese in the avian category) were raccoon (5%), rodent (beaver, mice etc., 5%), deer (4%) and coyote (1%). Summing all natural sources (avian+wildlife) at the four sites accounted for 49% of the *E. coli* typed and anthropogenic sources livestock + pets + sewage) accounted for 38%, with the rest of the *E. coli* (13%) being unidentified.

EPA has compared the monitoring MS4 data submitted on discharge monitoring reports by the City of Farmington during the previous permit term to the national stormwater databases as shown in Table 7. The table reflects an average concentration of a subset of the pollutant monitored by the City of Farmington during the permit term at the eighteen designated monitoring sites and compares discharge concentrations to the NURP, CDM, and NSQD datasets. Note that comparison to national databases provides a basis for comparison, but is not always easy due to variations in climate and geography. Data

from the City of Albuquerque (NM) and NSQD for Maricopa County (Phoenix, AZ area) was also included for comparison of information more representative of an arid area.

The data was evaluated against water quality standards to determine if the pollutant concentrations in the stormwater are elevated relative to applicable water quality standards (Table 6). Monitoring data exceeding a water quality criterion provides reason to be concerned about that parameter, but does not mean that the discharge has caused or contributed to an exceedance of the in-stream water quality standard nor impaired the designated use. Since stormwater discharges are episodic, application of chronic criterion is particularly problematic since aquatic organisms would not be likely to be exposed to the same stormwater discharge for the seven (7) day period of a chronic toxicity test. Even though application of chronic standards to even averages of episodic stormwater discharge values is not a particularly good indicator of whether the in-stream standard was actually being exceeded.

For initial screening purposes to calculate the water quality criteria for hardness-dependent metals, a representative hardness value of 161 mg/l of CaCO3 for the receiving waters was used. Addendum E. shows hardness average values calculated for all water segments within the NM UAs for a 2010-2014time frame.

Table 6. NM Aquatic Water Quality Criteria

Constituent	**UNITS**	**ACUTE AQUATIC CRITERIA**	**CHRONIC AQUATIC CRITERIA**[3]
		NM WQS[1]	NM WQS [1]
Total Suspended Solids	mg/L	n/a	n/a
Biochemical Oxygen Demand	mg/L	n/a	n/a
Chemical Oxygen Demand	mg/L	n/a	n/a
Total Phosphorus	mg/L	n/a	n/a
Dissolved Phosphorus	mg/L	n/a	n/a
Total Kjeldahl Nitrogen	mg/L	n/a	n/a
Nitrite and Nitrate	mg/L	n/a	n/a
Arsenic	µg/l	340[2]	150[2]
Cadmium	µg/l	2.49[2]	0.64[2]
Copper	µg/l	21.17[2]	13.52 [2]
Chromium III	µg/l	845.84[2]	110.03[2]
Lead	µg/l	108.74[2]	4.24 [2]
Mercury	µg/l	1.4[2]	0.77[2]
Thallium	µg/l	n/a	n/a
Zinc	µg/l	248.12[2]	187.92 [2]

Constituent	UNITS	ACUTE AQUATIC CRITERIA	CHRONIC AQUATIC CRITERIA[3]
PCBs	µg/l	2	0.014

1 Calculated from New Mexico Water Quality Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC dated 62013, hardness of 162 mg/l as CaCO3, pH of 8.3 s.u.

2 Dissolved fraction

3 Chronic standards included above are for informational purposes, due to their short term and intermittent nature, storm water discharges would exert more of an acute than chronic effect on receiving waters.

i. Bacteria. Urban stormwater routinely contains high levels of fecal indicator bacteria and is a major contributor to degraded water quality at urban lakes and rivers (Marsalek and Rochfort, 2004, Noble et al., 2006 and USEPA, 2009). Microbial contaminants in stormwater runoff have the potential to negatively impact public health. NM QWS calls for specific criteria of 126 cfu/100 mL (monthly geometric mean) of *E. coli* bacteria and 410 cfu/100 mL (single sample) to protect primary contact designated use. A monthly geometric mean of *E. coli* bacteria of 548 cfu/100 mL and single sample of 2,507 cfu/100 mL apply to secondary contact designated use. The City of Farmington has reported higher concentrations of *E. Coli* of 15,531 cfu/100 mL and 24,196 cfu/100 mL (single samples) during the September 22, 2,010 and July 13, 2013 sampling events respectively. The highest levels of *E. coli* reported by the City of Santa Fe was 770 cfu/100 mL (single sample) at the Santa Fe River between the Santa Fe Waste Water Treatment Plant and Guadalupe St, this level is below the NM WQS of 2,507 cfu/100 mL (see Table 3 of Appendix G). During the 2010-2011 Bacteria Source Tracking Study, the City of Las Cruces reported the highest concentration of *E. coli* at 1,200 cfu/100 mL (single sample) at the Sunland Park River site sampling location. Specific WLAs have been assigned to the MS4s located in the Farmington and Las Cruces/El Paso UAs. Today's permit adds more specific monitoring for *E. coli* aimed at gathering more information on the quality of both wet and dry weather discharges occurring within the MS4.

ii. Temperature. None of the City of Farmington nor the City if Santa Fe samples for temperature exceeded the State of New Mexico's water quality standard referenced in Table 3c It should be noted that NMED has an approved temperature TMDL in the Animas River in Segment 20.6.4.402 (San Juan River to Estes Arroyo). Approaches recommended in the TMDL document should be considered in implementing controls to meet the WLAs assigned to the MS4s in the Farmington UA area. . Approaches recommended in NMED approved temperature TMDL may be found at http://www.nmenv.state.nm.us/swqb/TMDL/list.html.

iii. Metals. Table 1 in Addendum F shows one monitoring site from the City of Farmington, S Intersection of Gooding Riverview, average concentrations of dissolved lead of 16.6 µg/l which exceeds the New Mexico chronic aquatic criterion of 4.24 µg/l. With the variability of average hardness concentrations in the La Plata, San Juan River, and Animas River, the hardness of 162 mg/l of CaCO3 for the receiving waters was used to calculate NM chronic and acute criteria. Addendum E shows the average concentrations of CaCO3 in the Sand Juan River, Animas River, and La Plata River.

It should be noted that none of the concentrations observed for dissolved lead exceeded the acute aquatic criterion of 108.74 µg/l. None of the individual samples from all monitoring locations exceeded the EPA industrial benchmark of 81.6 µg/l. Since chronic toxicity reflects exposure to a particular concentration over a longer period of time (e.g., seven days for the chronic toxicity test)

exceedance of a chronic criterion in an episodic short term stormwater discharge does not necessarily mean that the in-stream concentration in the receiving water would have exceeded the chronic toxicity standard for sufficient time to actually violate the chronic toxicity standard. EPA notes that none of the receiving waters in the Farmington urbanized area has been listed as impaired due to lead.

One sampling location from the City of Farmington, Arroyo West of Lowe's Parking Lot, shows average concentrations of zinc of 220 µg/l which exceeds the State acute aquatic criterion of 176.36 µg/l and chronic criterion of 177.79 µg/l. This value also exceeds the EPA industrial benchmark of 117 µg/l. EPA also notes that none of the receiving waters in the Farmington urbanized area has been listed as impaired due to zinc.

Many toxicity studies have demonstrated that bioavailibity of metals are affected by pH. For example, Mary K. Schubauer and Joseph R. Dierkes tested the acute of lead to *Ceriodaphnia dubia, Pimephales promelas, Hyalella azteca* and *Lumbriculus variegates* at three pH values (6.3 s.u., 7.3 s.u., and 8.3 s.u.) in very hard reconstituted water. Toxicity of lead was greatest at pH 6.3 s.u. and least at pH 8.3 s.u. to most of the species. Stormwater data from the City of Farmington for pH shows a minimum average value of pH of 6.8 s.u. therefore it is suspected that that lead toxicity to epibenthic and benthic organisms might be reduced by the levels of pH encountered in the stormwater and the levels of pH of approximately 7 - 8 s.u.1 encountered in the receiving waters. Various studies (EPA Ambient Water Quality Criteria document for zinc, EPA 440/5-80-079) have also shown that the chronic toxicity of zinc to daphnids appears to increase with increasing hardness, a phenomenon which may be attributable to ingestion of precipitated zinc by Dahnia magna in hard water tests. With the low average values of harness encountered in the stormwater, it appears that the chronic toxicity of zinc could be reduced by the low levels of hardness encountered in the in the San Juan River of 131 mg/l of CaCO3. However, chronic toxicity of zinc could be increase by the high concentrations of hardness of 266 mg/l and 519 mg/l encountered at the Animas River and La Plata River respectively). The permit includes monitoring requirements for collecting additional 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 is to identify sources of elevated pollutant loadings so they can be addressed by the SWMP. (See Part III.A.1.h of the permit)

It is well documented that the urbanization of an area contributes to changes in the quantity and quality of stormwater discharges and has negative impact on waters of the US. Information presented in Tables 1 and 2 of Addendum F from the City of Farmington and Table 7 illustrates the variable nature of stormwater but also highlights the potential for Water Quality Standards to be exceeded in the discharge. This does not necessarily mean an instream exceedance of water quality standards would have occurred. A conclusion can be drawn that if pollutant concentration data presented is representative of the municipal stormwater runoff from the Urbanized Areas, there is potential for chronic and even acute toxicity. High velocity channelized stormwater flows can also cause habitat modification, exacerbating negative effects. EPA's recognition of the potential for municipal stormwater discharges to degrade receiving water quality is the basis for development of municipal stormwater regulations and permits. However, while water quality effects from municipal stormwater discharges can be anticipated, assessing the degree to which

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receiving waters are affected is a complex process. Assessing the degree to which municipal stormwater discharges affect species that occupy those receiving waters or whose habitat is supported is even more complex. Continued monitoring will be necessary to determine sources of exceeding pollutants in the streams located in the UA MS4s.

The ubiquitous nature of stormwater runoff does not allow for the cessation of municipal stormwater discharges regardless of EPA's action on a permit. Instead, the program uses the National Pollutant Discharge Elimination System (NPDES) permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies. The municipal stormwater programs in NM are also required to reduce the discharge of pollutants to the "maximum extent practicable" and to satisfy the water quality goals of the Clean Water Act. Specifically, implementation of the SWMP and monitoring requirements of the permit will reduce pollutants in MS4 discharges, help guide adaptive management changes by the permittees, and provide information necessary to require more stringent permit requirements through the permit modification process if necessary.

Table 7: City of Farmington MS4 DMR Data vs. National Storm Water Quality Databases

CONSTITUENT	UNITS	SOURCE	MEAN	NO. OF EVENTS
Total Suspended Solids	mg/L	NURP[1]	174	2000
		CDM[2]	78.4	3047
		NSQD[3]	79.1	3404
		MC[4]	129.11	3493
		City of Albuquerque[5]	11836.2	<12
		City of Farmington[6]	376	<30
Biochemical Oxygen Demand	mg/L	NURP	10.4	474
		CDMa	14.1	1035
		NSQD	10.9	2973
		MC[4]	17.3	3105
		City of Albuquerque	33.36	<12
		City of Farmington	NA	
Chemical Oxygen Demand	mg/L	NURP	66.1	1538
		CDM	52.8	2639
		NSQD	71.2	2699
		MC[4]	79.14	2750
		City of Albuquerque	704.8	<12
		City of Farmington	160	<30
Total Phosphorus	mg/ L	NURP	0.337	1902
		CDM	0.315	3094
		NSQD	0.373	3162
		MC[4]	0.41	3285
		City of Albuquerque	2.56	<12
		City of Farmington	0.42	<30
Dissolved Phosphorus	mg/L	NURP	0.1	767
		CDMb	0.129	1091
		NSQD	0.107	2093
		MC[4]	0.20	2477

CONSTITUENT	UNITS	SOURCE	MEAN	NO. OF EVENTS
		City of Albuquerque	0.3	<12
		City of Farmington	NA	<30
Total Kjeldahl Nitrogen	mg/L	NURP	1.67	1601
		CDM	1.73	2693
		NSQD	1.74	3034
		MC[4]	2.04	3191
		City of Albuquerque	6.18	<12
		City of Farmington	2.47	<30
Copper	µg/L	NURP	66.6	849
		CDM	13.5	1657
		NSQD	17.8	2356
		MC[4]	30.65	2722
		City of Albuquerque	79.88	<12
		City of Farmington	13.58	7<30
Lead	µg/L	NURP	175	1579
		CDM	67.5	2713
		NSQD	24.4	2250
		MC[4]	39.15	2949
		City of Albuquerque	113.14	<12
		City of Farmington	7.68	<30
Zinc	µg/L	NURP	176	1281
		CDM	162	2234
		NSQD	110	2888
		MC[4]	226.8	3007
		City of Albuquerque	828	<12
		City of Farmington	142.23	<30

1 Nationwide Urban Runoff Program (NURP 1983)
2 Camp, Dresser, and McGee National Stormwater Database (CDM) (Smullen and Cave 2002)
3 National Stormwater Quality Database (NSQD), (Pitt 2005)
4 Maricopa County New Mexico data from National Stormwater Quality Database (NSQD), (Pitt 2005)
Albuquerque monitoring sites. It represents the maximum average vales from five sites. 6 It represents the average vales from all eighteen outfalls. See Table 1 and 2 in Addendum F

iv. Gross Pollutants. Litter, vegetative debris, floatable material, and coarse sediments (1.75" nominal or larger) found in stormwater may be contributing pollutants to the environment. The permit includes control and monitoring requirements for gross pollutants, including floatables.

v. Chemical Oxygen Demand. Chemical oxygen demand (COD) refers to an environmental test used to determine the amount of organic compounds in water and indicates the mass of oxygen consumed per liter of solution (Veenstra and Nolen 1991). The primary sources of COD are often recalcitrant compounds (e.g., organic matter, iron, ammonia, sulfides, etc.) usually in or on sediments. The depletion of oxygen from the water overlying the bottom sediment is primarily caused by the decomposition of organic matter in sediments. Algae, bacteria, and organic matter often settles out of the water column and onto sediment, or, may become re-suspended into the water column. The sources of COD can include erosion from arroyo or stream banks, suspension of sediment, particulate organic matter, and constituents added from point or

nonpoint sources, biotic deposits, and biotic activity. Kreutzberger et al. (1980) reported that low oxygen in the Milwaukee River were primarily associated with COD churned up by stormwater discharges scouring sediment into the water column. Stormwater from the Farmington MS4 has been measured and reported to EPA each year in the Annual Reports. Average values shown in Tables 1 and 2 in Addendum F indicate COD levels above national stormwater database averages, but below levels encountered in the Albuquerque UA. EPA's Multi-Sector Stormwater General Permit for Industrial Activities benchmark value for COD is 120 mg/L (BOD times 4). The averages of COD measured at Farmington MS4 monitoring locations are above the 120 mg/L benchmark with average concentration from the eighteen outfalls of 160 mg/L. The proposed permit includes strategies to address dissolved oxygen and pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters.

