Initial Revised Designation Decision and Record of Decision in Response to A Petition by Amigos Bravos for a Determination that Stormwater Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require Clean Water Act Permit Coverage

Summary of Petition, Procedural History, and Region 6 Revised Designation

On June 30, 2014, Amigos Bravos, a river conservation organization in New Mexico, submitted to the Regional Administrator of EPA Region 6 (EPA) "A Petition by Amigos Bravos for a Determination that Stormwater Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require a Clean Water Act Permit" (Petition). See Appendix 1- Petition. The Petition calls for a "determination, pursuant to 40 CFR § 122.26(a)(9)(i)(D), that non-de minimis, currently non-NPDES permitted stormwater discharges in Los Alamos County are contributing to violations[1] of water quality standards in certain impaired waters throughout the area, and therefore require National Pollutant Discharge Elimination System (NPDES) permits pursuant to section 402(p) of the Clean Water Act (CWA) and/or designation as a municipal separate storm sewer system." Petition at 1.

The Petition alleges that urban stormwater from Los Alamos County sites, particularly urban stormwater from developed areas at Los Alamos National Laboratory (LANL), the Los Alamos Townsite, and the community of White Rock (White Rock), is contributing to violations of New Mexico state water quality standards (NM WQS), including NM WQS for polychlorinated biphenyls (PCBs), copper, zinc, and nickel, and that as a result, discharges from these sites should be subject to NPDES permitting requirements. CWA §§ 402(p)(2)(E) and (p)(6) and EPA's stormwater regulations at 40 CFR § 122.26(a)(9)(i)(D) provide that the Director may designate stormwater discharges as requiring NPDES permit coverage if he or she determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard (WQS) or is a significant contributor of pollutants to waters of the United States. Pursuant to 40 C.F.R. § 122.2, "[w]hen there is no 'approved State program,' meaning the program is administered by EPA, 'Director' means the Regional Administrator." Because the State of New Mexico is not authorized to implement the NPDES program, EPA Region 6 administers the NPDES program in the State. In response to the Petition, the Incorporated County of Los Alamos (the County) and LANL submitted to EPA additional information and data related to stormwater discharges in Los Alamos County on November 4, 2014, and November 24, 2014, respectively.

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[1] The CWA uses the term "violation," but EPA acknowledges that under the CWA, WQS are not directly enforceable. In this document, EPA uses the term "violation" to refer to an exceedance of WQS.

After careful review of the Petition and the additional information provided by the County and LANL, as well as review of the State of New Mexico's assessment of water quality in the area, on March 17, 2015, EPA Region 6 published notice in the *Federal Register* (80 FR 13852) of a determination that discharges of stormwater from small municipal separate storm sewer systems (MS4s) on LANL property and urban portions of Los Alamos County contribute to violations of one or more NM WQS. EPA determined that there were insufficient data about the stormwater discharges from White Rock to establish that stormwater discharges from White Rock contribute to WQS violations. The notice opened a 30-day public comment period on the designation decision, ending April 16, 2015, which EPA later extended an additional 60 days to June 15, 2015.

Based on comments received on the designation decision from interested parties, EPA re-analyzed the data and re-examined its determination that the discharges of urban stormwater contribute to violations of WQS. EPA's re-examination of its designation decision included consideration of a letter from the New Mexico Environment Department (NMED) to EPA dated October 18, 2019, stating that NMED supports the MS4 designations for the discharges at issue.[2] In the letter, NMED stated that studies conducted by both LANL and NMED have confirmed that "elevated levels of metals and PCBs are contained in urban stormwater leaving the impervious areas of LANL and the County." 2019 NMED Letter at 1. NMED also expressed concern about the impacts of these stormwater discharges from the Los Alamos area on water quality in the Rio Grande, which is a drinking water source for both the City of Santa Fe and the City of Albuquerque and is also used for irrigation. *Id.* at 1.

On December 16, 2019, EPA issued its final decision, designating stormwater discharges for NPDES permitting from small MS4s operated by the County, LANL, and the New Mexico Department of Transportation (NMDOT). The County filed a petition for review with EPA's Environmental Appeals Board; the Board subsequently granted EPA's motion to dismiss the County's petition for review for lack of jurisdiction. The County then filed a petition for review with the U.S. Court of Appeals for the Tenth Circuit, which EPA also moved to dismiss for lack of jurisdiction. The Court deferred ruling on EPA's motion to dismiss to the merits panel and the parties proceeded to brief the merits of the challenge. In the County's opening brief, it asked the Court to remand the matter to EPA considering the Supreme Court's intervening decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020) (*Maui*). EPA then filed a motion for voluntary remand to reconsider its response to the Petition considering the Supreme Court's decision in *Maui* and based on other relevant factors. On January 21, 2022, the Court granted EPA's motion, remanding the matter to EPA "for the limited purpose of reconsidering the EPA's decision that is the subject of this petition for review. Specifically, the EPA should reconsider its decision in light of the Supreme Court's decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020). The EPA may conduct any and all proceedings it deems necessary and appropriate to reconsider the decision at issue in this case." Order, United States Court of Appeals, Tenth Circuit, January 21, 2022, Case # 20-9534, at 2. See Appendix 2 - Remand Order. In addition to considering the Supreme Court's decision in *Maui*, EPA has also considered the facts at issue here considering the recent Supreme Court decision in *Sackett v. EPA*, 598 U.S. 651, 143 S. Ct. 1322 (2023) (*Sackett*). EPA has carefully considered all record information,

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[2] Letter from NMED Secretary James C. Kenney to EPA Region 6 Regional Administrator Ken McQueen dated October 18, 2019, superseding NMED letter dated June 15, 2015, which had not supported designation. (2019 NMED Letter).

including stormwater discharge data collected by NMED, LANL, and the Buckman Direct Diversion (BDD), NMED's water quality assessments and lists of impaired waters and any supplemental information submitted by LANL or the County in regard to EPA's previous 2019 designation decision, as well as the public comments submitted on that decision. EPA also conducted a site visit in September 2022 to examine first-hand the discharges and waters at issue. To ensure its record is complete, EPA is exercising its discretion to propose its determination for public comment. Although this document uses the present tense, EPA is soliciting public comment and may revise its findings based on public input.

Upon reconsideration of the Petition on remand, EPA initially determines that stormwater discharges from small MS4s located in the Los Alamos Urban Area as defined by the latest decennial Census and MS4s located on LANL property within Los Alamos and Santa Fe Counties, New Mexico (the discharges) require NPDES permit coverage because the discharges are contributing to violations of NM WQS in waters of the United States. See Appendix 4 - Maps of Designated Areas. EPA initially determines that there are insufficient data to support designation of stormwater discharges from MS4s located in the community of White Rock as requiring permit coverage at this time. The designated stormwater discharge area includes MS4s operated by the County, LANL, and NMDOT.

EPA has initially determined that the discharges contribute to WQS violations based on two separate and independently applicable rationales. First, the discharges contribute to WQS violations in the receiving canyon waters identified as jurisdictional in the *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County* because the discharges exceed WQS when they leave the MS4s and enter the canyon waters. Those identified receiving canyon waters are "waters of the United States" because they are tributaries of the Rio Grande, a traditional navigable water, that are relatively permanent, standing, or continuously flowing bodies of water. See Appendix 5: *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County.* Those canyon waters are impaired (i.e., they have no remaining assimilative capacity because they already exceed applicable WQS for some of the same pollutants for which the discharges exceed WQS when they leave the MS4s. Second, the discharges contribute to WQS violations in the Rio Grande because the discharges exceed applicable WQS when they leave the MS4s and enter the canyons, which serve as discrete conveyances, i.e., point sources, carrying the stormwater to the Rio Grande. The Rio Grande is a "water of the United States" because it is a traditional navigable water, and is impaired for some of the same pollutants for which the discharges exceed WQS when they leave the MS4s. Either of these two bases is by itself sufficient evidence for EPA to determine that the discharges contribute to a WQS violation in a "water of the United States" and thus designate the discharges from the small MS4s operated by LANL, the County, and NMDOT for NPDES permitting.

EPA also finds that the U.S. Supreme Court's decision in *Maui* is not relevant to this Designation Decision for a number of reasons, including that, as noted above, discharges from the designated MS4s are directly to waters of the United States (i.e., the canyon waters identified in Appendix 5) or are to conveyances (i.e., the canyon waters identified in Appendix 5) that discharge directly to waters of the United States.[3] The discharge at issue in *Maui* was a discharge from a point source indirectly to a water

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[3] "[D]iscernible, confined and discrete conveyance[s]" are "point sources" under the Act. CWA § 502(14) "[t]he term 'point source' means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged."

of the United States through groundwater. There is thus no need to evaluate whether the discharges from the designated MS4s are the "functional equivalent" of direct discharges under *Maui*.

Background

Polluted stormwater is commonly transported through MS4s and then discharged, untreated, into local water bodies. To prevent pollutants from being washed or dumped into MS4s and then discharged to waters of the United States, the CWA and federal implementing regulations require EPA and authorized states to regulate these stormwater discharges through the issuance of NPDES permits to large, medium, and certain small MS4s, as defined under the regulations. See CWA § 402(p) and 40 C.F.R. §§ 122.26 (a)(1), 122.26 (b)(4)(7) & (16) and 122.32. In addition, EPA and authorized states may under certain circumstances designate additional stormwater discharges for permitting on a case-by-case basis (often referred to as residual designation authority). See CWA § 402(p)(2)(E) and (6); 40 C.F.R. §122.26(a)(9)(i)(C) and (D). Any person may petition EPA or an authorized state to use its residual designation authority to require an NPDES permit for a stormwater discharge that contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. See 40 C.F.R. § 122.26(f)(2). In response to the Petition filed in this matter and pursuant to its authority under 40 C.F.R. § 122.26(a)(9)(i)(D), EPA Region 6 is through this action designating for NPDES permit coverage stormwater discharges from certain small MS4s in Los Alamos County.