F. Permitting Options for MS4s

The Phase II regulations provide two options for MS4s located in the UAs in New Mexico to obtain required storm water permits for MS4 discharges:

1. Apply for coverage under the general permit discussed in this fact sheet.

2. Apply for an individual permit.

Region 6 believes that most EPA-regulated MS4s in the State of New Mexico, except those MS4s located in the Middle Rio Grande Watershed as depicted in the maps in Appendix A of the MRG MS4 permit, will seek coverage under this general permit (which can also accommodate cooperative or shared programs between individual MS4s under the general permit). However, the other option is also available to MS4s which may believe that the terms and conditions of the general permit are not appropriate for them. Note, however, that the same technology and water quality requirements and concerns would apply to an individual permit, likely leading to the same or very similarly conditions for any alternative permit for MS4s in the New Mexico. Application requirements for individual permits are found at 40 CFR 122.33(b)(2).

G. Opportunities for Public Input Into the Permit Process

As with all NPDES permits, the public had the opportunity to provide input on the permit during the public comment period described at the beginning of this document. Since general permits are issued without an application to positively identify who will be using the permit, the conditions of today's proposed permit are designed to control pollutants to the Maximum Extent Practicable in all discharges that fall within the general permit's scope of eligibility. In developing NPDES permit conditions and evaluating effects of permit issuance, EPA bases decisions on the assumption that the permittee will fully comply with all applicable permit conditions.

Consistent with 40 CFR 122.34(b)(2), Part I.D.5.h of the permit requires permittees to develop, update, and implement a public involvement/participation program as part of their comprehensive storm water management program. Interested members of the public are encouraged to contact their local officials for information on how they can participate in the development and implementation of local storm water management programs.

To obtain coverage under the general permit, the operator of the MS4 will need to submit a Notice of Intent and information on their storm water management program (see Part I.B of the permit). The permit will require the permittees to provide local public notice of and make available for public review a copy of the complete NOI and attachments before the NOI is submitted to EPA for approval (see Part I.A.3.a.(i).(a)). Once these documents have been received by EPA, they become public records and are available for review by interested parties under the Freedom of Information Act.

The Federal regulations at 40 CFR 122.28(b)(3) regarding administration of general permits allows the Director to require any discharger authorized by a general permit to apply for and obtain an individual NPDES permit. This eventuality is covered by Part IV.M of the permit and provides a mechanism to address situations with individual dischargers where there is a water quality problem with the discharges from a particular MS4 and the permittee has failed to address the problem with appropriate modifications to the storm water management program. Any interested person may petition the Director to take action under these regulations.

III. COVERAGE OF THE GENERAL PERMIT

A. Geographic Coverage

This permit covers the State of New Mexico, except Indian lands and the Middle Rio Grande Watershed.

B. MS4s Covered by the 2000 and 2010 Census

Table 8 provides a list of the small MS4s within Urbanized Areas as of the 2000 and 2010 Census. As discussed above, EPA Region 6 is relying primarily on the 2000 and 2010 Census Urbanized Areas to determine which MS4s are subject to permitting. Table 8 below also provides the names of the city and county "places" within the areas covered by the MS4 general permit. Note that the list does not includes the names of non-traditional municipal, state, tribal, or federal MS4s located within these areas which would also need permits. Maps of Census 2010 Urbanized Areas and lists of cities and counties located within them are available online at http://cfpub1.epa.gov/npdes/stormwater/urbanmaps.cfm.

Table 8. Places within Census 2000 and 2010 Urbanized Areas

Place	County	Population based on 2000 Census	Population based on 2010 Census
City of Farmington	San Juan County	36,946	45,877
San Juan County *	San Juan County	113,801	130,044
City of Aztec	San Juan County	6,378	6,763
City of Santa Fe	Santa Fe County	62,203	67,947
Santa Fe County *	Santa Fe County	129,292	144,170
Town of Mesilla	Dona Ana County	2,180	1,643
Dona Ana County *	Dona Ana County	174,682	209,233
City of Las Cruces	Dona Ana County	74,267	97,618

City of Anthony	Dona Ana County	7,803	9,360
Dona Ana County *	Dona Ana County	174,682	209,233
City of Sunland Park	Dona Ana County	13,257	18,204
Belen	Valencia County	6,901	7,269
Los Lunas	Valencia County	10,034	14,835
Bosque Farms	Valencia County	3,931	4,092
Valencia County	Valencia County	66,152	76,569

* Total population in the county.

C. Authorized Discharges

Subject to the terms and conditions of Part I.A.3, and Part I.A.5, the general permit authorizes municipal storm water discharges and certain allowable non-storm water discharges from all parts of the operator's municipal separate storm sewer system. The list of allowable non-storm water discharges in Part I.A.4 are taken primarily from 40 CFR 122.34(b)(3)(iii). The permit also allows the permittee to identify other similar occasional incidental non-storm water discharges, such as those from charity car washes, that need not be treated as illicit discharges provided the discharges would not be significant contributor of pollutants either due to their nature or conditions placed upon them by the permittee.

IV. LIMITATIONS ON COVERAGE

A. Storm Water Discharges Mixed with Non-Storm Water

The permit requires the permittee to prohibit all types of non-storm water discharges into its MS4, except for discharges that are authorized by a separate NPDES permit, and allowable non-storm water discharges listed in Part I.A.4 of the permit. The permit also does not allow coverage for discharges of storm water associated with industrial activity (40 CFR §122.26(b)(14)(i) through (ix) and (xi)), or storm water discharges from construction activity (40 CFR §122.26(b)(14)(x) or 40 CFR §122.26(b)(15)). Coverage for such discharges is available under the September 29, 2008, Multi-Sector General Permit and the February 29, 2012 Construction General Permit.

B. Water Quality Protection

Federal regulations at 40 CFR §122.4(d) provide that no permit may be issued if the "conditions cannot ensure compliance with the applicable water quality requirements." While CWA §402(p)(3)(B) does not specifically mandate compliance with CWA §301 water quality requirements, CWA §402(p)(3)(B)(iii) does provide the authority to include conditions the Administrator or State/Tribe determines appropriate for control of pollutants. Given the overall goal of water quality protection in the CWA and the express purpose of Phase II of the NPDES storm water program to regulate storm water discharges to protect water quality, water quality based controls are deemed appropriate for this permit.

Unlike individual permits that include requirements tailored to site-specific considerations, general permits, while tailored to specific industrial processes or types of discharges (e.g. offshore oil and gas or storm water), do not contain site-specific requirements that address the water quality conditions of the waters receiving the discharge. Therefore, general permits rely on permittees to certify that they meet the eligibility conditions and implement requirements that will ensure compliance with the conditions of the

permit. The permit requirements at Part I.C.1 and Part I.D.1 are intended to ensure that those seeking coverage under this general permit select, implement, and maintain BMPs for their Storm Water Management Program that will reduce the discharge of pollutants to the Maximum Extent Practicable and will be adequate and sufficient to protect water quality standards of state and tribal waters for all pollutants of concern.

For this permit, eligibility provisions do not hinge on the operator making a determination of compliance with applicable water quality standards. Rather, the permit limits operators from obtaining coverage under this permit if EPA makes such a determination. In those instances when EPA does make such a determination, EPA may require the operator to obtain coverage under an individual permit or may allow coverage under this permit provided that the operator includes appropriate controls and implementation procedures in its SWMP. As is required in Parts I.C.1 and I.D, operators are required to select, implement, and maintain BMPs that minimize pollutants in the discharge to the Maximum Extent Practicable (MEP) and will protect water quality. Except where specifically required by EPA to perform additional measures, a SWMP developed in accordance with these requirements will be considered as stringent as necessary to ensure that discharges do not cause or contribute to an excursion above any applicable state water quality standard. As such, EPA expects that compliance with the terms of the general permit will ensure compliance with water quality standards.

C. Consistency with an Applicable Total Maximum Daily Load (TMDL) Analysis.

A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Under current regulations and EPA program guidance (40 CFR §130.2 and §130.7), States establish TMDLs that include wasteload allocations from point sources, and load allocations from non-point sources and natural background conditions. Wasteload allocations are defined as the portion of a receiving water's loading capacity that is allocated to point source dischargers. TMDLs are established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety that take into account any lack of knowledge concerning the relationship between effluent limitations and water quality. TMDLs are developed on a pollutant- and waterbody-specific basis. In some instances, TMDLs may combine multiple pollutants into one set of TMDL documents; however, the specific TMDL wasteload and load allocations are to be pollutant-specific. Although States are have the primary responsible for establishing TMDLs, in some instances EPA establishes the TMDLs. Once established or approved by EPA, TMDLs are implemented through water quality management plans and through NDPES permits. NPDES regulations, at 40 CFR §122.44(d)(1)(vii)(B), require that EPA ensure that NPDES permit limits are consistent with the assumptions and requirements of any available wasteload allocation pursuant to 40 CFR §130.7. Generally, this requires EPA to ensure that NPDES permits incorporate applicable assumptions and requirements detailed in TMDLs approved or established by EPA.

Appendix B of the permit shows waste load allocations for MS4s located in the permitted area. Permitttees are required to include BMPs in their Storm Water Management Program targeting pollutants of concern for TMDLs (i.e., targeted controls) and adopt a measurable goal based on the WLA provided in the TMDL. Permittees are also required to have or participate in a monitoring/assessment program aimed at determining whether discharges are consistent with the assumptions and WLAs of a TMDL.

D. Endangered Species

The Endangered Species Act (ESA) of 1973 requires Federal Agencies such as EPA to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (also known collectively as the "Services"), that any actions authorized, funded, or carried out by the Agency (e.g., EPA issued NPDES permits authorizing discharges to waters of the United States) are not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or adversely modify or destroy critical habitat of such species (see 16 U.S.C. 1536(a)(2), 50 CFR 402 and 40 CFR 122.49(c)).

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, Part I.C.3 of the permit has included strategies to address dissolved oxygen and pollutant loads associated with sediment (e.g., metals, etc. adsorbed to or traveling with sediment, as opposed to clean sediment) into the receiving waters located in the Farmington and Los Lunas UAs.

A list of listed or proposed endangered or threatened species within the geographic areas covered by the permit is maintained at EPA's website at http://cfpub.epa.gov/npdes/stormwater/endangerspecies.cfm. Information on endangered and threatened species and designated critical habitat is also available directly from the U.S. Fish and Wildlife Service's website at http://criticalhabitat.fws.gov/crithab/, which provides additional information on the species. The principal threats to these species which may be associated with the storm water discharges that would be authorized under the permits are loss or modification of habitat and materials such as pesticides and other pollutants in the discharges. The requirements of the permit are designed to both improve the quality of existing unregulated discharges and address impacts on discharges related to future municipal growth.

E. Historic Preservation

The National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of Federal undertakings, including undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term "Federal undertaking" is defined in the existing NHPA regulations to include any project, activity, or program under the direct or indirect jurisdiction of a Federal agency that can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects for that project, activity, or program. See 36 CFR 802(o). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. See 36 CFR 802(e).

Federal undertakings include the EPA's issuance of general NPDES permits. To ensure compliance with the NHPA, the permit authorizes storm water discharges only under the following circumstances:

1. The **storm water discharges, and discharge related activities by the permittee** do not affect a property that is listed or has been reviewed and determined to be eligible for listing on the National Register of Historic Places as maintained by the Secretary of the Interior; or

2. The MS4 has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) that outlines all measures that will be undertaken to mitigate or prevent adverse effects to historic properties.

The above requirements are implemented via the eligibility requirements of the permit (Part I.A.3.b)

which restricts permit eligibility to storm water discharges and storm water discharge-related activities which meet either of the above criteria. The above criteria are based on the criteria used in the EPA Region 8 and Region 1 general permit for small MS4s. The process and criteria are also similar to those in EPA's September 28, 2008, Multi-sector General Permit for discharges of storm water associated with industrial activity (73 FR 56572). Region 6 believes these conditions are also appropriate for the small MS4 general permit. Appendix C to the permit (derived from the Region 1 and Region 8 general permits) provides additional direction which must be followed by permit applicants concerning the determination of permit eligibility. Permittees must certify that they have met the eligibility requirement when they submit their notices of intent requesting coverage under the permit.

For new development and redevelopment projects as well as construction activities 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, the permit recommends the permittees develop standards to direct growth to identified areas to protect areas with historic properties concerns. The permit includes requirements to preserve and protect environmentally and ecologically sensitive areas, including historic properties.

In addition to the eligibility provisions in Part I.A.3.b applicable to the MS4 designated area, the permit also includes requirements (see requirements in Part IV.U) to protect archeological and historic sites located within the regulated MS4 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.

V. SUMMARY OF PERMIT CONDITIONS

A. Notification Requirements

In accordance with 40 CFR 122.28(b)(2)(i), a notice of intent (NOI) must be submitted by all dischargers seeking discharge authorization under the general permit.

1. Deadlines for NOIs

Class B Permittees: For existing MS4s in urbanized areas designated under 40 CFR 122.32(a)(1) based on the 2000 Census, the deadline for submittal of the NOI is 90 days from effective date of the permit. **Class C Permittees**: For new MS4s in urbanized areas designated under 40 CFR 122.32(a)(1) based on the 2010 Census or designated by the Director to protect water quality in a receiving water, the deadline for submittal of the NOI is 180 days from effective date of the permit.

It should be noted that EPA has followed permittees class type definitions (Classes A, B, C, and D) used in the MRG MS4 permit NPDES NM04A000. In this proposed permit there are not Class A permittees (Phase I MS4s) nor Class D (Tribal MS4).

MS4s intending to use cooperative programs to satisfy one or more SWMP or monitoring elements shall submit their NOIs no later than 180 days from effective date of the permit.

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. Note that these NOI deadlines would not prevent a permittee from later participating in an existing or new cooperative program element.

Any MS4 designated as needing a permit after issuance of this permit will be given a deadline for NOI submittal by the Director at the time of designation.

2. Contents of NOI

. The following information must be provided in the NOI:

a. The name of the municipal entity/tribe/state agency/federal agency, mailing address, and telephone number;
b. An indication of whether the MS4 is a Federal, State, Tribal, or other public entity;
c. The urbanized area or core municipality (if the MS4 is not located in an urbanized area) where the MS4 is located; the name of the organization, county(ies) where the MS4 is located, and the latitude and longitude of an approximate center of the MS4;
d. The name of the major receiving water(s). If there are discharges to a water with an applicable Total Maximum Daily Load, a certification that the SWMP complies with the requirements of Part I.A.5.f and Part I.C.2 of the permit (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 permitee or a group of permittees must submit a preliminary proposal with the NOI to EPA and NMED);
e. An indication of whether all or a portion of the MS4 is located on Indian Country lands and would have discharges to waters under tribal jurisdiction.
f. If the MS4 is relying on another entity to satisfy one or more of the permit obligations, the identity of that entity(ies) and the element(s) they will be implementing.
g. Certification of whether the permittee has met eligibility criteria for protection of historic properties.
h. A description of the storm water management program (SWMP), including best management practices (BMPs) 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) responsible for implementing or coordinating the SWMP, and the supporting documentation required by Part I.A.3.b.

The NOI must be signed in accordance with Part IV.H of the permit and must include the certification statement in Part IV.H.4 of the permit. 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. (see also 40 CFR 122.22(a) and (b)).

3. Where to Submit the NOI

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). See a suggested EPA R6 MS4 NOI format located in EPA website at http://epa.gov/region6/water/npdes/sw/ms4/index.htm. A complete copy of the signed NOI should be maintained on site. The final permit requires copies of the NOI to be provided to State.

4. **Reapplication for Coverage When the General Permit Expires**

The general permit will expire five years from permit issuance date. If the 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 earliest of:

a. Reissuance or replacement of the permit, at which time a new NOI must be submitted in accordance with the requirements of the reissued permit; or
b. Issuance of an individual permit for the discharges; or
c. A formal permit decision is made by the Director not to reissue the general permit, at which time dischargers must seek coverage under an alternative general permit or an individual permit.

5. **Permittees with Cooperative Elements in their SWMP**

Any MS4 that meets the requirements of Part I.A of the 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.

6. **Notice of Termination**

A discharger covered by the general permit must terminate coverage if any of the following conditions are met:

a. A new operator has assumed responsibility for the MS4; or
b. The discharger has ceased operations at the MS4; or
c. The permittee is able to eliminate the storm water discharges from the MS4.

EPA has not developed a special notice of termination (NOT) form for MS4s. As such, to terminate coverage a letter including the following information must be submitted:

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 Notice of Termination;
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.

NOTs, signed in accordance with Part IV.H of the permit, must be sent to EPA at an address that will be provided with final permit.

7. **Effective Date of Coverage**

Coverage will generally become effective upon notification of EPA's approval.

B. **Storm Water Management Program (SWMP) Requirements**

The general permit requires that all dischargers covered by the permit develop and implement a SWMP. The SWMP is the means through which dischargers comply with the CWA's requirement to control pollutants in the discharges to the maximum extent practicable (MEP), and comply with the water quality related provisions of the CWA. EPA considers MEP to be an iterative process in which an initial SWMP is proposed and then periodically upgraded as new BMPs are developed or new information becomes available concerning the effectiveness of existing BMPs (64 Fed. Reg. 68754).

Minimum Pollution Control Measures: The Phase II regulations at 40 CFR 122.34 set forth the following six minimum pollution control measures to be included in SWMPs.

1. Public Education and Outreach on Storm Water Impacts.
2. Public Involvement/Participation.
3. Illicit discharge detection and elimination.
4. Construction Site Storm Water Runoff Control.
5. Post-Construction Storm Water Management in New Development and Redevelopment.
6. Pollution Prevention/Good Housekeeping for Municipal Operations.

For each minimum measure, the regulations specify certain required elements, and also guidance which provides additional information concerning what an adequate program should include. The permit includes nearly verbatim the required program elements for each minimum measure. The permit also includes a number of additional requirements for each minimum measure which were derived from the recommendations of the regulations. These provisions are included in the permit as requirements rather than recommendations to ensure their enforceability. Addendum C to this fact sheet provides a list of the requirements of the regulations and the guidance for each minimum measure.

Recognizing that traditional MS4s such as cities and counties, non-traditional MS4s such as flood control districts and military bases, and transportation department MS4s have inherently different scopes of authority, the SWMP requirements may be modified as necessary to accommodate these different kinds

of MS4s. For example, the audience for public education programs by a city would be the general public, while the audience at a military base would be base personnel (including dependents), contractors, and visitors. Likewise, the Highway Department and Flood Control Authorities have little, if any, authority or direct responsibility for third part activities outside the right of way encompassing their structures, meaning that SWMP elements such as the construction and development programs will likely only apply to that permittees own construction projects even though their "jurisdiction" may encompass larger areas, such as the city of Farmington, where these programs would be implemented by the city for residential and commercial development projects. EPA recognizes that in-stream monitoring would capture not only the benefits of upland controls inside the MS4s, but also any additional water quality controls related to flood control structures that had been placed in a water of the United States.

EPA has also developed a menu of BMPs for small MS4s which is available on EPA's website at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm to assist in the development of SWMPs. The menu provides detailed descriptions of BMPs which may be included in SWMPs to satisfy the requirements of the six minimum measures. In addition, Addendum D to this fact sheet provides descriptions of program elements which have been developed by Phase II MS4s.

Controlling Runoff from New Development and Redevelopment. Permit conditions include requiring stormwater controls that mimic predevelopment runoff for up to the 90th percentile storm event associated with new development sites and 80th percentile storm event associated with redevelopment sites intended to reduce the pollutants in discharges from new or significant re-development sites. Permittees can also estimate a site specific 90th or 80th percentile storm event discharge volume using methodology specified in the EPA Technical Report entitled *Estimating Predevelopment Hydrology in the Urbanized Areas in New Mexico*, EPA Publication number 832-R-15-009, or a site specific pre-development hydrology and associated storm event discharge volume using also the methodology specified in the EPA Technical Report.

The pre-development hydrology analysis consisted of conducting a percentile analysis of rainfall data for fixed 24-hour intervals for events greater than 0.1 inches and analyzing the daily rainfall-runoff response for each of the urbanized areas/urban clusters to determine the percentile rainfall event at which runoff begins to occur, See the results in Table 9 below. The study indicates that with the exception of the Santa Fe UA, the runoff generally in all NM UAs does not begin until the 90th percentile event. For Santa Fe, the runoff begins well before the 90th percentile event is reached. It is important to note that regulated areas in Santa Fe have a large percentage of high sloping areas and may be a contributing factor to higher runoff compare to the other urban areas. It is likely that more development projects is Santa Fe than other UAs will be limited in in their ability to achieve full compliance with the post-development requirements of the permit and will need to take advantage of the permit conditions recognizing the need for consistency with New Mexico water law.

Table 9. 90th percentile rainfall events (inches)

NCDC ID	Name	90th percentile	80th Percentile
293142	Farmington Agricultural Science Center	0.53	0.40
295084	Los Alamos	0.69	0.53
295150	Los Lunas 3 SSW	0.71	0.48
298085	Santa Fe 2	0.68	0.50
298535	State University (Las Cruces)	0.78	0.55
412797	El Paso Airport	0.82	0.54

NCDC: National Climate Data Center

There are important watershed-specific reasons for EPA to adopt these post-construction requirements. Stormwater discharges from urban areas has contributed to the impairments in the receiving waters for several pollutants (e.g., *E. coli*, temperature, dissolved oxygen, PCBs, nutrients), see Table 2 of today's Fact Sheet) Impacts from stormwater discharges are also a concern for the protection of the endangered Silvery Minnow located in the Rio Grande and the , the razorback sucker or the Colorado pikeminnow located in the San Juan, Animas, and La Plata which is sensitive to high levels of sediment and heavy metals, as well as to fluctuations in temperature, flow, and dissolved oxygen levels (See U.S. Fish & Wildlife Service's Biological Opinion dated August 21, 2014 and the Biological Evaluation for Municipal Storm Water Discharges from the Farmington Urbanized Area and Authorized under NPDES Permit No. NMR040000 dated September 10, 2009). By requiring stormwater discharges from new development and redevelopment to mimic the hydrology of the previously undeveloped site, EPA expects to address these water quality concerns. For example, use of controls such as bioretention or other infiltration and filtration practices, types of practices expected to be used to meet the permit's post-construction requirements have exhibited high removal efficiencies for total suspended solids (TSS), nitrogen, phosphorus, copper, and zinc. See "National Pollutant Removal Performance Database", Center for Watershed Protection (September 2007). For comparison purposes, for the Middle Rio Grande watershed, in particular, EPA estimates that by implementing the post-construction requirements in the MRG Watershed Based MS4 permit, the discharge of pollutants of concern, such as total suspended solids (TSS), nitrogen, phosphorus, and *E. coli*, from new development and redevelopment will be reduced by an average 70 percent. See "*Estimating Pollutant Load Reduction from a Stormwater Retention Standard in the Middle Rio Grande Watershed, New Mexico", Tetra Tech (September 2014.)* This estimated reduction will help MS4s achieve the WLA assigned in the Middle Rio Grande *E. coli* TMDL, which is targeted at 66 percent. See *Stormwater Management for TMDLs in an Arid Climate: A Case Study Application of SUSTAIN in Albuquerque, New Mexico* (EPA 2013). Similar to the December 2014 MRG Watershed Based MS4 permit, the proposed permit requires that the permittees in the NM UAs develop a program to incorporate long-term stormwater controls into new development and redevelopment projects to reduce pollutants in discharges from the MS4 that originate from newly developed and redeveloped sites to the maximum extent practicable.

Long-term Stormwater Controls. Land development directly affects watershed functions, and water quality in receiving waters. When development occurs in previously undeveloped areas, the resulting alterations to the land can dramatically change how water is transported and stored. Development creates impervious surfaces and compacted soils that increase surface runoff and decrease ground water infiltration. These changes can increase the volume and velocity of runoff, the frequency and severity of flooding, peak storm flows as well as the type, concentration, and quantity of pollutants in discharges.

Phase II MS4 regulations found at 40 CFR 122.23(b)(5) state that a Phase II MS4 must "develop, implement, and enforce a program to address storm water 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] small MS4. [The] program must ensure that controls are in place that would *prevent or minimize water quality impacts*." To that end, the regulations require that a MS4 develop and implement a program to address post-construction runoff from newly developed and redeveloped areas, and ensure the long-term operation and maintenance of these management practices.