Los Alamos County

Los Alamos County is in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe.[4] The main population center is the Los Alamos Townsite, which is delineated as a Census Designated Place (CDP) by the U.S. Census Bureau. A CDP is a statistical geography representing closely settled unincorporated communities that are locally recognized and identified by name.[5] According to the 2020 Census, the population of the Los Alamos CDP is 13,179.[6] The other densely populated area in Los Alamos County is White Rock, which is also delineated as a CDP, with a population of 5,852.[7] LANL is also located in Los Alamos County, although a small portion of LANL property extends east into Santa Fe County, New Mexico. The Los Alamos Townsite, White Rock, and LANL all sit on the upland mesas of the Pajarito Plateau, the high tableland that lies between the Jemez Mountains to the west and the Rio Grande to the east. The Pajarito Plateau formed over a million years ago from consolidated ash turf deposited during massive volcanic eruptions. Subsequent erosion has created abrupt, deep canyons separating long, narrow upland mesas. The canyons run from the Plateau's upland mesas east to the Rio Grande below. LANL 2021 Environmental Report, 1-4 and 1-7.

Stormwater from MS4s located in the portion of the Los Alamos Townsite defined as the Los Alamos Urban Area in the 2020 Census, White Rock, and LANL property within Los Alamos and Santa Fe Counties (the MS4s) flows off the Plateau's upland mesas into various canyons leading to the Rio

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[4] Los Alamos National Laboratory, Los Alamos National Annual Site Laboratory Environmental Report 2021, 1-4 (2021) (LA-UR-22-29103). (LANL 2021 Environmental Report).
[5] https://www.census.gov/programs-surveys/bas/information/cdp.html.
[6] https://www.census.gov/quickfacts/fact/table/losalamoscdpnewmexico,US.
[7] https://www.census.gov/quickfacts/fact/table/whiterockcdpnewmexico,US.

Grande. See Figure 1. Some of the stormwater travels through the waters in the canyons and reaches the Rio Grande below.

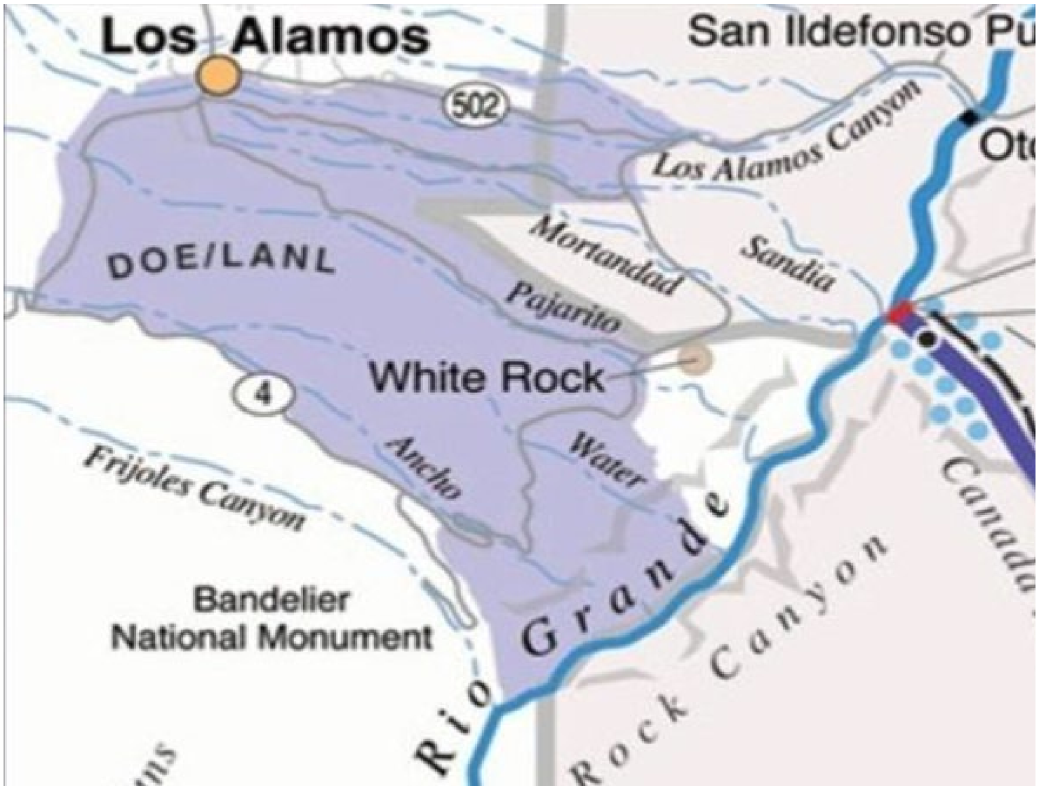

Figure 1 (Source: Inset of Map from 2011-2014 BDD Report)

Current Status of Stormwater Discharges in Los Alamos County Regulated under the NPDES Stormwater Program

There are currently no regulated MS4s in Los Alamos County. EPA's Phase I stormwater regulations (55 FR 47990, November 16, 1990) required NPDES permits for large and medium MS4s, as defined at 40 CFR § 122.26(b)(4) and (7). The regulations included a list of incorporated places (cities) and counties that qualified as large or medium MS4s and thus required an NPDES permit. See 40 CFR Part 122, Appendices F through I. No areas of Los Alamos County qualified as a medium or large MS4 under the Phase I regulations.

Any "stormwater discharge associated with industrial activity," as defined at 40 CFR § 122.26(b)(14), is also regulated under EPA's Phase I regulations. LANL has an individual NPDES stormwater permit (NM0030759) that covers certain stormwater discharges from industrial activity. However, the majority of LANL's stormwater discharges do not meet the definition of "stormwater discharge associated with industrial activity," and thus are not currently regulated under the NPDES program.

EPA's Phase II stormwater regulations (64 FR 68722, December 8, 1999) included a requirement to permit stormwater discharges from certain small MS4s,[8] those that are either located in an "urbanized area" under the latest decennial Census or are otherwise designated by the NPDES permitting authority (40 CFR § 122.32(a)). EPA revised its Phase II stormwater permitting regulations, effective March 2, 2023, to replace the term "urbanized area" with the text "urban areas with a population of 50,000 or more people."[9] As of the 2020 Decennial Census, Los Alamos County does not have any urban areas with a population of 50,000 or more people, and thus no small MS4s in the County are automatically designated by rule; nor have there been any final designations of small MS4 stormwater discharges in the County on a case-by-case basis.

Authority for Residual Designation of MS4s not Automatically Designated by Rule

CWA §§ 402(p)(2)(E) and 402(p)(6) provide the statutory authority for case-by-case designations of discharges composed entirely of stormwater. Under EPA's stormwater regulations promulgated pursuant to those statutory sections, small MS4s may be designated for NPDES permits pursuant to the following provisions:

- 40 CFR § 122.26(a)(9)(i)(C) – The Director determines that stormwater controls are needed for the discharge based on wasteload allocations (WLAs) that are part of "total maximum daily

[8] "Small MS4" is defined at 40 CFR § 122.26(b)(16) as "all separate storm sewers that are:

(i) Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.

(ii) Not defined as 'large' or 'medium' municipal separate storm sewer systems pursuant to paragraphs (b)(4) and (b)(7) of this section, or designated under paragraph (a)(1)(v) of this section.

(iii) This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

[9] When EPA promulgated the Phase II rule in 1999, it adopted the Census Bureau definition of "urbanized area" as one of the automatic designation criteria for small MS4s. EPA stated in the preamble to the Phase II rule that "[u]nder the Bureau of the Census definition of 'urbanized area,' adopted by EPA for the purposes of this final rule, an 'urbanized area (UA)' comprises a place and the adjacent densely settled surrounding territory that together have a minimum population of 50,000 people." 64 FR 68722 (December 8, 1999). On March 24, 2022, the Census Bureau changed its definitions to no longer identify individual urban areas as either an "urbanized area" or an "urban cluster." Beginning with the 2020 Census and moving forward, the Census Bureau refers to all areas as "urban areas" regardless of population size. 87 FR 16706 (March 24, 2022). In light of the Census Bureau's changes, EPA revised its Phase II stormwater permitting regulations, effective March 2, 2023, to replace the now obsolete references to "urbanized areas" with text that incorporates the underlying population threshold associated with that term, specifically "urban areas with a population of 50,000 or more people." 87 FR 73965 (December 2, 2022).

loads" (TMDLs) that address the pollutant(s) of concern. Because there are no approved TMDLs with WLAs in the area, EPA is not relying on this authority.

- 40 CFR § 122.26(a)(9)(i)(D) - The Director (here the Regional Administrator) determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a WQS or is a significant contributor of pollutants to waters of the United States. EPA's Designation Decision is based on its authority under 40 CFR 122.26(a)(9)(i)(D).