Because the creation of impervious surfaces and the generation of runoff pollutants are created by activities and decisions at the site scale, neighborhood scale, and watershed or regional scale, this permit

sets up a framework to consider pivotal activities at multiple scales. A program to implement site level controls for new and redevelopment are an evolution of activities required under the prior MS4 permits, and implementation of the necessary components of this programs are achievable within the time frame of this 5 year permit term. Implementation of some pivotal controls for activities at the watershed or regional scale may be, in some cases, longer-term propositions. Therefore, this permit sets up the framework for initial steps, with the understanding that some institutional controls may not be fully implemented until the next permit term. However, even though all of these activities may be on different schedules, the permittee should consider all of them in the context of an integrated stormwater management program to ensure that they complement each other.

Site and Neighborhood Design provisions require the permittees to adopt and implement stormwater quality design standards for new and redevelopment projects, and a program to implement those standards.

A variety of water quality standards continue to be exceeded in most urban and urbanizing streams, and stormwater discharges are commonly identified as the causes; currently there are thousands of waters nation-wide with impairments attributable to stormwater.

As urbanization occurs, a corresponding increase in impervious surface area also occurs. These changes to the landscape cause the volumes, rates and durations of runoff-related discharges to increase, along with a corresponding increase in pollutant loadings. In addition, stream channels are destabilized due to the increased energy of the runoff that results in bank cutting, stream channel widening, channel incision and detrimental sediment mobilization and deposition. Because of these changes in runoff volumes and rates, the stream systems and waterbodies within and downstream of urbanization are commonly impaired due to sediment and nutrient loadings, increased total suspended solids, poor biotic communities, and increased stream temperatures.

Stormwater management standards are most commonly written with provisions that promote or require extended detention controls, such as extended detention wet ponds, dry detention basins or constructed wetlands. There are multiple problems with extended detention as a water quality management practice. Primary to this is that receiving stream dynamics are based on balances of much more than just discharge rates. Extended detention practices are first and foremost designed to prevent downstream flooding and not to protect downstream channel stability and water quality. For decades, water quality protection has been a secondary goal, or one omitted entirely during the design of these facilities. Over time it has become apparent through research and monitoring that these practices do not effectively protect the physical, chemical or biological integrity of our receiving waters. Furthermore, operation and maintenance of these systems to ensure they perform as designed requires a level of managerial and financial commitment that is often not provided. A number of researchers have documented that detention ponds fail to meet their design goals in terms of maintaining water quality, downstream habitat and biotic integrity of the receiving waters.

There is now a large body of research demonstrating that practices that mimic the natural water cycle – processes that result in the infiltration, evapotranspiration and capture and use of stormwater – are simultaneously advantageous for protecting the physical, chemical and biological characteristics of receiving waters. Why? Because these practices are designed to mimic the way natural vegetated landscapes respond to precipitation events. When it rains or when snow melts, vegetated areas (forests, prairies and grasslands, gardens and trees) intercept, evaporate and absorb much of the rainfall. Some of the precipitation is also absorbed or infiltrated into the soil. Ideally, site designs and plans should make

use of these natural systems and processes as much as possible to mimic or preserve the site hydrology, i.e., the balance of plant uptake of water, infiltration of runoff into the soil and groundwater table, and the natural runoff patterns into natural drainage ways and streams.

Most bioinfiltration measures are designed to not discharge at all during small storm events, which means that pollutants do not reach the receiving water. There are good performance data for practices that infiltrate and/or evapotranspire stormwater. Research studies on bioretention practices and permeable pavements can be found at the following links:

Dr. Allen Davis, University of Maryland
http://www.ence.umd.edu/~apdavis/LID-Publications.htm

Dr. William Hunt, North Caroline State University
http://www.bae.ncsu.edu/topic/bioretention/publications.html,

Dr. Michael E. Dietz, Utah State University
"Low Impact Development Practices: A Review of Current Research and Recommendations for Future Directions"
http://www.springerlink.com/content/nq44j610685n4112/

Dr. Jean Spooner and Mr. Dan Line
http://www.bae.ncsu.edu/programs/extension/wqg/pacifica/

Under natural conditions approximately 10% of the volume of precipitation falling to earth runs off to surface waters via surface/overland flow. Nearly all of the remaining amount of stormwater infiltrates, or is intercepted or taken up by plants. This natural system can be successfully adapted in developed and developing watersheds to protect receiving waters from both pollutants and altered hydrology. This permit proposes a simple stormwater quality design standard to ensure the hydrology associated with new development and redevelopment sites mirror the pre-development hydrology of the previously undeveloped site. Analysis of precipitation data indicates that 90% of the 24 hour (or less) rainfall events are in the range of 0.5 to 0.8 inches in the NM UAs (see EPA Technical Report entitled "*Estimating Predevelopment Hydrology in the Urbanized Areas in New Mexico*. Therefore stormwater systems designed to mirror the pre-development hydrology will reasonably mimic the natural hydrologic process. All new and redevelopment projects must design, implement and maintain a system of controls that will prevent an increase in the one-hundred-year, two-hour peak runoff, a change in the time of the peak, or an increase in the total runoff from its pre-development values and manage pre-development runoff values on site.

Because implementing the design standards (managing 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) will require changes to local codes and ordinances, as well as development of a municipal review and approval process, a compliance schedule for each permittee class type has been included. The design standards must be implemented and enforced via an ordinance and/or other enforceable mechanism(s). Note that EPA proposes to retain the ability to provide modified schedules for permittees brought into the permit at a later date due to decisions on waivers or designations. Permittees brought into the permit at a later date may already be beyond or incapable of meeting deadlines established for permittees who were aware of their need for a permit at the time the permit was issued.

The permit also includes several additional water quality requirements, as applicable, that the permittee should implement via enforceable requirements within their jurisdiction. For activities/operations with demonstrable potential for pollutant loadings that may contaminate groundwater, water quality treatment for pollutants of concern must be provided if infiltration measures are to be used, e.g., areas handling chemicals, automobile service stations and lawn care operations/greenhouses/nurseries that handle fertilizers and pesticides. If an operation cannot implement adequate preventive or treatment measures to ensure compliance with groundwater and/or surface water quality standards, then stormwater must be properly treated via an NPDES-permitted facility or licensed waste hauler.

State water quality standards include priority protections for certain waters of the state. As applicable measures to prevent addition of pollutants to the water body, including thermal pollutants, must be implemented.

When considered at the watershed scale, certain types of development can either reduce existing impervious surfaces, or at least create less associated imperviousness. At this scale, development can be used as one approach to improving water resources.

Plan Review, Approval and Enforcement provisions require that the permittees incorporate the standards outlined in Part I.D.5.b into site plan review, approval and enforcement procedures to ensure accountability for their implementation. Plan review procedures include pre-application procedures, site plan review and approval procedures, submittal of as-built certification within 90 days of project completion, post-construction verification procedures, and an education program for municipal staff and those subject to these requirements.

Maintenance Agreements provisions require that the permittees obligate the owner of long-term management practices to properly operate and maintain them for their accepted life span. This obligation can take the form of a maintenance agreement between the land owner and/or the developer, which would be transferred to subsequent owners, between the permittee and a homeowner's association, covenants and restrictions on the property deed itself, or other type of contract requiring all owners of the property to properly maintain and operate management practices. The maintenance agreement shall allow the permittee or its designee to perform maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from that owner/operator.

Assessments provisions require the permittees to conduct assessments to provide a foundation for program improvements to be implemented during the next permit term.

C. Measurable Goals

A requirement to adopt measurable goals for the SWMP was included in the Phase II regulations at 40 CFR 122.34(d)(1) to ensure that the public can better evaluate the level of effort used by MS4s in controlling pollutants in the discharges and to ensure accountability of the MS4s

Measurable goals are quantifiable measures of progress in implementing the various BMPs which comprise a SWMP. Measurable goals may consist of specific one-time only objectives such the development of a storm water ordinance by a certain date, or they may consist of numeric objectives for the frequency of implementation of a given BMP (such as the frequency of street sweeping or catch basin

cleaning). Measurable goals may also consist of specific objectives for water quality improvement over a given time period.

Measurable goals must be included for each specific BMP which is included in the SWMP. EPA has developed a measurable goals guidance which is available on EPA's website at http://water.epa.gov/polwaste/npdes/stormwater/upload/measurablegoals.pdf. Example measurable goals are provided for each of the six minimum measures to assist MS4s in the development of their own measurable goals. Region 6 recommends that this guidance be reviewed by MS4s in developing their measurable goals.

D. Sharing Responsibility for SWMP Implementation

The Phase II regulations at 40 CFR 122.35(a) recognize that one or more of the minimum measures may be implemented within a given MS4 by an entity other than the discharger (for example, a county may implement a street sweeping program in a given city within the county). As such, the regulations and Part I.D.3.b of the permit provide that a given MS4 may rely on another entity to implement some of the required minimum measures if:

1. The other entity, in fact, implements the control measure;

2. The particular control measure, or component thereof, is at least as stringent as the corresponding requirement set forth in the permit; and

3. The other entity agrees to implement the control measure on behalf of the particular MS4. In the annual reports which are required under Parts III.B and D of the permit, the MS4 must also specify that it relies on another entity to satisfy some of its permit obligations. If a given MS4 relies on another entity for implementation of a particular BMP, the MS4 remains responsible for compliance with the permit if the other entity fails to implement the BMP. However, where there are clear delineations of responsibility in interjurisdictional agreements, compliance with those locally agreed-upon responsibilities (combined with prompt development and implementation of an alternative program element should a cooperative program fail to be implemented fully), will be used to assess compliance for each individual permittee. The permit also requires that the MS4 provide the other entity with the reporting requirements of Parts III.B and D of the permit. The other entity must then provide the annual report information for the MS4 as described in Parts III.B and D of the permit.

E. Qualifying State, Tribal or Local Programs

The Phase II regulations at 40 CFR 122.34(c) recognize that State, Tribal or local programs may already exist which meet the requirements of one or more of the six minimum measures. In such a case, the regulations and Part I.D.8 of the permit provide that the MS4 may include the local qualifying program in the SWMP instead of developing a new program in accordance with the requirements of the minimum measure. A local qualifying program must include, at a minimum, the relevant requirements of the six minimum measures described in the regulations at 40 CFR 122.34(b).

F. **Review of SWMPs by Region 6**

Parts I.A.6.a.(iii) and I.A.6.c of the permit allow Region 6 to notify a given MS4 that the SWMP which

was submitted with the NOI, or the measurable goals, do not meet one or more of the minimum requirements of the permit. This provision allows that Region 6 to require upgrades or modifications to SWMPs which may be deficient or less effective than originally expected, and ensure that the SWMPs are adequate to meet the objectives of the general permit. Changes to SWMPs, when required, must be made within 30 days of receipt of notification or as specified by the Director in the notice to the permittee.

G. **Special Conditions**

1. **Compliance with Water Quality Standards**

The permit (Part I.C.1) requires that discharges not cause or contribute to a violation of an applicable numeric or narrative surface water quality standard. When exceedances do occur, the permit also requires that the permittee take all necessary actions to ensure that future discharges do not cause or contribute to a violation and must document the actions in the SWMP. If a violation remains or recurs, coverage under the general permit may be terminated by EPA, and EPA may require an alternative general permit or individual permit. The language in the permit is similar to language in EPA's MSGP. As also discussed above in section II.A, Region 6 believes that the requirements are consistent with the intent of the Phase II program as described in the preamble to the Phase II regulations.

2. Discharges to Impaired Waters with and without approved TMDLs

40 CFR 122.44 (d)(1)(vii) requires that NPDES permit conditions be consistent with State and Tribal water quality standards and available waste load allocations (WLAs) in an approved Total Maximum Daily Load (TMDL). Inclusion of conditions to protect the quality of receiving waters are based on the authority of Section 402(p)(3)(B)(iii) of the Act. The requirements in the permit are designed to implement the requirements of the TMDL. The TMDL requires the use of controls to meet water quality standards in stormwater through a combination of source reductions and structural controls. 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 their corresponding measurable goals.

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.

The permit requires the permittees to control the discharges of pollutant(s) of concern to impaired waters and waters with approved TMDLs and to assess the success in controlling those pollutants in the SWMP document. If the pollutant of concern is bacteria, the permit includes provisions to implement focused BMPs addressing the five areas below. .

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.

If the permittee discharges directly into an impaired water body without an approved TMDL, the permit requires the permittee 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 permit requires the permittees to implement BMPs, to reduce, the discharge of pollutant(s) of concern that contribute to the impairment of the water body. Where the impairment is for bacteria or nutrients, the permittee shall identify potential significant sources and develop and implement targeted BMPs for those sources. The annual report must include information on compliance with this section, including results of any sampling conducted by the permittee.

EPA also requires revisions to the SWMP to include the requirements of the TMDL and/or its associated implementation plan. Monitoring of the discharges may also be required, as appropriate, to ensure compliance with the TMDL.

3. Endangered Species Act (ESA) Requirements

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, Part I.C.3.a.(ii) of the permit requires the MS4s located in the Farmington and Los Lunas UAs to implement a sediment pollutant load reduction strategy to assess and reduce pollutant loads associated with sediment. The permittees shall implement controls, and updating/revising as necessary, to eliminate discharge of pollutants at levels that cause or contribute to exceedances of applicable water quality..

H. **Discharge Limitations.**

No numeric limitations are included at this time. In accordance with 40 CFR 122.44(k), the EPA has required a series of storm water control measures, in the form of a comprehensive SWMP, in lieu of numeric limitations. Additional controls or numeric limitations may be included in the final permit, if necessary, to implement conditions of certification under Section 401 of the Act.

I. Monitoring, Recordkeeping, and Reporting Requirements

1. Monitoring Requirements

The Phase II storm water regulations at 40 CFR 122.34(g) require that small MS4s evaluate program compliance, the appropriateness of the BMPs in their SWMPs and progress towards meeting their measurable goals.

The permit also requires monitoring to support prioritization of storm water control efforts and protection of water quality. Four types of monitoring are required by the permit. Due to the variability of stormwater discharges and limited resources available to municipalities, the cost of the monitoring program needs to be balanced with the monitoring objectives and the more important goal of actually implementing controls that directly affect the quality of the stormwater discharged. While separated for clarity in the permit, the monitoring requirements do overlap to an extent and to avoid duplication and added expense, the permit specifically allows coordination between monitoring programs to use monitoring data collected for one purpose to be used to satisfy part or all of another's data collection requirement.

Wet Weather Monitoring: The goal of the Wet Weather Monitoring Program is (1) to gather information on the response on the receiving waters to wet weather discharges from the MS4 and (2) to help identify areas contributing higher levels of pollutants so the permittees can target more effective SWMP strategies for these areas of the MS4. The permit will require the permittees to sample discharges resulting from storm events at locations coming into the MS4 jurisdictional (upstream) area and leaving the MS4 jurisdictional area (downstream). The sampling may be conducted at outfalls, internal sampling stations, and/or in-stream monitoring locations. Permittees may choose either Option A (Individual Monitoring program) or option B (Cooperative Monitoring Program). The permittees must sample 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, parameters listed in Table 2 of Today's Fact Sheet and parameters from monitoring under permits NMR040000 whose mean values are at or above a WQS . Indicators parameters TSS, BOD, and COD were included as they would relate to DO impairment or lead to a suspected water quality parameter of concern. Parameters included in 40 CFR 122.26 (d)(2)(iii)(A(3) such as TSS, TDS, COD, BOD5, oil and grease, pH, TKN, nitrate plus nitrite, dissolved phosphorus, total ammonia plus organic nitrogen, and total phosphorus were required to sample in the permit so that the permittees will obtain information on the quality and quantity of the MS4 discharges.

Dry Weather Discharge Screening of MS4: The permit includes the dry weather discharge screening to identify, investigate, and address areas within the 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.). This program may be coordinated with the illicit discharge detection and elimination program required in Part I.D.5.e.

Floatable Monitoring: The permittees must assess floatable material in discharges to and/or from their MS4. The permit proposes to monitor for floatable material at least twice per year at priority locations and at minimum of two (2) stations except as provided in Part III.A.3.

To comply with the above monitoring/assessment program requirements, EPA is providing flexibility to

consider alternatives to the traditional end-of-pipe monitoring which is commonly found in most NPDES permits (64 Fed. Reg. 68769). Instead, EPA is encouraging a mix of physical, chemical, biological, or programmatic indicators such as described in Claytor and Brown (1996). EPA has designed a monitoring frame work to accommodate cooperative programs among the permittees so that meaningful results can be obtained based on limited monitoring dollars. EPA is also open to creative monitoring plan proposals which could reduce the total number of monitoring locations not only for a single permittee, but across a group of cooperatively permittees.

The nature of the monitoring activities which will be implemented by permittees will largely depend on the measurable goals selected by the permittees. As discussed above in Section V.C of this fact sheet, measurable goals may be measures of the level of effort of an MS4 in implementing a given BMP (such as frequency of street sweeping), or they may be measures of water quality improvement. Region 6 believes that for the last five-year term of the general permit, most existing MS4s opted for measurable goals which consist of a given level of effort in implementing a particular BMP. During the program implementation of the permit, existing MS4s will update/revise as necessary, their existing measurable goals to comply with the requirements of this permit. As such, the monitoring activities will largely consist of keeping track of these efforts. This information must be submitted to Region 6 in the annual report described in Part III.B. of the permit.

2. **Recordkeeping**

In accordance with 40 CFR 122.34(g)(2), Part IV.P of the general permit requires that records required by the permit be retained by the permittee for at least three years from the date of the sample, measurement, report or application, or for the term of this permit, whichever is longer. In addition, in accordance with these same regulations, the permit requires that the permittee make these records (including the SWMP) available to the public during regular business hours.

3. **Reporting**

In accordance with 40 CFR 122.34(g)(3) and 40 CFR 122.42(c)(1)), Part III.B of the general permit requires the submittal of an annual report to the permitting authority. The following information is required:

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.

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.

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 (**October 1 to September 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.

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)

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 lead permittee.

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.

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 March 1st of each year.

A brief summary of any issues raised by the public on the draft Annual Report, along with permittee's responses to the public comments must be also included.

Electronic submittal of the documents required in the permit using a compatible Integrated Compliance Information System (ICIS) format would be allowed if available.

VI. PERMIT MODIFICATIONS

A. Reopener Clause

The EPA may reopen and require modifications to the permit (including the SWMP) based on the following factors: changes in the State's Water Quality Management Plan and State or Federal requirements; adding permittees; SWMP changes impacting compliance with permit requirements; changes in permit conditions based on completion of Endangered Species Act consultation; other modifications deemed necessary by the EPA to adhere to the requirements of the Act. Implementation of the SWMP is expected to result in the protection of water quality standards. The permit does, however, contain a reopener clause should new information indicate the discharges from the MS4 are causing, or significantly contributing to, a violation of the State's water quality standards.

B. Other changes

The EPA has attempted to develop permit language to clarify the permit requirements concerning possible

changes to the SWMP, permittees status, and other changes.

Terminated Permittees. The process for terminating coverage for an existing permittee shall adhere to the regulations 40 CFR 122.64. A notice of intent to terminate shall be issued in accordance with the permit procedures.

SWMP Changes. The SWMP is intended as a functioning mechanism for the permittees' use. Therefore, minor changes and adjustments to the various SWMP elements are expected. Incorporating this form of document into an NPDES permit has some inherent conflicts. The regulatory rules concerning permit changes and modifications do not easily translate to the minor changes that will be necessary for various elements during the permit term. The changes may be necessary to more successfully adhere to the goals of the permit. The EPA has determined that these minor changes that are specifically described in the permit shall not be considered permit modifications as defined in the regulations. Part I.D.6.b of the permit describes the allowable procedure for the permittees to perform additions and minor changes to the SWMP. This section in no way implies that the permittees are allowed to impact or change elements that directly relate to permit conditions for the SWMP. Any changes requested by the permittees shall be reviewed by the EPA. The EPA has 60 days to respond to the permittees and inform them if the suggested changes impact or change the SWMP's compliance with a permit requirement and therefore are either disallowed or requires a formal permit modification procedure.

Additions. The EPA's intent is to allow the permittees to annex lands and accept the transfer of operational authority over portions of the MS4 without mandating a permit modification. Implementation of appropriate SWMP elements for these additions (annexed land or transferred authority) is required. Upon notification of the additions in the Annual Report, the EPA may require a modification to the permit based on the new information.

Monitoring sites. The permit is issued on a system-wide basis in accordance with Section 402(p)(3)(I) of the Act and authorizes discharges from all portions of the MS4 owned or operated by the permittees. Since all outfalls are authorized, changes in monitoring locations, other than those with specific numeric effluent limitations, shall be considered minor modifications to the permit and shall be made in accordance with the procedures at 40 CFR 122.63.

VI. STATE AND TRIBAL INPUT UNDER CWA §401(a)(1) and §401(a)(2)

The coverage area of this general permit will include authorization of discharges to, or proximally upstream of, waters under the jurisdiction of the State of New Mexico, the Navajo Nation, and Pueblo of Cochiti. CWA §401(a)(1) requires EPA to obtain certification of a proposed permit where a discharge is to a water under the jurisdiction of a State or a water under the jurisdiction of a Tribe that has been approved for "Treatment in the Same Manner as a State" (TAS) for the CWA Water Quality Standards and Certification Programs (see 40 CFR 131.8). All discharges anticipated to be authorized by this permit would be directly to State and not Tribal waters, so the State of New Mexico would be the CWA §401(a)(1) certifying agency. CWA 401(a)(2) requires NPDES permits to also be protective of the water quality of affected downstream states and tribes. The Navajo Nation and Pueblo of Cochiti will have the opportunity to provide input on the proposed permit regarding impacts upstream discharges may have on their jurisdictional waters. CWA §401(a)(1) certification conditions for certification will be included in the final permit, as required by 122.44(d)(3).

Permit conditions based on a CWA §401(a)(1) Conditional Certification will only apply to discharges directly to waters under that authority's jurisdiction, Permit conditions imposed in response to state or tribal comments made under CWA 401(a)(2) may apply both to dischargers within and upstream of that jurisdiction. EPA will meet its obligation under CWA §401 prior to finalizing this permit.

VII. Permit Appeal Procedures

Within 120 days following notice of EPA's issuance of the general permit under 40 CFR 124.15, any interested person may appeal the permit in the Federal Court of Appeals in accordance with Section 509(b)(1) of the CWA. Persons affected by a general permit may not challenge the conditions of a general permit as a right in further Agency proceedings. They may instead either challenge the general permit in court, or apply for an individual permit as specified at 40 CFR 122.21 (and authorized at 40 CFR 122.28), and then petition the Environmental Appeals Board to review any condition of the individual permit (40 CFR 124.19 as modified on May 15, 2000, 65 Fed. Reg. 30886).