Jurisdictional Waters under the CWA

The CWA prohibits the unauthorized discharge of any pollutant to "navigable waters." CWA § 301(a). The Act defines "navigable waters" as "waters of the United States, including the territorial seas." CWA § 502(7). EPA's regulations at 40 C.F.R. § 120.2 define "waters of the United States" and "navigable waters." In early 2023, 40 C.F.R. § 120.2 was revised by EPA and the U.S. Department of the Army's promulgation of the "Revised Definition of 'Waters of the United States'" rule, which was published in the *Federal Register* on January 18, 2023, and became effective March 20, 2023 (2023 Rule). Lawsuits challenging that rule resulted in that rule being enjoined in some states but not in New Mexico. In May 2023, the U.S. Supreme Court issued a decision in *Sackett v. EPA* addressing the scope of the term "waters of the United States." *Sackett v. EPA*, 598 U.S. 651, 143 S. Ct. 1322 (2023) (*Sackett*). On August 28, 2023, EPA and the U.S. Army Corps of Engineers signed a final rule amending the Code of Federal Regulations to conform the definition of "waters of the United States," to the U.S. Supreme Court decision in *Sackett*. That final rule was published and took effect on September 8, 2023. 88 *Federal Register* 61964 (September 8, 2023). Accordingly, in this action, EPA interprets the phrase "waters of the United States" consistent with the 2023 Rule, as amended by the September 8, 2023, final rule.

As relevant to this Designation Decision, the term "waters of the United States" includes traditional navigable waters and tributaries of traditional navigable waters that are relatively permanent, standing, or continuously flowing bodies of water. 40 C.F.R. § 120.2(a)(1)(i), (3); 88 FR 61984.

Environmental Justice Evaluation for NPDES Determination

Executive Order 13985, *Advancing Racial Equity and Supporting for Underserved Communities through the Federal Government* signed on January 20, 2021, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." E.O. 13985 of January 20, 2021, 86 FR 7009. Executive Order 14096, *Revitalizing our Nation's Commitment to Environmental Justice for All* signed on April 21, 2023, directs each federal agency to "identify, analyze, and address disproportionate and adverse human health and environmental effects (including risks) and hazards of Federal activities, including those related to climate change and cumulative impacts of environmental and other burdens on communities with environmental justice concerns." E.O. 14096 of April 21, 2023, 88 FR 25251. Consistent with these executive orders, EPA strives to enhance the ability of communities with environmental justice concerns to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. Communities with environmental justice concerns can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 6 considers prioritizing enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on communities with environmental justice concerns. For more information, please visit http://www.epa.gov/ejscreen.

As part of this designation process, EPA conducted a screening analysis to determine whether this NPDES action could affect communities with environmental justice concerns. See Appendix 3 – Summary of EJ Screen. EPA used the Environmental Justice Screening (EJScreen 2.2) tool, a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool helps in efforts to ensure that actions consider the needs of communities most burdened by pollution.

The Environmental Justice study area was Los Alamos County, New Mexico, including the Los Alamos Urban Area as defined by the latest decennial Census and LANL. The population of Los Alamos County aged five and above is 18,976. For the County as a whole, all 13 Environmental Justice Indexes were well below the state and national 80th percentile (80%). Two federally recognized Tribes, San Ildefonso Pueblo and Santa Clara Pueblo, are next to the study area and additional Tribes are located downstream. EPA seeks comments from and will consult with all interested Tribes on this Designation Decision.

Revised Designation Decision Pursuant to Two Separate, Independent Supporting Bases

After re-analyzing the available data, as discussed below, EPA has initially determined that stormwater discharges from the Los Alamos Urban Area as defined by the most recent decennial Census and LANL property within Los Alamos and Santa Fe Counties, New Mexico contribute to violations of NM WQS. As noted above, EPA has determined that there are insufficient data about the stormwater discharges from White Rock to establish that stormwater discharges from White Rock contribute to WQS violations. Therefore, pursuant to 40 CFR § 122.26(a)(9)(i)(D), EPA designates for NPDES permitting stormwater discharges from MS4s located in the portion of Los Alamos County, New Mexico within the Los Alamos Urban Area as defined by the latest decennial Census and MS4s located on LANL property within Los Alamos County and Santa Fe County, New Mexico ("the designated MS4s"). See Appendix 4 - Maps of Designated Areas. As explained below, EPA is requesting comment on this Designation Decision.

EPA's designation covers stormwater discharges from MS4s owned or operated by the following entities in the Los Alamos Urban Area and on LANL property in Los Alamos and Santa Fe Counties:

1. LANL, including Triad National Security, LLC (Triad) and the U.S. Department of Energy's National Nuclear Security Administration (NNSA) located within Los Alamos County and Santa Fe County, New Mexico,
2. Los Alamos County, New Mexico, located within the Los Alamos Urban Area as defined by the latest decennial Census,
3. New Mexico Department of Transportation (NMDOT) located within the Los Alamos Urban Area as defined by the latest decennial Census, and
4. NMDOT located within and interconnected with regulated LANL (Triad and NNSA) storm sewer systems in Los Alamos and Santa Fe Counties, New Mexico.

Under an NPDES MS4 permit, dischargers will have permit requirements to reduce pollutants in stormwater discharges to the Maximum Extent Practicable, effectively prohibit non-stormwater discharges into MS4s, and further address water quality impacts as appropriate, thereby addressing concerns that these discharges contribute to violations of NM WQS. See CWA § 402(p)(3)(B)(2)-(3) and 40 CFR § 122.34. EPA anticipates that the designated dischargers will be able to seek permit coverage under a soon-to-be-reissued EPA statewide MS4 general permit for the State of New Mexico. Any stormwater discharges from undeveloped areas within the footprint of the designation that are not discharges from an MS4 are not subject to this designation. For example, LANL has large undeveloped areas within its property and stormwater discharges from those undeveloped areas do not appear to be served by a MS4. If that is correct, then those stormwater discharges are not covered by this designation and do not require NPDES permit authorization. Likewise, stormwater discharges from areas outside the Los Alamos Urban Area as defined by the latest decennial Census do not require NPDES permit authorization under this Designation Decision. See Appendix 4 -- Maps of Designation Areas.

EPA bases this Designation Decision on two separate, independent bases, either of which is sufficient to designate these small MS4 discharges for NPDES permitting. These two bases are described in detail below.

Basis 1: Stormwater discharges from the designated MS4s contribute to WQS violations in the canyon waters that are "waters of the United States" because they are relatively permanent tributaries of the Rio Grande, a traditional navigable water. Some of these canyon waters are listed as impaired on the NM 303(d) list, and the discharges from the designated MS4s contain some of the same pollutants for which the canyon waters are impaired in concentrations exceeding WQS when they leave the MS4s and enter the canyon waters. As such, those discharges contribute to WQS violations in those canyon waters.

A. The identified canyon waters are "waters of the United States" because they are relatively permanent tributaries of the Rio Grande, a traditional navigable water.

EPA has prepared an evaluation of the Los Alamos County canyons surface waters' status as "waters of the United States." Appendix 5: *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County*. EPA evaluated the flow permanence of stream reaches in the canyons that drain Los Alamos County under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. EPA utilized monitoring data, firsthand observations, and remote sensing-utilized mapping tools to support the evaluation of these stream reaches. Where stream gage data was not available to support the characterization of the canyon stream reaches, EPA relied on other monitoring data, firsthand observations of stream flow permanence indicators, and remote sensing derived information. In addition, EPA technical field staff collected field data and measurements associated with evidence of water flow and permanence at multiple locations throughout the canyons.

Based on EPA's analysis of available data and field observations, EPA concludes that certain streams in the canyons draining Los Alamos County, including streams in the Los Alamos Canyon/Pueblo Canyon watershed, the Sandia Canyon watershed, the Mortandad Canyon watershed, Pajarito Canyon watershed, the Water Canyon watershed, and the Ancho Canyon watershed are waters of the United States because they are tributaries of the Rio Grande, a traditional navigable water, that are relatively permanent, standing, or continuously flowing bodies of water. The waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*. EPA has identified these jurisdictional streams and provided the rationale for the conclusion that they are "waters of the United

States" in Appendix 5: *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County.* A map of jurisdictional canyon waters is included at Appendix 6.

B. Some of the jurisdictional canyon waters are listed as impaired (no remaining assimilative capacity) on the NM impaired waters (303(d)) list.

Under the CWA, states identify waters that do not or are not expected to meet applicable WQS with current pollution control technologies alone. See CWA section 303(d); 40 CFR 130.7. States, including New Mexico, often provide this information in an integrated report known as the 303(d)/305(b) Report. See https://www.epa.gov/tmdl/integrated-reporting-guidance-under-cwa-sections-303d-305b-and-314. EPA reviewed water quality impairment information from the State of New Mexico § 303(d)/305(b) Reports for the years 2012-2014[10], 2014-2016,[11] 2016-2018[12], 2018-2020,[13] 2020-2022[14] and 2022-2024[15] for the surface waters of the ten jurisdictional canyons identified in Basis 1.A. above that receive stormwater discharges from the designated MS4s. Based on this review, the record indicates that some of the jurisdictional canyon waters are listed as impaired for the following pollutants on the NM impaired waters list.