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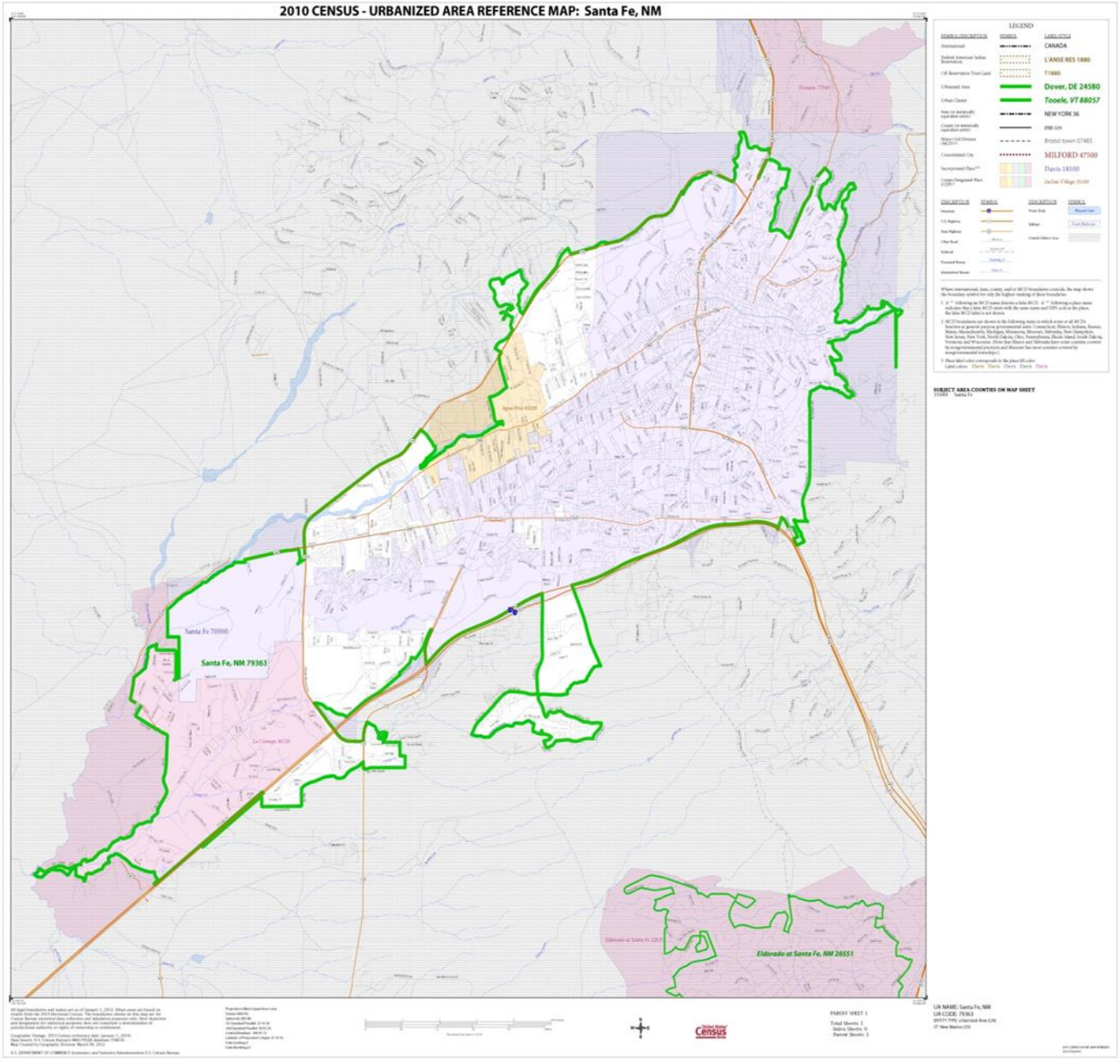
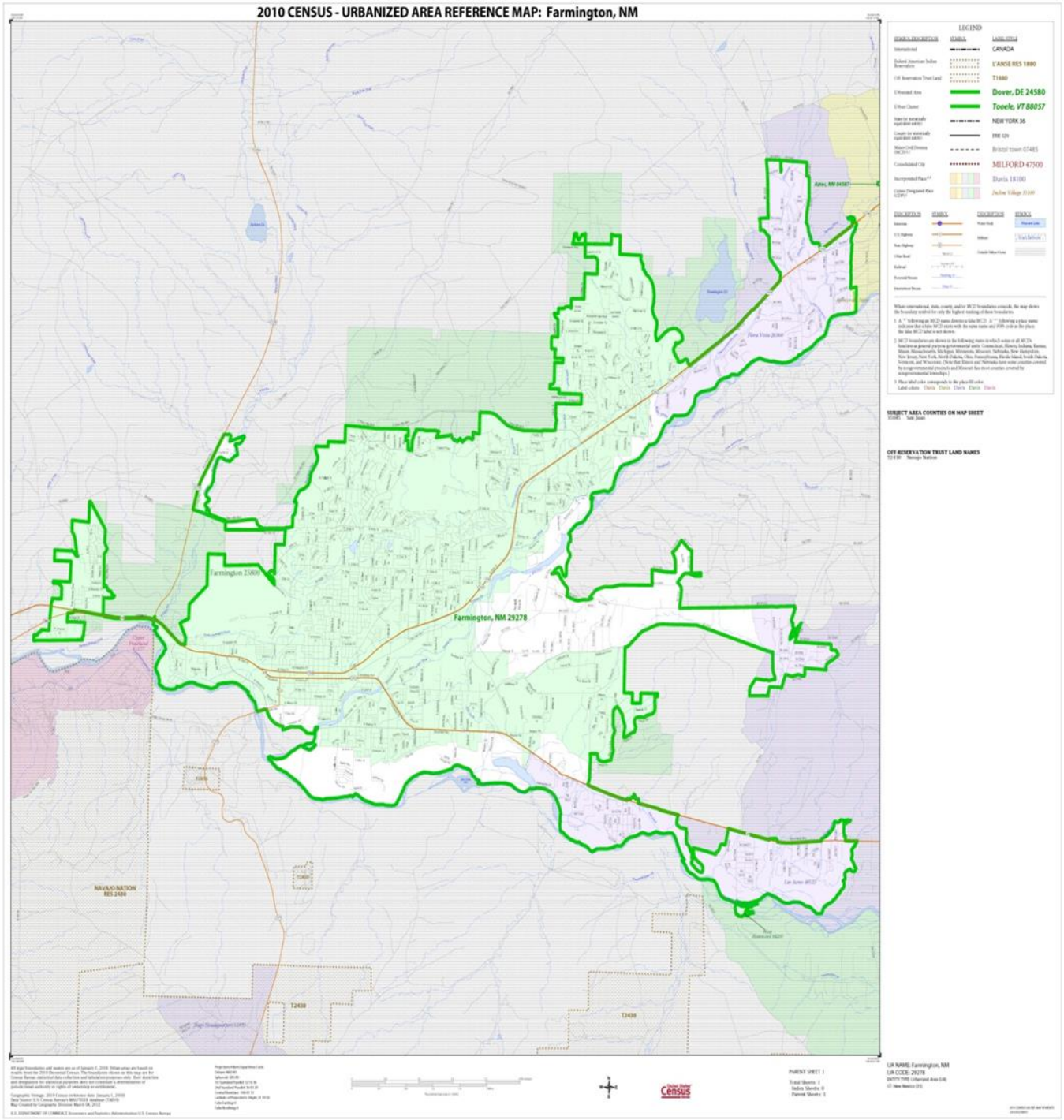
Addendum A. State of New Mexico Urbanized Areas

Santa Fe Urbanized Area



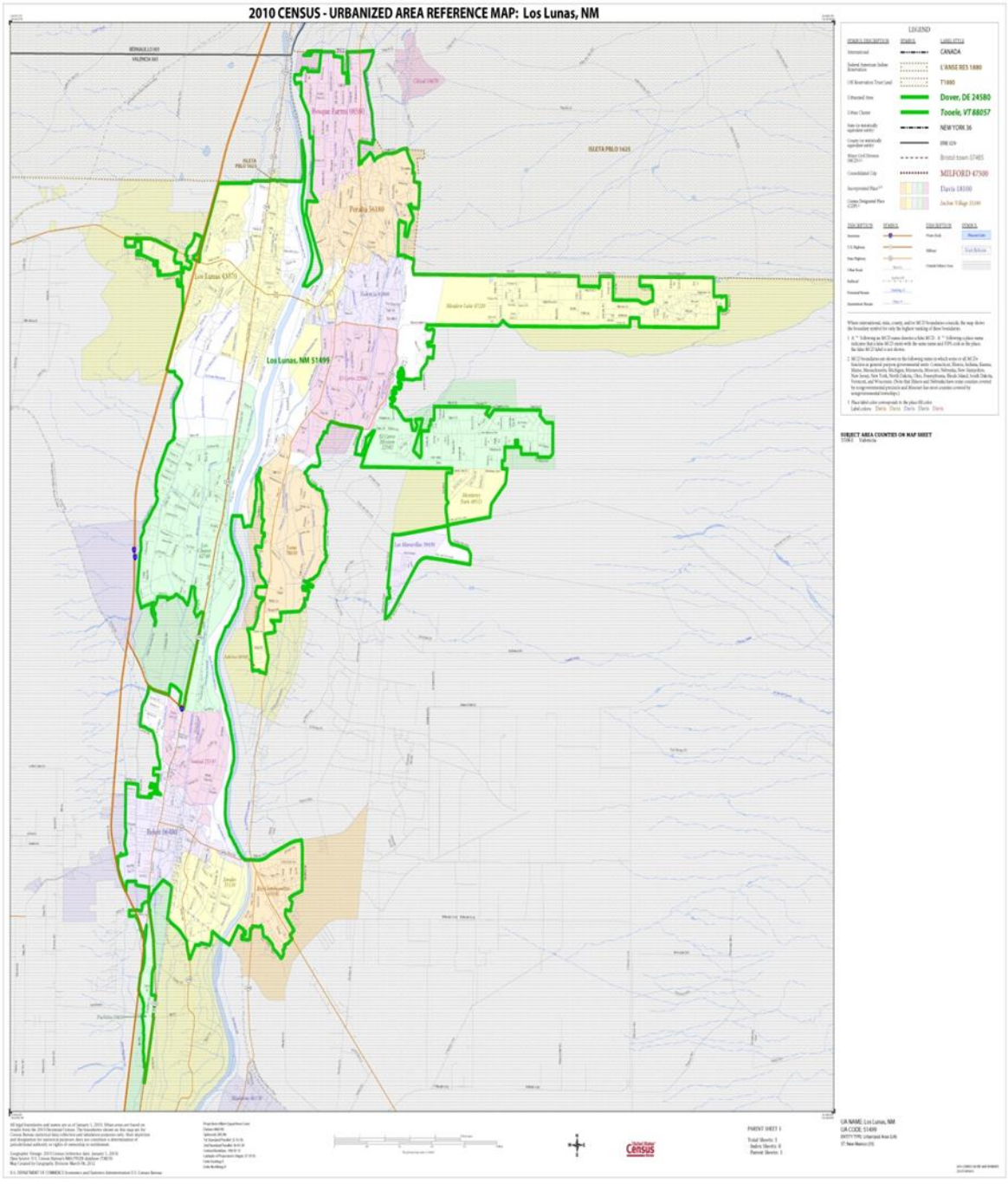
Source: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/

Farmington urbanized Area



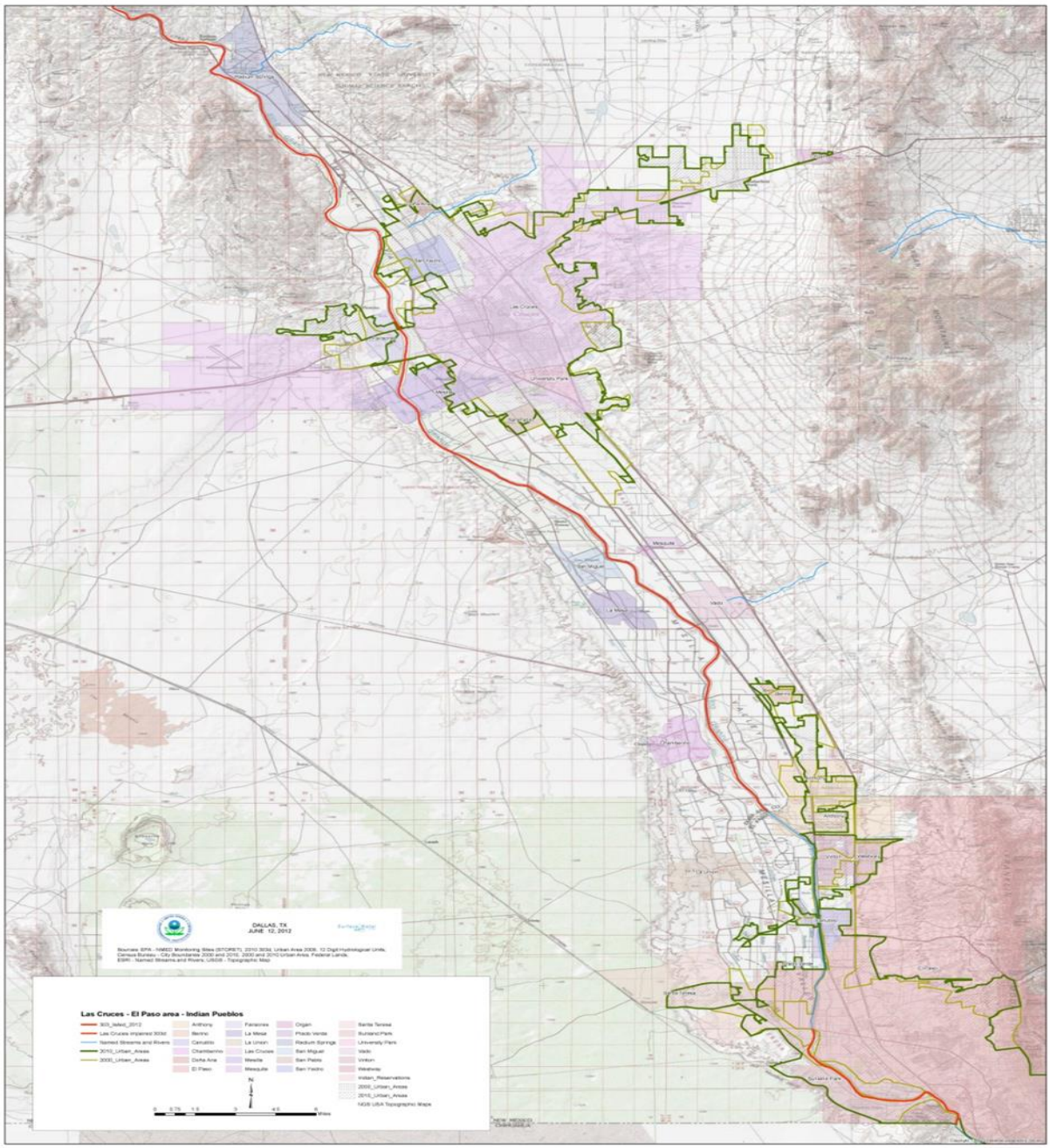
Source: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/

Los Lunas urbanized Area



Source: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/

El Paso/Las Cruces urbanized Area



Source: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/

Addendum B: Applying for Small Municipal Separate Storm Sewer System (MS4) Waiver

40 CFR- CHAPTER I– PART 122

§122.32 As an operator of a small MS4, am I regulated under the National Pollutant Discharge Elimination System (NPDES) storm water program?

(a) Unless you qualify for a waiver under paragraph (c) of this section, you are regulated if you operate a small MS4, including but not limited to systems operated by federal, State, Tribal, and local governments, including State departments of transportation; **and:**

(1) Your small MS4 is located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census. {If your small MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated); or

(2) You are designated by the NPDES permitting authority, including where the designation is pursuant to §§ 123.35(b)(3) and (b)(4) of this chapter, or is based upon a petition under §122.26(f).

(b) You may be the subject of a petition to the NPDES permitting authority to require an NPDES permit l H· your discharge of storm water. If the NPDES permitting authority determines that you need a permit, you are required to comply with§§122.33 through 122.35.

(c) The NPDES permitting authority may waive the requirements otherwise applicable to you if you meet the criteria of paragraph (d) or (e) of this section. If you receive a waiver under this section, you may subsequently be required to seek coverage under a NPDES permit in accordance with § l22.33(a) if circumstances change. (See also §123.35(b) of this chapter.)

(d) The NPDES permitting authority may waive permit coverage if your MS4 serves a population of less than 1,000 within the urbanized area and you meet the following criteria:

(1) Your system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program (see§123.35(b)(4) of this chapter); and

(2) If you discharge any pollutant(s) that have been identified as a cause of impairment of any water body to which you discharge, storm water controls arc not needed based on wasteload allocations that arc part of an EPA approved or established "total maximum daily load" (TMDL) that addresses the pollutant(s) of concern.

(e) The NPDES permitting authority may waive permit coverage if your MS4 serves a population under 10,000 and you meet the following criteria:

(1) The permitting authority has evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from your MS4;

(2) For all such waters, the permitting authority has determined that storm water controls arc not needed based on wasteload allocations that are part of an EPA approved or established TMDL

that addresses the pollutant(s) of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern;
(3) For the purpose of this paragraph (e), the pollutant(s) of concern include biochemical oxygen demand, sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from your MS4; and
(4) The permitting authority has determined that future discharges from your MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

A waiver request should include:

I) A description of the small MS4 and flow paths for storm water that could (or could not) enter a water of the United States directly or indirectly. Include a description of any interconnection with other regulated MS4s.

2) A detailed description of how the eligibility requirements above have been met.

3) An evaluation of how flows from your MS4 could be contributing substantially to pollutant loads in other MS4s (if applicable).

4) A description of any water quality problems in any receiving waters (not limited to Clean Water Act 303(d) listings if there is data indicating waters may be impaired, but not listed).

Note: The boundary of "regulated" small MS4s is defined by the larger of the 2000 and 2010 Census Urbanized Area boundaries. In the Phase II rule Federal Register notice, the EPA specified that areas covered by a previous Census do not drop out where an Urbanized Area has shrunk in a later Census. Waivers need to address the combined area. In addition to the Rio Grande, local irrigation channels and drains may be waters of the United States.

Addendum C. Regulatory Requirements and Guidance for SWMPs for MS4s

The six minimum control measures for SWMPs are listed below, broken down into the required components, and the guidance from the Phase II regulations (40 CFR 122.34). Additional guidance and information on municipal storm water programs, Best Management Practices (BMPs), model ordinances, and measurable goals is available online via links on the EPA Storm Water Program web page at http://www.epa.gov/npdes/stormwater.

1**. Public Education and Outreach on Storm Water Impacts.**

a. SWMP Must Include:

(1) implement a public education program to distribute educational materials 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.

b. EPA Guidance on Public Education and Outreach:

(1) use storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s;
(2) inform individuals and households about the steps they can take to reduce storm water pollution, such as 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;
(3) 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;
(4) tailor the program, using a mix of locally appropriate strategies, to target specific audiences and communities. Program should target some of the materials or outreach programs to be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges;
(5) 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.

2. **Public Involvement/Participation**.

a. SWMP Must Include:

(1) at a minimum, comply with State, Tribal and local public notice requirements when implementing a public involvement/participation program.

b. EPA Guidance:

(1) include the public in developing, implementing, and reviewing your storm water management program and should make efforts to reach out and engage 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 storm water 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. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

3. **Illicit Discharge Detection and Elimination**.

a. SWMP Must Include:

(1) develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at 40 CFR 122.26(b)(2)) into the small MS4;
(2) develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
(3) to the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into the storm sewer system and implement appropriate enforcement procedures and actions;
(4) develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to the system;
(5) inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and
(6) address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if they are identified by the MS4 as significant contributors of pollutants to the small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), 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 (discharges or flows from firefighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

It should also be noted that the firefighting activities referred to above, from which discharges need not necessarily be prohibited, are emergency situations only and do not include non-emergency situations such as firefighting training activities.

b. EPA Guidance:

(1) ensure that the plan to detect and address illicit discharges include the following four components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; procedures for removing the source of the discharge; and procedures for program evaluation and assessment.
(2) conduct visual screening of the outfalls during dry weather and conduct field tests of selected pollutants as part of the procedures for locating priority areas.

4. **Construction Site Storm Water Runoff Control**.

a. SWMP Must Include:

(1) develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.

Reduction of storm water 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. If the NPDES permitting authority waives requirements for storm water discharges associated with small construction activity in accordance with 40 CFR 122.26(b)(15)(i), the MS4 is not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

The program must include the development and implementation 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;
(c) requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
(d) procedures for site plan review which incorporate consideration of potential water quality impacts;
(e) procedures for receipt and consideration of information submitted by the public; and
(f) procedures for site inspection and enforcement of control measures.

b. EPA Guidance:

(1) consider as examples ensure compliance - non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance;
(2) include procedures for site plan review including the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements;
(3) include procedures for site inspections and enforcement of control measures including steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and
(4) provide educational and training measures for construction site operators, including requiring a storm water pollution prevention plan for construction sites within the jurisdiction that discharge into the system.

5. **Post-Construction Storm Water Management in New Development and Redevelopment**.

a. SWMP Must Include:

(1) develop, implement, and enforce a program to address storm water 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 small MS4. The program must ensure that controls are in place that would prevent or minimize water quality impacts;
(2) develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the community; and
(3) use 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; and
(4) ensure adequate long-term operation and maintenance of BMPs.

b. EPA Guidance:

(1) ensure that the BMPs chosen are appropriate for the local community; minimize water quality impacts; and attempt to maintain pre-development runoff conditions;
(2) in choosing appropriate BMPs, 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, EPA recommends that the MS4 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;
(3) in developing your program, consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality. In addition to assessing these existing documents and programs, the MS4 should provide opportunities to the public to participate in the development of the program;
(4) ensure the appropriate implementation of the structural BMPs by considering some or all of the following: re-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 design, construction or operation and maintenance; and
(5) ensure that the requirements be responsive to the constantly changing storm water technologies, developments or improvements in control technologies.

6. **Pollution Prevention/Good Housekeeping for Municipal Operations**.

a. SWMP Must Include:

(1) develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations; and
(2) using training materials that are available from EPA, your State, Tribe, or other organizations, the program must include employee training 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.

b. EPA Guidance:

(1) at a minimum, consider the following in developing the program:

(a) maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from the separate storm sewers;
(b) 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 and snow disposal areas operated by the MS4, and waste transfer stations;
(c) procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and
(d) ways 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; and

(2) include operation and maintenance as an integral component of all storm water management

programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary.

Addendum D. Example SWMP Components

1. **Public Education and Outreach on Storm Water Impacts.**

Case Study Location: Texas: Austin

Educating Pet Owners and Gardeners

Summary:

Austin's Watershed Protection and Development Review Department and Parks and Recreation Department have joined forces to help clean up parks and trails through the Scoop the Poop program, which provides Mutt Mitt dispensers in many of the popular parks. Another Austin partnership encourages stormwater-friendly gardening.

Case Study Location: Maine: State of

Maine Public Education Campaign Raises Stormwater Pollution Awareness

Summary:

Maine's 28 regulated MS4 communities and 8 nested entities teamed up with Maine DEP and other agencies to launch the state's first public outreach effort based exclusively on social marketing principles. Directed by independent market research, Maine DEP aimed its media campaign at college-educated 35-55-year-olds. Its aim was twofold – improve awareness of stormwater pollution sources and educate the public on how pollution gets into local waters.

2. **Public Involvement/Participation**.

Case Study Location: Georgia: Metro Atlanta

Reaching Citizens with Workshops and an Informative Web Site

Summary:

The Clean Water Campaign offers a series of popular workshops in partnership with the University of Georgia Cooperative Extension Service and other agencies. These workshops have been instrumental in educating members of the public and encouraging them to reduce stormwater pollution. In addition, the Clean Water Campaign's comprehensive Web site, in English and Spanish, details how to reduce stormwater pollution around the home and on the job.

Case Study Location: Colorado: Boulder

Public Education and Outreach on Stormwater Impacts

Summary:

The Boulder Creek and Saint Vrain Watershed WASH Project has two principle components to their education and outreach program: a school based WatershED Program and a community outreach program. The school based WatershED includes water curriculum, teacher training, water festival, and

classroom programs. The community-based programs include water quality campaigns, brochures, tributary signs and more. This case study will highlight the school based program.

3. **Illicit Discharge Detection and Elimination**.

Case Study Location: Michigan: Wayne County

Focus on Commercial and Industrial Site Visits

Summary:

The Wayne County, Michigan, Department of Environment conducted an investigation of 5,753 nonresidential facilities from 1987 to the present to detect and eliminate illicit connections and illicit discharges.

Case Study Location: Ohio: Cuyahoga County

A Program for Identifying and Eliminating Failing Septic Systems

Summary:

For more than 10 years, the Cuyahoga County Board of Health has implemented a program to permit and inspect septic systems (onsite wastewater treatment systems) to reduce the number of failing systems in operation, thereby reducing flows of inadequately treated household sewage to storm drain systems and receiving waters.

4. **Construction Site Storm Water Runoff Control**.

Case Study Location: Colorado: Douglas County

A Comprehensive Erosion Control Permit Program

Summary:

Douglas County, Colorado, is one of America's fastest growing counties. In the decade between 1990 and 2000, its population nearly tripled. To address its high growth rate, the Douglas County Construction Site Runoff Control Program (hereafter referred to as The Program) developed a successful permit review, issuance and inspection process, and wrote a comprehensive Grading, Erosion and Sediment (GESC) Control manual.

Case Study Location: North Carolina: Charlotte

Cooperative Erosion Control Enforcement and Compliance

Summary:

The City of Charlotte and the County of Mecklenburg (CharMeck) have collaborated to develop an effective erosion and sediment control enforcement program that employs frequent inspections, Notices of Violation, and fines as well as an appeal process to effectively and fairly require compliance.

5. **Post-Construction Storm Water Management in New Development and Redevelopment**

Case Study Location: Virginia: Arlington County

Innovative Stormwater Management Standards and Mitigation

Summary:

The Arlington County Department of Environmental Services has developed pollutant removal requirements for all development sites, as well as a watershed management fund to which developers may contribute in lieu of actual BMP implementation.

Case Study Location: Maryland: Prince George's County

Incorporating Low Impact Development into Stormwater Management

Summary:

For more than ten years Prince George's County has been a leader in implementing and developing guidance on lot-level best management practices to control stormwater and restore predevelopment hydrologic functions to urban and suburban systems.

6. **Pollution Prevention/Good Housekeeping for Municipal Operations**.

Case Study Location: Arizona: Phoenix

Comprehensive Pollution Prevention Program for City Employees

Summary:

The City of Phoenix is implementing a program to continually educate employees about pollution prevention practices for the City's municipal operations and has formalized citywide policies that give high priority to pollution prevention and waste reduction in city operations.

Case Study Location: The Howard County (MD)

Park Design to Reduce Pesticide and Fertilizer Use

Summary:

The Howard County (MD) Parks and Recreation Department found that wildflower meadows were twenty times less expensive to maintain than conventional turf grass. This strategy also reduces the amount of pesticides and fertilizers applied to county grounds. They incorporated a strategy into new parks as they are being developed. For further information contact Howard County Parks and Recreation Department, MD, (410) 313-4730.

Municipal Maintenance

Case Study Location: Alameda County Public Works (CA)

Municipal Maintenance

Summary:

The Alameda Clean Water Program provides an example of a pollution prevention plan for a fleet maintenance facility. The plan requires the following: a pollution prevention team, site map, list of significant materials, description of potential pollutants, and assessment of potential pollutant sources, and storm water BMPs. For further information contact the Alameda County Countywide Clean Water Program, Alameda County Public Works, (510) 670-5543. Source: Model Urban Runoff Program, Appendix 3L.

Case Study Location: Palo Alto (CA)

Municipal Maintenance

Summary:

In Palo Alto, CA, a Phase I MS4 permittee, pollution prevention planning and engineering resulted in a decrease in pollutant concentrations originating from public utility yards. Concentrations of metals in storm water runoff decrease significantly with BMP employment and regular monitoring has demonstrated that improvements in storm water quality have been sustained over several years.