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[10] *State of New Mexico Water Quality Control Commission, 2012-2014 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2012-2014 303d/305b Report). Available at: https://www.env.nm.gov/wp-content/uploads/sites/25/2019/10/AppendixA-USEPA-Approved303dList.pdf.*

[11] *State of New Mexico Water Quality Control Commission, 2014-2016 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2014-2016 303d/305b Report). Available at: https://www.env.nm.gov/wp-content/uploads/sites/25/2019/10/2014-2016NMList.pdf.*

[12] *State of New Mexico Water Quality Control Commission, 2016-2018 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2016-2018 303d/305b Report). Available at: https://www.env.nm.gov/wp-content/uploads/sites/25/2019/04/EPA-APPROVED2016APPA-IntegratedList.pdf.*

[13] *State of New Mexico Water Quality Control Commission, 2018-2020 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2018-2020 303d/305b Report). Available at: https://www.env.nm.gov/wp-content/uploads/sites/25/2018/03/Appendix-A-Integrated-List.pdf.*

[14] *State of New Mexico Water Quality Control Commission, 2020-2022 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2020-2022 303d/305b Report). Available at: https://www.env.nm.gov/wp-content/uploads/sites/25/2018/03/2020-2022-IR-Appendix-A-Integrated-List_012221.pdf.*

[15] *NM 2022-2024 303d/305b Report*

- **Los Alamos Canyon:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Los Alamos Canyon. These impairments are summarized in Table 4 below.

Table 4. Pollutants listed as causing impairments in Los Alamos Canyon 303(d)/305(b) Reports						
Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X	X	X			
Copper	X					
Mercury			X	X	X	X
Cyanide				X	X	X
Selenium				X	X	X

*A measurement of overall radioactivity referred to as "gross alpha" herein

- <u>**Sandia Canyon:**</u> New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" Sandia Canyon. They are summarized in Table 5.

Table 5. Pollutants listed as causing impairments in Sandia Canyon 303(d)/305(b) Reports						
Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X	X	X	X	X	X
Copper	X	X	X		X	
Mercury	X	X	X	X	X	X
Thallium		X	X			

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Pajarito Canyon:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Pajarito Canyon. They are summarized in Table 6.

Table 6. Pollutants listed as causing impairments in Pajarito Canyon 303(d)/305(b) Reports						
Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X	X	X	X		X
Copper	X	X	X			
Arsenic		X	X			
Selenium		X	X			
Mercury				X	X	X
Cyanide					X	X

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Canada del Buey:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Canada del Buey. They are summarized in Table 7.

Table 7. Pollutants listed as causing impairments in Canada del Buey 303(d)/305(b) Reports						
Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X		X	X		

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **DP Canyon:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in DP Canyon. These impairments are summarized in Table 8 below.

Table 8. Pollutants listed as causing impairments in DP Canyon 303(d)/305(b) Reports

Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X	X	X	X	X	X
Copper	X				X	X

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Canon de Valle:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Canyon de Valle. These impairments are summarized in Table 9 below.

Table 9. Pollutants listed as causing impairments in Canon de Valle Canyon 303(d)/305(b) Reports

Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)	X	X	X	X	X	X
Aluminum	X	X	X			
Copper	X					

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Arroyo de la Delfe:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Arroyo de la Delfe. These impairments are summarized in Table 10 below.

Table 10. Pollutants listed as causing impairments in Arroyo de la Delfe 303(d)/305(b) Reports

Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)			X	X	X	X
Aluminum	X	X		X	X	X
Copper				X	X	X
Mercury	X					
Selenium				X		

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Acid Canyon:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Acid Canyon. These impairments are summarized in Table 11 below.

Table 11. Pollutants listed as causing impairments in Acid Canyon 303(d)/305(b) Reports

Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)		X	X	X	X	X
Aluminum	X	X	X	X	X	X
Copper		X	X	X	X	
Mercury	X					
Selenium						

*A measurement of overall radioactivity referred to as "gross alpha" herein

- **Pueblo Canyon:** New Mexico identified pollutants in 303(d)/305(b) reports as causing impairments in the "waters of the United States" in Pueblo Canyon. These impairments are summarized in Table 12 below.

Table 12. Pollutants listed as causing impairments in Pueblo Canyon 303(d)/305(b) Reports

Pollutants	303(d)/305(b) Report Year					
	2012-2014	2014-2016	2016-2018	2018-2020	2020-2022	2022-2024
Gross alpha, adjusted*	X	X	X	X	X	X
Polychlorinated Biphenyls (PCBs)		X	X	X	X	X
Aluminum	X	X	X	X	X	X
Copper				X	X	X
Mercury	X					
Selenium				X	X	X

*A measurement of overall radioactivity referred to as "gross alpha" herein

- The "waters of the United States" in Effluent Canyon have not been assessed.
- None of the State's Integrated Reports dating back to 2012 show the receiving streams within the community of White Rock to be impaired.

In the 2012-2014 303(d)/305(b) Report, NMED listed the source of water quality impairments in the surface waters of Sandia, Mortandad, Pajarito, and Pueblo Canyons as urban stormwater-related causes, with impervious surfaces, parking lots, and construction and development listed as probable sources of the impairment. However, NMED changed its approach for listing causes of impairment following the submittal of the 2012-2014 Report. Thus, while the 2014-2016 through the current 2022-2024 303(d)/305(b) Reports list the probable sources of impairments in these canyon waters as "Source Unknown," this does not mean that any potential source has been confirmed or ruled out. As explained by NMED in its 2014-2016 303(d)/305(b) Report (See Footnote 47at 56):

> The approach for identifying "Probable Sources of Impairment" was modified by the SWQB starting with the 2012 listing cycle. Any new impairment listings are assigned a probable source of "Source Unknown." For the 2014 listing cycle, SWQB removed previously reported non-TMDL Probable Source listings from the Report List, and replaced them with "Source Unknown" for consistency throughout the list with respect to this approach. Therefore, all reported Probable Source lists on the Integrated List now have been through the TMDL process.

NM 2014-2016 303d/305b Report at 56.

As a result, EPA based this Designation Decision on its independent analysis of stormwater quality data and receiving water impairment lists rather than on the probable source listings in the older NMED 303(d)/305(b) Reports. Based on the above, the record shows that the levels of the pollutants of concern exceed applicable WQS in at least some of the "waters of the United States" that receive stormwater discharges from the designated MS4s.

C. The stormwater discharges from the designated MS4s contain some of the same pollutants for which the jurisdictional canyon waters are impaired in concentrations exceeding WQS when they leave the MS4s and enter the jurisdictional canyon waters.

EPA examined available data from two existing reports concerning pollutants in the stormwater being discharged from MS4s on the Pajarito Plateau into the canyon waters that lead from the Plateau to the Rio Grande, specifically the LANL PCB report and the LANL Metals Report. See Basis 1, subparagraph C above. To date, the County has not provided EPA with any monitoring data collected by the County on the quality of stormwater discharges from the MS4 owned or operated by the County.

In addition, in two 2013 Requests for Alternative Compliance submitted to EPA under LANL's 2010 Industrial Stormwater Permit, LANL argued that the cause of its exceedances of the permit's action levels for zinc and copper, which were based on and equivalent to NM water quality criteria, was urban runoff from sources such as motor oil accumulation on parking lots, brake pad and tire material released on pavement, galvanized fencing, culverts, and other building materials.[16]

Based on our analysis of the above data and information, as discussed in detail in Basis 1, subparagraph C above, EPA initially determines that stormwater discharges to the "waters of the United States" from MS4s in the Los Alamos Urban Area and LANL exceed NM WQS for PCBs, a pollutant for which Los Alamos Canyon, Sandia Canyon, Mortandad Canyon, Pajarito Canyon, and Canada del Buey Canyon are impaired.

In addition, EPA initially determines that at least some of the stormwater discharges from MS4s in the Los Alamos Urban Area and LANL exceed one or more of NM's WQS for aluminum, selenium, gross alpha, copper, and/or mercury, pollutants for which one or more of the "waters of the United States" are listed as impaired on the State's CWA section 303(d) list.

Basis 2: The stormwater discharges from the designated MS4s contribute to WQS violations in the Rio Grande, an impaired traditional navigable water. The Rio Grande is impaired for Adjusted Gross Alpha, Temperature, Turbidity, Selenium, Total Recoverable Polychlorinated Biphenyls (PCBs), Mercury (Fish Consumption Advisory), and Total Recoverable Aluminum, meaning the river has no remaining assimilative capacity for discharges of these pollutants that exceed WQS. The discharges from the designated MS4s contain some of these same pollutants in concentrations exceeding WQS when they leave the MS4s and when they enter the canyons leading to the Rio Grande. The canyons serve as discrete conveyances, i.e., point sources, that carry these pollutants to the Rio Grande, where they contribute to violations of WQS in the river.

A. The Rio Grande is a water of the United States because it is a traditional navigable water.

For purposes of this Designation Decision, "the Rio Grande" refers to that section of the river designated by NMED as AU ID NM-2111_00, Rio Grande (Cochiti Resevoir to San Ildefonso bnd). The canyon

[16] LANL 2013 Alternative Compliance Requests, Section 7.0.

waters running from the Pajarito Plateau's upland mesas, on which the Los Alamos Urban Area and LANL sit, connect to this section of the Rio Grande. See https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-2111_00/2022.

EPA's regulations at 40 C.F.R. §120.2(a)(1)(i) define "waters of the United States" to include "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." 40 C.F.R. §120.2(a)(1)(i). Waters subject to jurisdiction under section (a)(1)(i) of the regulation are commonly referred to as "traditional navigable waters." Traditional navigable waters include all of the "navigable waters of the United States," defined in 33 C.F.R. Part 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact (e.g., the Great Salt Lake, UT and Lake Minnetonka, MN).[17] As detailed in Appendix 5: *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County*, EPA conducted a case-specific analysis of the facts for AU ID NM-2111_00, Rio Grande (Cochiti Resevoir to San Ildefonso bnd) and found it to be a "traditional navigable water" as a navigable-in-fact water under 40 C.F.R. §120.2(a)(1). See Appendix 5*: Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County.*

B. The Rio Grande is impaired for Adjusted Gross Alpha, Temperature, Turbidity, Selenium, Total Recoverable Polychlorinated Biphenyls (PCBs), Mercury (Fish Consumption Advisory), and Total Recoverable Aluminum, meaning the river has no assimilative capacity for discharges of these pollutants at levels exceeding WQS.

The Rio Grande (Cochiti Resevoir to San Ildefonso bnd) is listed on the NM 2022-2024 303(d)/305(b) Report list of impaired waters as not meeting state WQS for Adjusted Gross Alpha, Temperature, Turbidity, Selenium, Total Recoverable Polychlorinated Biphenyls (PCBs), Mercury (Fish Consumption Advisory), and Total Recoverable Aluminum.[18] The impairment listings are based on available water quality data. For this reach of the Rio Grande, NMED states in a comment to its 2022-2024 303(d)/305(b) Report (see Footnote 11) that:

> Some of the impairment listings are based solely on stormwater data. Procedures are in place, under the purview of the Buckman Direct Diversion Board, that are intended to not allow public water supply withdrawal from the Buckman Diversion during significant storm events. Fish Tissue Advisory listings are based on NM's current fish consumption advisories for this water body. Per USEPA guidance, these advisories demonstrate non-attainment of CWA goals stating

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[17] EPA and Corps Guidance entitled "Waters that Qualify as 'Traditional Navigable Waters' Under Section (a)(1) of the Agencies' Regulations." This guidance was originally included as Appendix D to the May 30, 2007, COE Jurisdictional Handbook and is still commonly referred to as "Appendix D." https://www.epa.gov/system/files/documents/2022-12/Water%20that%20Qualify%20as%20TNWs_Final_0.pdf

[18] *State of New Mexico Water Quality Control Commission, 2022-2024 State of New Mexico Clean Water Act 303d/305b Integrated Report, Appendix A (NM 2022-2024 303d/305b Report). Available at: https://www.env.nm.gov/surface-water-quality/wp-content/uploads/sites/18/2022/03/2022-2024-IR-Appendix-A-303d-305b-Integrated-List.pdf.*

> that all waters should be "fishable."[19] Therefore, the impaired designated use is the associated aquatic life [use] even though human consumption of the fish is the actual concern.

NM 2022-2024 303(d)/305(b) Report at 192.

The fact that the Rio Grande is impaired for Adjusted Gross Alpha, Temperature, Turbidity, Selenium, Total Recoverable Polychlorinated Biphenyls (PCBs), Mercury (Fish Consumption Advisory), and Total Recoverable Aluminum means the river has no remaining assimilative capacity for discharges of these pollutants above criteria levels. Any discharge of these pollutants in concentrations exceeding state WQS adds to the impairment in the Rio Grande (i.e., it contributes to the WQS violations).

C. Stormwater discharges from the designated MS4s contain some of the same pollutants for which the Rio Grande is impaired in concentrations exceeding NM WQS when they are discharged from the MS4s to canyon waters and conveyed to the Rio Grande.

EPA examined available data from two existing reports concerning pollutants in urban stormwater flowing off the Pajarito Plateau, including from the Los Alamos Urban Area and LANL, into the canyon waters that lead from the Plateau to the Rio Grande. The two reports EPA reviewed were: (1) LANL's May 2012 Report on Polychlorinated Biphenyls in Precipitation and Stormwater within the Upper Rio Grande Watershed[20]; and (2) LANL's 2013 Report on Background Metals Concentrations and Radioactivity in Storm Water on the Pajarito Plateau, Northern New Mexico.[21] To date, the County has not provided EPA with any monitoring data collected by the County on the quality of stormwater discharges from the separate storm sewer system owned or operated by the County.

The LANL PCB Report Demonstrates that Stormwater Discharges from the Pajarito Plateau exceed NM WQS for PCBs, a Pollutant for which the Rio Grande is Impaired.

The LANL PCB Report summarizes the findings of a multi-year cooperative investigation conducted by the U.S. Department of Energy (DOE), NMED, and LANL to characterize PCBs in certain surface waters located in the upper Rio Grande watershed, and in areas in and around LANL. The stated objectives of the study were to establish (1) baseline levels of PCB concentrations in precipitation and snowpack near Los Alamos, New Mexico; (2) baseline levels of PCB concentrations in stormwater in northern New Mexico streams and arroyos that are tributaries of the Rio Grande and Rio Chama; (3) the range of PCB concentrations found in the Rio Grande during base-flow (dry weather flow) and storm-flow conditions; (4) baseline levels of PCBs in stormwater from undeveloped watersheds of the Pajarito Plateau and the northeast flank of the Jemez Mountains near Los Alamos, New Mexico (referred to as the Pajarito Plateau); (5) the concentrations of PCBs in urban runoff from the Los Alamos Townsite neighboring LANL; and (6) how these findings may be used to target significant sources of PCBs. LANL PCB Report

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[19] EPA considers fish or shellfish consumption advisories and supporting fish tissue data to be existing and readily available data demonstrating non-attainment of the Clean Water Act §101(a) goal that waters be fishable. *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water* Act, EPA, July 29, 2005. New Mexico lists all waterbodies included in fish advisories based on mercury as impaired for mercury except waterbodies where available fish tissue data are below the New Mexico water quality criterion of 0.3 mg/kg methylmercury. NM 2022-2024 303(d)/305(b) Report at 27.

[20] *Polychlorinated Biphenyls in Precipitation and Stormwater within the Upper Rio Grande Watershed*, Los Alamos National Laboratory, LA-UR-12-1081, May 2012, EP2012-0047 (LANL PCB Report).

[21] *Background Metals Concentrations and Radioactivity in Storm Water on the Pajarito Plateau, Northern New Mexico*, Los Alamos National Laboratory, LA-UR-13-22841, April 2013, EP2013-0037 (LANL Metals Report).

at 1. The Report stated that the findings would “assist in identifying PCBs in surface waters originating from local industrial and urban sources versus global atmospheric deposition.” *Id.* at iii.

Geographically, the investigation included the Los Alamos Townsite, LANL watersheds, remote watersheds on the Pajarito Plateau, and the Rio Grande upstream and downstream of LANL. *Id*. at 2. To measure PCB concentrations in locations representing stormwater runoff from the relatively small urban environment, stormwater sampling was conducted in the vicinity of the Los Alamos Townsite, with samplers placed around the edge of the urban development. Most of the samplers were located to collect stormwater samples from housing developments, schools, and a golf course. No urban runoff samplers were placed below any known areas of concentrated contamination. In addition to the sampling of the Townsite perimeter, sampling was also conducted downstream from the administrative offices of LANL. *Id*. at 59.

The LANL PCB Report found that PCB concentrations in stormwater samples collected from remote locations were similar to the NM WQ criteria for total PCBs in surface waters and that PCB concentrations in stormwater samples collected at locations affected by industrial and urban activities were at or above the NM WQ criteria. *Id*. at 1. The Report based its findings on the applicable NM WQ criterion for total PCBs, which are 0.64 ng/L for the protection of human health and 14 ng/L for the protection of wildlife habitat. The WQ criteria for acute and chronic protection of aquatic life are 14 ng/L and 2 µg/L, respectively. Except for the chronic life criterion, which only applies under stable conditions, these criteria apply to all surface waters, whether base flow, storm flow, or storm runoff. *Id*. See also NM WQS for PCBs, 20.6.4.114 NMAC and 20.6.4.900 NMAC.

According to the Report (see Footnote 13):

> Under base-flow conditions, results show the water column contained nearly universally low PCB concentrations in the Rio Grande, Rio Chama, and groundwater-fed tributaries. In contrast, surface waters during storm runoff generally contained PCB concentrations above 5 ng/L and substantially above the New Mexico WQS for protection of human health. Such concentrations were measured even in the most remote parts of the watershed and can be attributed to the increased concentrations of suspended soils and sediments carried by surface water during storm runoff. Heightened PCB concentrations above 100 ng/L were measured in Los Alamos County urban runoff, presumably from the increase in diffuse sources in urban environments commonly reported in scientific literature.

Id. at iii.

The Report also noted that LANL’s 2010 NPDES permit for stormwater discharges from industrial activity[22] required monitoring for PCBs in stormwater and included an action level for total PCBs of 0.64 ng/L (micrograms per liter) based on the NM WQ criterion for human health. Although the action level was not itself an effluent limitation, the permit requires corrective action when an average of stormwater sample results exceeds this value for a particular location. *Id*. at 1. Action levels for PCBs equivalent to the NM WQ criterion were also included in the LANL Industrial Stormwater Permit when it was updated and reissued in 2022.[23]

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[22] NPDES Permit No. NM 0030759, issued February 13, 2009, modified September 30, 2010. NPDES Permit No. NM 0030759 was updated and reissued on June 29, 2022, with an effective date of August 1, 2022 (LANL 2010 Industrial Stormwater Permit).
[23] NPDES Permit No. NM 0030759 was updated and reissued on June 29, 2022, with an effective date of August 1, 2022 (LANL 2022 Industrial Stormwater Permit).