Addendum E. Hardness Calculation

Assessment Unit ID	Assessment Unit Name	Hardness, CaCO3, mg/L	Urbanized Area
NM-2404_00	Animas River (Estes Arroyo to So. Ute Indian Tribe bnd)	265.6955605	Farmington UA (Animas)
NM-2110_10	Cienega Creek (Perennial prt of Santa Fe R to headwaters)	361.24	Santa Fe UA (Cienega Creek)
NM-2402.A_00	La Plata River (San Juan River to McDermott Arroyo)	518.6235599	Farmington UA (La Plata)
NM-2101_01	Rio Grande (Anthony Bridge to NM192 bridge W of Mesquite)	254.2473218	Las Cruces UA
NM-2101_00	Rio Grande (International Mexico bnd to Anthony Bridge)	439.8133413	El Paso UA
NM-2105_40	Rio Grande (Rio Puerco to Isleta Pueblo bnd)	129.8172308	Los Lunas UA
NM-2401_00	San Juan River (Animas River to Canon Largo)	131.312518	Farmington UA (San Juan River)
NM-2110_00	Santa Fe River (Paseo del Canon to Santa Fe WWTP)	95.83952941	Santa Fe UA (Santa Fe River)

Source: NMED. 2010 – 2014 Integrated Report

Addendum F. National Pollutant Discharge Elimination System (NPDES) Phase II MS4 Permit Stormwater Data

Table 1. NPDES Phase II MS4 General Permit (NMR040000). Stormwater Data. City of Farmington 2007 – 2014 Data

		FIELD DATA						METALS – Lab Results									
ID	*Sample Time Frame*	*Flow*	*Temperature*		*DO*	*pH*	*Specific Conductance*	*Aluminum*	*Arsenic*	*Cadmium*	*Copper*	*Iron*	*Lead*	*Nickel*	*Zinc*	*Selenium*	*Mercury*
		(gpm)	*(ºC)*	*(ºF)*	*(ppm)*		*(mS/cm)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
Benchmark Values						*6.0-9.0*	*<0.2*	*<0.75*	*<0.16854*	*<0.0159*	*<0.0636*	*<1.0*	*<0.0816*	*<1.417*	*<0.117*	*0.2385*	*0.0024*
1	2/8/07 10/10/13	157.68	14.26	57.67	7.46	6.87	**0.40**	**6.67**	0.0040	<0.001	0.0266	**5.70**	0.0121	0.0089	**0.22**	0.0005	<0.00020
2	2/8/07 10/10/13	3.75	13.64	56.56	7.14	7.43	**0.87**	**7.89**	0.0022	<0.001	0.0150	**7.83**	0.0099	0.0045	**0.16**	0.0002	<0.00020
3	2/8/07 4/9/13	19.00	15.50	59.91	7.22	7.57	**0.86**	**2.66**	0.0012	<0.001	0.0067	**2.79**	0.0034	0.0029	0.07	0.0000	<0.00020
4	2/12/07 7/11/13	8.27	16.45	61.51	5.32	8.01	**2.10**	**5.15**	0.0051	<0.001	0.0130	**13.70**	0.0066	0.0022	**0.16**	0.0010	<0.00020
5	2/8/07 4/3/14	56.33	16.49	61.67	4.70	8.00	**1.03**	**10.44**	0.0022	<0.001	0.0216	**9.64**	0.0121	0.0038	**0.18**	0.0012	<0.00020
6	8/2/07 10/10/13	20.20	14.76	58.55	6.75	7.78	**0.31**	**4.15**	0.0009	<0.001	0.0186	**3.73**	0.0053	0.0012	**0.13**	0.0004	<0.00020
7	2/8/07 6/26/09	43.82	15.03	59.06	6.05	7.65	**0.52**	**1.62**	0.0009	<0.001	0.0131	**1.49**	0.0054	0.0024	**0.12**	0.0000	<0.00020
8	2/8/07 9/10/08	83.67	11.58	52.84	7.59	7.69	**0.74**	**0.92**	0.0017	<0.001	0.0146	0.86	0.0079	0.0023	0.08	NA	NA
9	2/8/2007 6/15/11	58.60	14.36	51.16	6.62	7.62	**1.08**	**2.37**	0.0015	<0.001	0.0103	**2.10**	0.0073	0.0027	0.10	0.0000	<0.00020

10	2/8/07 5/2/08	100.00	25.27	77.49	4.89	8.22	**0.49**	**1.98**	0.0015	<0.00100	0.0117	**1.70**	0.0166	0.0040	0.08	NA	NA
11	8/2/07 7/15/13	41.18	14.97	58.94	7.99	8.50	**0.23**	**26.22**	0.0023	<0.001	0.0143	**30.94**	0.0085	0.0037	**0.13**	0.0007	<0.00020
12	8/2/07 12/8/07	23.83	18.05	64.50	3.57	7.99	**0.32**	**1.25**	0.0009	<0.001	0.0060	**1.43**	0.0010	0.0024	0.04	NA	NA
13	8/2/07 7/15/13	152.60	15.20	53.10	5.69	8.02	**1.09**	**5.86**	0.0011	<0.001	0.0038	**6.02**	0.0052	0.0011	**0.19**	0.0009	<0.00020
14	9/10/200 8 8/1/13	1057.5 0	16.74	54.00	9.38	8.03	**0.72**	**5.57**	0.0040	<0.001	0.0113	**5.21**	0.0097	0.0007	0.11	0.0002	<0.00020
15	9/10/08 7/11/13	228.51	16.26	55.24	7.28	7.61	**1.74**	**4.34**	0.0027	<0.001	0.0223	**3.94**	0.0110	0.0013	**0.17**	0.0009	<0.00020
16	3/13/09 6/26/09	2.00	8.39	47.10	9.47	7.26	**1.33**	0.52	0.0019	<0.0020	0.0110	0.58	0.0061	<0.010	0.10	NA	NA
17	3/13/09 6/26/09	NM	8.70	47.66	8.87	7.20	**0.80**	0.53	0.0017	<0.0020	0.0099	0.51	<0.0050	<0.010	0.04	NA	NA
22	7/13/201 1 3/25/14	24.96	15.34	59.62	6.86	6.82	**2.20**	19.83	NA	NA	NA	4.15	NA	NA	0.24	0.0075	0.00

NA=Not Analyzed NS=Not Sampled NE=Not Established

1 Arroyo West of Lowe's Parking Lot
2 El Paso/ Middle Fork Square
3 Berg Park Location
4 MOC 1
5 MOC 2
6 MOC 3 Outfall # 6
7 Murray Dr. Bridge Settling Pond
8 South Side Lift Station # 2
9 Cannery Court Location
10 Intersection of Gooding/ Riverview
11 City Sports Complex Baseball Fields on Pinon Hills (Inlet)
12 City Sports Complex Baseball Fields on Pinon Hills (Outlet)
13 Glade Arroyo Culvert on South Side of Navajo St.
14 S. of Murray (Sweetland)
15 S. Butler
16 Airport Detention Pond
17 Brookside/Auburn & Boyd
22 Civitan Pond Outlet

Table 2. NPDES Phase II MS4 General Permit (NMR040000). Stormwater Data. City of Farmington 2007 – 2014 Data

		NUTRIENTS – Lab Results								
ID	***Sample Time Frame***	***NO3/NO2***	***TKN***	***NH3***	***Total Phosphorus***	***TSS***	***Oil & Grease***	***COD***	***Fecal***	***E. coli***
		(mg/L)	***(mg/L)***	***(mg/L)***	***(mg/L)***	***(mg/L)***	***(mg/L)***	***(mg/L)***	***(cfu/100ml)***	***(MPN/100ml) /(CFU/100mL)***
Benchmark Values		***NE***	***NE***	***NE***	***NE***	***<100***	***<15***	***<120***	***NE***	***NE***
1	2/8/07 10/10/13	1.38	5.23	2.45	0.47	**360.85**	0.28	**742.28**	509.00	694.76
2	2/8/07 10/10/13	0.58	1.69	0.09	0.44	**584.48**	0.12	95.55	1107.50	3374.10
3	2/8/07 4/9/13	1.61	1.14	0.11	0.22	**185.09**	0.58	47.19	3174.33	1788.77
4	2/12/07 7/11/13	1.60	5.30	10.00	0.47	**146.75**	2.28	178.72	NA	NA
5	2/8/07 4/3/14	0.82	3.41	0.56	0.49	**251.15**	1.52	**208.84**	NA	**>24196 ****
6	8/2/07 10/10/13	0.62	1.42	0.38	0.28	**109.40**	0.87	99.59	5.00	5172.00
7	2/8/07 6/26/09	0.46	0.63	0.06	0.20	72.10	0.28	24.82	37.00	406.80
8	2/8/07 9/10/08	0.92	2.46	0.51	0.36	**118.70**	0.53	70.30	NA	NA
9	2/8/2007 6/15/11	1.54	1.12	0.10	0.19	**135.60**	0.59	66.06	700.00	2098.43

10	2/8/07 5/2/08	0.32	1.07	0.06	0.22	**439.00**	<1.00	65.50	NA	NA
11	8/2/07 7/15/13	1.93	1.52	0.12	1.06	**1708.30**	0.23	57.32	NA	3140.00
12	8/2/07 12/8/07	1.51	1.12	0.24	0.09	76.83	1.19	59.50	NA	NA
13	8/2/07 7/15/13	1.81	1.85	0.20	0.44	**395.82**	0.00	**122.31**	1900.00	4013.75
14	9/10/2008 8/1/13	0.34	2.93	0.00	0.69	**851.78**	0.00	66.67	23950.00	628.70
15	9/10/08 7/11/13	1.70	3.97	0.84	0.55	**232.70**	0.63	**194.96**	13599.19	697.34
16	3/13/09 6/26/09	2.30	1.80	<0.50	<0.10	61.00	<5.0	63.00	NS	NS
17	3/13/09 6/26/09	<1.0	1.30	<0.50	<0.10	38.00	<5.0	51.00	NS	NS
22	7/13/2011 3/25/14	0.83	0.55	0.00	0.08	21.00	0.00	43.35	NA	866.40

NA=Not Analyzed NS=Not Sampled NE=Not Established ** *E.coli* enumeration samples were analyzed past the 8 hr holding time.

1 Arroyo West of Lowe's Parking Lot
2 El Paso/ Middle Fork Square
3 Berg Park Location
4 MOC 1
5 MOC 2
6 MOC 3 Outfall # 6
7 Murray Dr. Bridge Settling Pond
8 South Side Lift Station # 2
9 Cannery Court Location
10 Intersection of Gooding/ Riverview
11 City Sports Complex Baseball Fields on Pinon Hills (Inlet)
12 City Sports Complex Baseball Fields on Pinon Hills (Outlet)
13 Glade Arroyo Culvert on South Side of Navajo St.
14 S. of Murray (Sweetland)
15 S. Butler
16 Airport Detention Pond
17 Brookside/Auburn & Boyd
22 Civitan Pond Outlet

Table 3. NPDES Phase II MS4 General Permit (NMR040000). Stormwater Data City of Santa Fe In-Stream Stormwater Data – September, 2013

Sample Location	Sample ID	Analyte	Results	Units
1	30SantaF050.5	Total Aluminum	1.5	mg/l
2	30SantaF044.5	Total Aluminum	1.9	mg/l
2	30SantaF041.2	Total Aluminum	2.9	mg/l
2	30SantaF035.9	Total Aluminum	2.5	mg/l
1	30SantaF050.5	Total Calcium	21	mg/l
2	30SantaF044.5	Total Calcium	23	mg/l
2	30SantaF041.2	Total Calcium	25	mg/l
2	30SantaF035.9	Total Calcium	29	mg/l
2	30SantaF035.9	Total Calcium	< 1	mg/l
1	30SantaF050.5	Dissolved oxygen (DO)	8.57	mg/l
2	30SantaF044.5	Dissolved oxygen (DO)	7.55	mg/l
2	30SantaF041.2	Dissolved oxygen (DO)	7.13	mg/l
2	30SantaF035.9	Dissolved oxygen (DO)	7.31	mg/l
1	30SantaF050.5	Dissolved oxygen saturation	114	%
2	30SantaF044.5	Dissolved oxygen saturation	118.5	%
2	30SantaF041.2	Dissolved oxygen saturation	115.6	%
2	30SantaF035.9	Dissolved oxygen saturation	119.6	%
1	30SantaF050.5	Total Escherichia coli	387.3	cfu/100ml
2	30SantaF044.5	Total Escherichia coli	727	cfu/100ml
2	30SantaF041.2	Total Escherichia coli	613.1	cfu/100ml
2	30SantaF035.9	Total Escherichia coli	770.1	cfu/100ml
2	30SantaF035.9	Total Escherichia coli	< 1	cfu/100ml
1	30SantaF050.5	Total Magnesium	5	mg/l

2	30SantaF044.5	Total Magnesium	4	mg/l
2	30SantaF041.2	Total Magnesium	3	mg/l
2	30SantaF035.9	Total Magnesium	3	mg/l
2	30SantaF035.9	Total Magnesium	< 1	mg/l
1	30SantaF050.5	pH	7.71	None
2	30SantaF044.5	pH	8.12	None
2	30SantaF041.2	pH	8.21	None
2	30SantaF035.9	pH	8.18	None
1	30SantaF050.5	Specific conductance	172	uS/cm
2	30SantaF044.5	Specific conductance	187	uS/cm
2	30SantaF041.2	Specific conductance	188	uS/cm
2	30SantaF035.9	Specific conductance	215	uS/cm
1	30SantaF050.5	Total Coliform	2419.6	cfu/100ml
2	30SantaF044.5	Total Coliform	2419.6	cfu/100ml
2	30SantaF041.2	Total Coliform	2419.6	cfu/100ml
2	30SantaF035.9	Total Coliform	2419.6	cfu/100ml
2	30SantaF035.9	Total Coliform	1	cfu/100ml
1	30SantaF050.5	Turbidity	39.5	NTU
2	30SantaF044.5	Turbidity	79.1	NTU
2	30SantaF041.2	Turbidity	105.5	NTU
2	30SantaF035.9	Turbidity	93	NTU

Note: All samples were taken after a series of September 2013 large storm events.
Sample Location 1: Santa Fe River (Guadalupe St to Nichols Rsv)
Sample Location 2: Santa Fe River (Santa Fe WWTP to Guadalupe St)

Figure 1 Las Cruces Bacteria Source Tracking Study. 2010 - 2011

Livestock Source Identification:
Cattle – 12
Horse – 8

Pets Source Identification:
Dog - 8.2
Feline - 0.8