The LANL PCB Report included information on sampling and analysis methods and quality assurance/quality control measures. EPA reviewed this information and determined the data collected by LANL and NMED to be of good quality. The County did not provide EPA with any additional data for consideration in the Designation Decision. EPA analyzed the data from the LANL PCB Report and determined that they show that at least some of the stormwater discharges from MS4s in the Los Alamos Urban Area and on LANL property have maximum or median sampling results exceeding NM's WQS for PCBs, which is a pollutant listed as a cause of impairment for the Rio Grande on the State's CWA section 303(d) list. Section 303(d) of the CWA requires states to identify and submit to EPA a list of waters that do not or are not expected to meet applicable WQS with current pollution control technologies alone, and these lists of impaired waterbodies are referred to as the State's CWA section 303(d) lists. Waterbodies listed on a state's 303(d) list as impaired for a pollutant or parameter have no remaining assimilative capacity for that pollutant or parameter at levels exceeding WQS because levels of the pollutant(s) or parameter(s) in the waterbody are already above WQS. Any addition of that pollutant or parameter in any amount above WQS will contribute to the exceedance of WQS. Therefore, maximum or median sampling results showing an exceedance of the State's WQS for one or more of the same pollutants for which a waterbody is listed as impaired indicates that the discharge is contributing to a violation of that WQS.

EPA's review of the data in the Report confirmed that heightened PCB concentrations above 100 ng/L were measured in Los Alamos County urban stormwater discharges, which flow off the upland mesas of the Pajarito Plateau into canyon waters. All but one (40 out of 41 or 98%) of the urban stormwater samples were above the NM Human Health water quality criterion for PCBs and 19 out of 41 (46%) were above the NM wildlife habitat water quality criterion. See Table 1 below.

Table 1
Summary of Total PCB Concentrations in Upper Rio Grande Watershed

Category	Median (ng/L)	UTL (ng/L)	Max Conc. (ng/L)	Percentage of Results Greater Than NM Health Standard (0.64 ng/L)	Percentage of Results Greater Than NM Wildlife Standard (14 ng/L)
Precipitation	0.12	0.68	0.61	0	0
Snowpack	0.14	0.7	0.65	8	0
Rio Grande/Rio Chama					
Base flow	0.01	—*	1.36	6	0
Stormwater (runoff)	0.24	—	51.4	39	3
Northern New Mexico Tributaries Stormwater	5.5	24	30.6	91	22
Baseline Pajarito Plateau Stormwater					
Reference Sites (Flows originating on Pajarito Plateau)	0.4	11.7	11.6	28	0
Western Boundary Sites (Flows Originating in Jemez Mountains)	2.1	19.5	20.7	78	17

Category	Median (ng/L)	UTL (ng/L)	Max Conc. (ng/L)	Percentage of Results Greater Than NM Health Standard (0.64 ng/L)	Percentage of Results Greater Than NM Wildlife Standard (14 ng/L)
Reference and Western Boundary Combined	0.97	13	20.7	56	10
Urban Runoff Los Alamos Townsite	12	98	144	98	46

*— = Not available.
Source: LANL PCB Report.

In addition, in two 2013 Requests for Alternative Compliance submitted by LANL to EPA under LANL's Industrial Stormwater Permit, LANL argued that the cause of its exceedances of the permit's action level for PCBs, which was equivalent to NM water quality criteria, was urban stormwater runoff from sources such as motor oil accumulation on parking lots, brake pad and tire material released on pavement, galvanized fencing, culverts, and other building materials.[24] LANL's 2021 Annual Site Environmental Report stated that sampling under LANL's Industrial Stormwater Permit in 2021 continued to show PCB concentrations above the permit's action level for PCBs in six out of seven samples collected that were analyzed for PCBs. LANL 2021 Annual Site Environmental Report at 6-36.

Based on EPA's review of the data included in the LANL PCB Report and LANL's 2013 Request for Alternative Compliance, EPA determined that stormwater discharges to the canyon waters from MS4s in the Los Alamos Urban Area and LANL are exceeding NM WQS for PCBs, a pollutant for which the Rio Grande is impaired.

The LANL Metals Report Demonstrates that Stormwater Discharges from the Pajarito Plateau exceed NM WQS for Aluminum, Selenium, Gross Alpha, and Mercury, pollutants for which the Rio Grande is Impaired.

The LANL Metals Report presents the results of an investigation conducted by LANL to understand the chemical composition of stormwater runoff in developed and undeveloped areas at LANL and the Los Alamos Townsite. As stated in the Report, the principal objectives of the study were to (1) determine background concentrations in reference watersheds and western boundary locations and baseline concentrations in urban runoff for metals and radioactivity, and (2) determine the baseline concentrations of metals and radioactivity in urban runoff from the Los Alamos Townsite and developed landscapes within LANL. Runoff from legacy contamination at LANL and surrounding sites was not considered in the study. LANL Metals Report at 1. The study was initiated to measure background levels of metals and radioactivity in stormwater on the Pajarito Plateau unaffected by laboratory activities and baseline levels of metals and radioactivity in stormwater running off developed urban landscapes containing buildings, roads, parking lots, and associated infrastructure. Sampling locations distant from developed landscapes and laboratory activities were selected to avoid any known contamination and to provide reasonable estimates of baseline concentrations. Urban sampling locations were selected to avoid any laboratory

[24] Alternative Compliance Request for S-SMA-2, LA-UR-13-22840, EP2013-0070, LANL, April 2013, Section 7.0; Alternative Compliance Request for S-SMA-0.25, LA-UR-13-22842, EP2013-00069, LANL, April 2013, Section 7.0 (LANL 2013 Alternative Compliance Requests).

legacy contamination, but to be representative of a developed environment and contaminants associated with structures and activities within that environment. *Id*. Locations were also selected based on their spatial relationship to drainages from LANL and developed areas within Los Alamos County. *Id*. at 2.

The Report states that stormwater samples were collected in the vicinity of the Los Alamos Townsite and the developed areas of LANL to measure metals concentrations and radioactivity in locations representing stormwater runoff from urban environments on the Pajarito Plateau. According to the Report, samplers were placed around the edge of the urban development and no urban runoff samplers were placed below any known areas of contamination. Most samplers were located to collect stormwater runoff samples from housing developments, schools, and a golf course. In addition to monitoring stormwater at the Townsite perimeter, sampling was also conducted in drainage channels downstream from the LANL administrative offices. *Id*. at 5.

EPA analyzed the information contained in the LANL Metals Report and found that at least some of the stormwater discharges from MS4s in the Los Alamos Urban Area and LANL have maximum or median sampling results exceeding one or more of NM's WQS for aluminum, selenium, gross alpha, or mercury, the pollutants listed as causes of impairment for the Rio Grande on the State's CWA section 303(d) list. EPA found that the mean of the urban runoff samples from the Los Alamos Urban Area and LANL exceeded at least one NM WQS for aluminum, cadmium, copper, or zinc. Also, the maximum urban runoff sample value for discharges from these MS4s exceeded at least one NM WQS for aluminum, cadmium, copper, and zinc. The mean of the urban runoff samples exceeded the mean of the background reference site samples for aluminum, cadmium, copper, and zinc. The LANL Metals Report ties these pollutants to the urban areas of the Pajarito Plateau. See Table 2 below.

Table 2

EPA Analysis of LANL Metals Report Data

Pollutants	Urban runoff metal Con.	Urban runoff metal Con.	95% confidence level **(µg/L)**	NMWQS (Hardness as CaCO, dissolved (40mg/L)				Mean Background/ Reference area runoff metal Con.		Does Max, Mean, or 95% Confidence level from urban runoff exceed One or More NMWQS?	Does Max, /Mean, or /95% Confidence level from Background/Reference runoff exceed One or More of the NMWQS	Total number of samples with pollutants detected	Number of samples with pollutant level exceeded the NMWQS
	Max	Mean		LW	WH	Aquatic Life		Max	Mean				
						Acute	Chronic						
Aluminum, Total	22700	5179	17,700			975	391	116000	33888	**Yes**	No	**51**	**41**
Aluminum, Dissolved	309	98.98	245					2620	536.7	No			
Arsenic total	7.3	3.183	5.32					24	7.85	No			
Arsenic, Dissolved	3.53	2.376	2.55	200		340	150	6.2	2.617	No	No		
Cadmium, Total	.495	.303	1.25					6.7	3.293	No			
Cadmium Dissolved	.894	.334	.36	50		.76	.23	.28	.28	**Yes**	No	**53**	**7**
Copper, Total	142	30.49	84					104	24.81		No		
Copper, Dissolved	31.8	10.17	32.3	500		6	4	4.1	1.72	**Yes**	No	**54**	**47**
Gross Alpha, Total ((pCi/L)	71	10.43	32.5	15		N/A	N/A	1090	288.4	**Yes**	**Yes**	**32**	**5**
Gross Alpha, Dissolved	n/a	n/a	n/a					n/a	n/a				
Mercury, Total	0.286	0.218	n/a	10				.21	.145				
Mercury, Dissolved	n/a	n/a	n/a			1.4	.77	n/a	n/a	No	No		
Nickel, Total	33.9	6.95	21.2					120	42.87				
Nickel, Dissolved	9.13	2.848	7.57			220	24	3.4	1.736	No	No		
Selenium, Total	n/a	n/a	n/a		5	20	5	4.8	2.45	No	No		
Selenium, Dissolved	1.68	1.68	n/a	50				n/a	n/a				
Thallium, Dissolved													
Zinc, Total	2290	450.6	1617					1150	240.4				
Zinc, Dissolved	882	181	1120	25000		70	53	170	11.9	**Yes**	**Yes**	**53**	**49**

Notes: Unit is µg/L unless otherwise indicated.

The LANL Metals Report included information on sampling and analysis methods and quality assurance/quality control measures. EPA reviewed this information and determined the data collected by LANL and NMED to be of good quality. The County did not provide EPA with any additional data for consideration in the Designation Decision. EPA's review of the data included in the LANL Metals Report confirmed that stormwater discharges from MS4s in the Los Alamos Urban Area and LANL to the canyons leading to the Rio Grande exceed NM WQS for Aluminum, Selenium, Gross alpha, and Mercury, pollutants for which the Rio Grande is impaired.

In addition, in two 2013 Requests for Alternative Compliance submitted to EPA under LANL's 2010 Industrial Stormwater Permit, LANL argued that the cause of its exceedances of the permit's action levels for zinc and copper, which were equivalent to NM water quality criteria, was urban runoff from sources such as motor oil accumulation on parking lots, brake pad and tire material released on pavement, galvanized fencing, culverts, and other building materials.[25]

Therefore, based on its analysis of the available information in the LANL PCB Report, the LANL Metals Report, and LANL's 2013 Requests for Alternative Compliance, EPA has initially determined that stormwater discharges from the designated MS4s contain some of the same pollutants for which the Rio Grande is impaired in concentrations exceeding applicable NM WQS when they leave the MS4s and discharge to the canyons leading to the Rio Grande.

D. The canyons serve as discrete conveyances, i.e., point sources, that carry stormwater containing pollutants of concern from MS4s in the Los Alamos Urban Area and LANL to the Rio Grande.

A Jurisdictional Assessment performed by EPA Technical Field Staff found that the Canyons are Conveyances through which Pollutants are discharged to the Rio Grande.

CWA § 502(14) defines "point source" as "any discernable, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discreet fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged."

On September 21-22, 2022, EPA technical field staff conducted site visits to the canyons that lead from the upland mesas of the Pajarito Plateau to the Rio Grande, including the canyons leading from the 2020 Census-defined Los Alamos Urban Area and developed areas of LANL property, to the river below. EPA technical field staff also collected field data and measurements associated with evidence of water flow and permanence at multiple locations throughout the canyons. Based on the EPA's analysis of available data and field observations, EPA finds that the canyons are conveyances that receive and convey stormwater (and the pollutants in it) from the Plateau, including from the Los Alamos Urban Area and the developed areas of LANL, to the Rio Grande.

EPA observed indicators in the field and has evaluated evidence from remote sensing data that establish that the canyons draining Los Alamos County, including the Los Alamos Canyon/Pueblo Canyon watershed, are discrete conveyances of stormwater (and the pollutants in it) to the Rio Grande, a downstream traditional navigable water. EPA reviewed and analyzed relevant remote sensing data and imagery for the Los Alamos Area to gather additional information about the landscape and hydrology of the area. Some of the primary remote sensing datasets EPA used for this analysis were the U.S. Geological Survey's (USGS) Light Detection and Ranging (LIDAR) data and Digital Elevation Models (DEM), as well as color-infrared aerial photography. This type of remote sensing data is based on measuring the spectral signatures of different materials and is primarily captured by sensors on satellites or aircraft. EPA also incorporated geospatial datasets into the analysis like the USGS National Hydrography Dataset Plus High Resolution (NHDPlus HR). See Appendix 5: *Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County.*

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[25] LANL 2013 Alternative Compliance Requests, Section 7.0.

The connectivity maps in Appendix 5 demonstrate that the representative conveyances identified by EPA during the September 2022 site visit discharge directly or through other conveyances to "waters of the United States." *Id*. A map showing the canyons that serve as conveyances is included at Appendix 7.

LANL Surface Water Data, 2011-2020, Demonstrate that Stormwater flowing off the Pajarito Plateau into the Canyons connected to the Rio Grande sometimes reaches the Rio Grande

LANL routinely collects surface water monitoring data for various parameters from as many as 50 gage stations covering most of LANL's property and publishes the data collected in its annual Surface Water Data reports. LANL samples surface water in all major canyon waters and tributaries on current or former LANL lands and maintains 37 stream gage stations on or near LANL, all of which are equipped with automated samplers that activate at the start of stormwater runoff events. Stormwater samples are also collected at eight additional stream channel locations that do not have active gage stations. Although the number of gage stations and stream channel sampling locations remains fairly constant over time, the number of locations with samples varies from year to year because not all gage stations or channel sampling locations experience stormwater flow in any given year.[26] Locations of stream gage stations for which monitoring data were collected for the 2020 LANL Surface Water Data report are shown below:

[26] LANL 2021 Annual Site Environmental Report at 6-13.

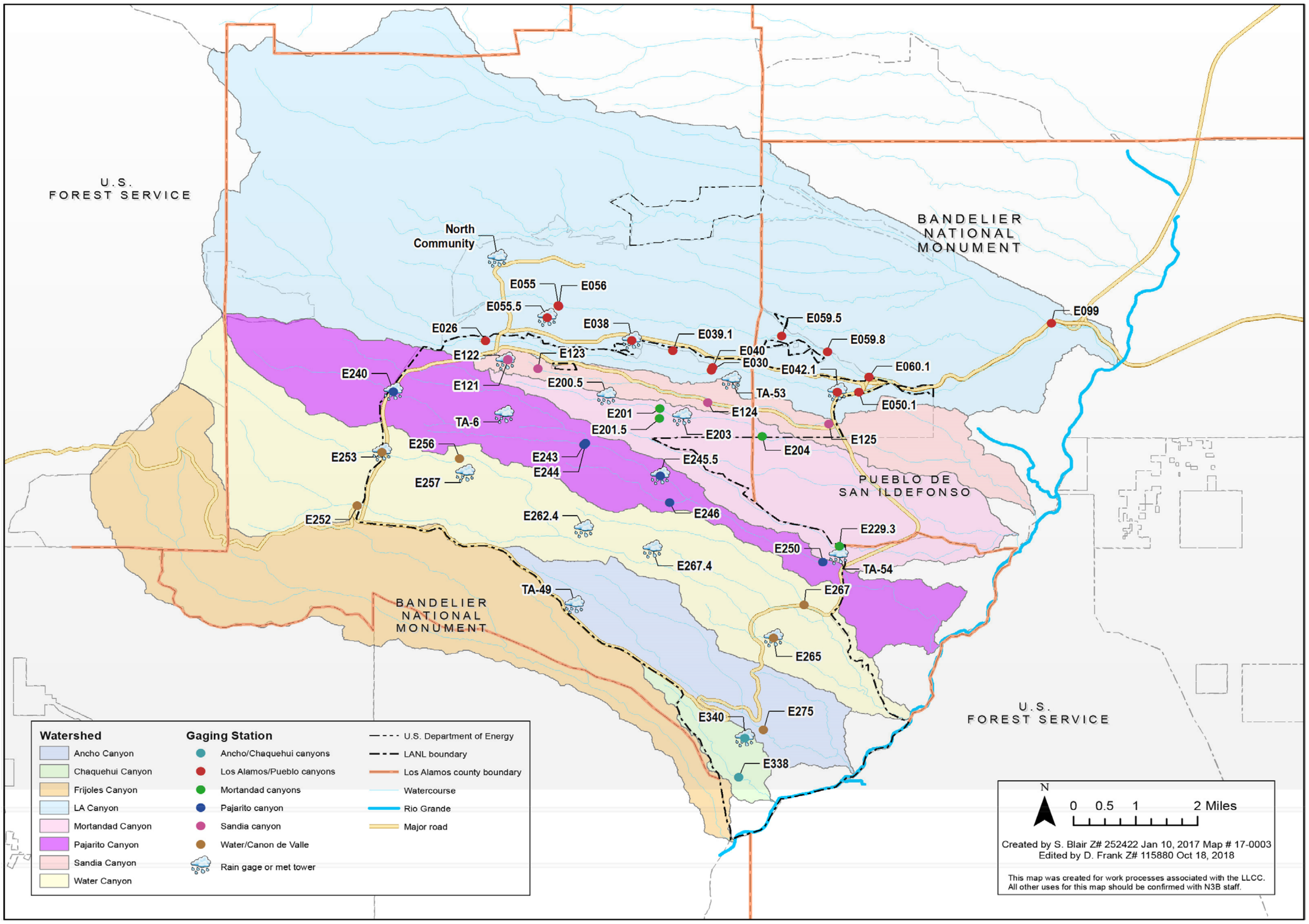

Figure 2 (Source: LANL Surface Water Data, Water Year 2020)

For purposes of this Designation Decision, EPA reviewed LANL Surface Water Data for Water Years (September-October) 2011-2020.[27,28,29,30,31,32,33,34,35] Because the Los Alamos Townsite, the community of White Rock, and the developed areas of LANL are located in the Los Alamos Canyon/Pueblo Canyon watershed, EPA focused its review of LANL's surface water data on monitoring samples collected from this watershed, specifically on water samples collected from three LANL gauge stations: E050.1 (Los Alamos Canyon below Low Head Weir), E060.1 (Pueblo Canyon below Grade Control Structure Location), and E109.9 (Los Alamos Canyon above Rio Grande).

The Los Alamos Canyon/Pueblo Canyon watershed is located at the northern end of Los Alamos County and LANL property. The watershed extends on U.S. Forest Service land to the west and northwest of LANL and extends eastward from the headwaters across the Pajarito Plateau to its confluence with the Rio Grande. The Los Alamos Canyon/Pueblo Canyon watershed includes the waters located in Los Alamos, Pueblo, and DP Canyons. The waters located in Bayo, Guaje, Rendija, and Barrancas Canyons are tributary canyon waters in the watershed. The tributary located in Pueblo Canyon is located on the north side of the Los Alamos Townsite and extends from the Jemez Mountains to its confluence with the tributary located in Los Alamos Canyon, approximately 4.5 miles east of the Los Alamos Townsite at the intersection of NM 502 and NM 4. Los Alamos Canyon is the southernmost canyon in the watershed. LANL Surface Water Data, Water Year 2012 at 12.

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[27] *Surface Water Data at Los Alamos National Laboratory, Water Year 2011*, Los Alamos National Laboratory, LA-UR-12-23350, July 2012, EP2012-0154 (LANL Surface Water Data, Water Year 2011).
[28] *Surface Water Data at Los Alamos National Laboratory, Water Year 2012*, Los Alamos National Laboratory, LA-UR-13-21951, April 2013, EP2013-0028 (LANL Surface Water Data, Water Year 2012).
[29] *Surface Water Data at Los Alamos National Laboratory, Water Year 2013*, Los Alamos National Laboratory, LA-UR-15-21267, March 2015, EP2015-0037 (LANL Surface Water Data, Water Year 2013).
[30] *Surface Water Data at Los Alamos National Laboratory, Water Year 2014*, Los Alamos National Laboratory, LA-UR-18-20700, February 2018, EP2018-0036 (LANL Surface Water Data, Water Year 2014).
[31] *Surface Water Data at Los Alamos National Laboratory, Water Year 2015*, Los Alamos National Laboratory, December 2018, EM2018-0088 (LANL Surface Water Data, Water Year 2015).
[32] *Surface Water Data at Los Alamos National Laboratory, Water Year 2016*, Los Alamos National Laboratory, March 2020, EM2020-0006 (LANL Surface Water Data, Water Year 2016).
[33] *Surface Water Data at Los Alamos National Laboratory, Water Year 2017*, Los Alamos National Laboratory, June 2020, EM2020-0094 (LANL Surface Water Data, Water Year 2017).
[34] *Surface Water Data at Los Alamos National Laboratory, Water Years 2018-2019*, Los Alamos National Laboratory, June 2020, EM2020-0220 (LANL Surface Water Data, Water Years 2018-2019).
[35] *Surface Water Data at Los Alamos National Laboratory, Water Year 2020*, Los Alamos National Laboratory, LA-UR-13-21951, June 2021, EM2021-0220 (LANL Surface Water Data, Water Year 2020).

Table 3. Summary of Discharges from Stream Monitoring Stations for Water Years 2011-2020[36,37,38,39,40,41,42,43,44,45]

Year	E050.1 Los Alamos Canyon below Low Head Weir			E060.1 Pueblo Canyon below Grade Control Structure			E109.9 Los Alamos [Canyon] above Rio Grande		
	Estimated Days with Flow	Total Volume (acre-ft)	Instantaneous Maximum Discharge (ft^3/sec)	Estimated Days with Flow	Total Volume (acre-ft)	Instantaneous Maximum Discharge (ft^3/sec)	Estimated Days with Flow	Total Volume (acre-ft)	Instantaneous Maximum Discharge (ft^3/sec)
2011	24	73	188	84	61	17	186	72	632
2012	46	43	168	9	3.5	1.1	170	369	678
2013	34	339	740	9	186	1400	323	1125	5000
2014	32	67	214	23	27	54	No Data	No Data	No Data
2015	50	201	43	15	7.2	12	No Data	No Data	No Data
2016	7	8.3	25	21	6.3	3.8	No Data	No Data	No Data
2017	31	41	56	19	0.36	0.58	No Data	No Data	No Data
2018	8	19	35	2	0.7	1.1	No Data	No Data	No Data
2019	103	733	71	19	41	51	No Data	No Data	No Data
2020	5	0.73	0.53	14	0.06	0.22	No Data	No Data	No Data

36 LANL Surface Water Data, Water Year 2011
37 LANL Surface Water Data, Water Year 2012
38 LANL Surface Water Data, Water Year 2013
39 LANL Surface Water Data, Water Year 2014
40 LANL Surface Water Data, Water Year 2015
41 LANL Surface Water Data, Water Year 2016
42 LANL Surface Water Data, Water Year 2017
43 LANL Surface Water Data, Water Year 2018
44 LANL Surface Water Data, Water Year 2019
45 LANL Surface Water Data, Water Year 2020

The LANL Surface Water Data show high flows in gage stations E050.1 and E060.1 in both 2013 and 2019. The data also show high flows in gage station E109.9 in 2013, but data from gage station E109.9 were unavailable for 2019 because E109.9 was damaged by a high-flow event in 2013 and was not rebuilt. LANL Surface Water Data, Water Year 2013 at 10. A summary of Pajarito Plateau flow data provided to EPA by LANL in March of 2022 stated that E109.9 was located in Los Alamos Canyon tributary near the confluence with the Rio Grande and that "due to its close proximity to the river, flows recorded at E109.9 indicate dates when upstream discharges reach the Rio Grande."[46] Based on a comparison of daily peak discharge data between E109.9 and gage stations at locations further upstream in waters throughout the Los Alamos Canyon/Pueblo Canyon watershed, LANL concluded that stormwater discharged from areas around LANL and the Los Alamos Townsite reached the Rio Grande. In support of this conclusion, LANL noted that in September 2011, flows were recorded at E109.9 and at all Los Alamos Canyon and DP Canyon gage stations and in August 2012, flows were recorded at E109.9 and at all Los Alamos Canyon gage stations. In September 2013, flows were recorded at all gage stations. *Id*. at 5. Although E109 has not been operational since 2013, NMED provided EPA with sampling data from NMED gage station E110 (Los Alamos Canyon above confluence with Rio Grande), which is in Los Alamos Canyon in close proximity to the non-operational E109.9.[47] The NMED data show a high flow event in gage station E110 on July 25, 2019, with a flow of 527.347 ft3/sec. *Id.*

Based on EPA's analysis of LANL Surface Water Data and the additional flow data provided by NMED, EPA finds that stormwater discharges flowing off the Pajarito Plateau from the Los Alamos Urban Area and LANL into the canyons leading to the Rio Grande sometimes reach the river. Evidence of high flows at gage stations E109.9 and E110, which are each located in Los Alamos Canyon less than a mile upstream of the Canyon water's confluence with the Rio Grande, make it reasonable to conclude that these flows continue the short distance downstream and enter the river. The fact that the high flows in tributaries measured at gage stations E109.9 and E110 coincide with high flows in tributaries measured at gage stations further upstream in the canyons leading from the Pajarito Plateau to the Rio Grande further support this conclusion.

The Buckman Direct Diversion (BDD) Water Quality Monitoring Program Demonstrates that Stormwater from the MS4s Carries Pollutants through the Canyons to the Rio Grande.

The BDD was designed to divert surface water from the Rio Grande, treat it, and provide drinking water to the City and County of Santa Fe, New Mexico. The point of diversion (BDD Intake) is on the east bank of the Rio Grande approximately 15 miles northwest of the City of Santa Fe and about three miles downstream from where NM Route 502 crosses the river at Otowi Bridge. At approximately the same location, 3.5 miles upgradient from the BDD near the Otowi Bridge, the Los Alamos Canyon/Pueblo Canyon watershed flows into the Rio Grande.[48] The Pueblo Canyon connects with and flows into the Los Alamos Canyon above the Rio Grande, and thus the Los Alamos Canyon carries flow from the combined Los Alamos Canyon/Pueblo Canyon watershed downstream to the river. Based on the understanding that

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[46] *Los Alamos Pajarito Plateau Flow Data Summary*, received by EPA from LANL via email dated March 17, 2022.
[47] 2019 Flow Data for Gauge Station E110 (E110 Flow Data.xlsx) received by EPA from NMED via email dated April 18, 2022.
[48] *Storm Water Quality Monitoring of Rio Grande at Buckman Direct Diversion, From 2011-2014*, Daniela K. Bowman, Regulatory Compliance Officer, Buckman Direct Diversion, Final rev. 3/3/16, (2011-2014 BDD Report) at 1.

the Los Alamos and Pueblo Canyons and their tributaries have been impacted by contamination originating from discharges of waste from LANL operations into the canyons on the Pajarito Plateau that drain to the Rio Grande, the BDD entered into a Memorandum of Understanding (MOU) with DOE/LANL in 2010 to monitor water quality in the Los Alamos Canyon and Pueblo Canyon and the Rio Grande in order to evaluate water quality at the BDD Intake during storm events. *Id*. at 5.

The 2010 MOU established an Early Notification System (ENS) to deliver real-time data from the streams located in Los Alamos and Pueblo Canyons during storm events. The system was designed to warn the BDD when discharges of stormwater flowing in the canyon waters exceeded a designated threshold (set at 5 cfs), above which the canyon waters' flow might reach the Rio Grande and transport contaminants to the river. See 2011-2014 BDD Report at 6. When storm-related flows exceed five cubic feet per second (cfs) combined at the LANL gage stations, the BDD is notified and no river water is pumped for 10-12 hours, or until the storm event has subsided. *Id.* at 10. Under the ENS, the Los Alamos and Pueblo Canyons watershed was monitored at gage stations E050.1 (Los Alamos Canyon above the Pueblo Canyon Confluence), E060.1 (Pueblo Canyon), and E109.9 (Los Alamos Canyon 0.7 miles above the Rio Grande). Gage station E109.9 was used as the trigger for the BDD to stop diverting water from the Rio Grande until September 2013, when E109.1 was buried by sediment carried by a major storm event. *Id*. at 9. In 2014, E050.1 and E060.1 became the ENS triggers. See Figure 3 below.

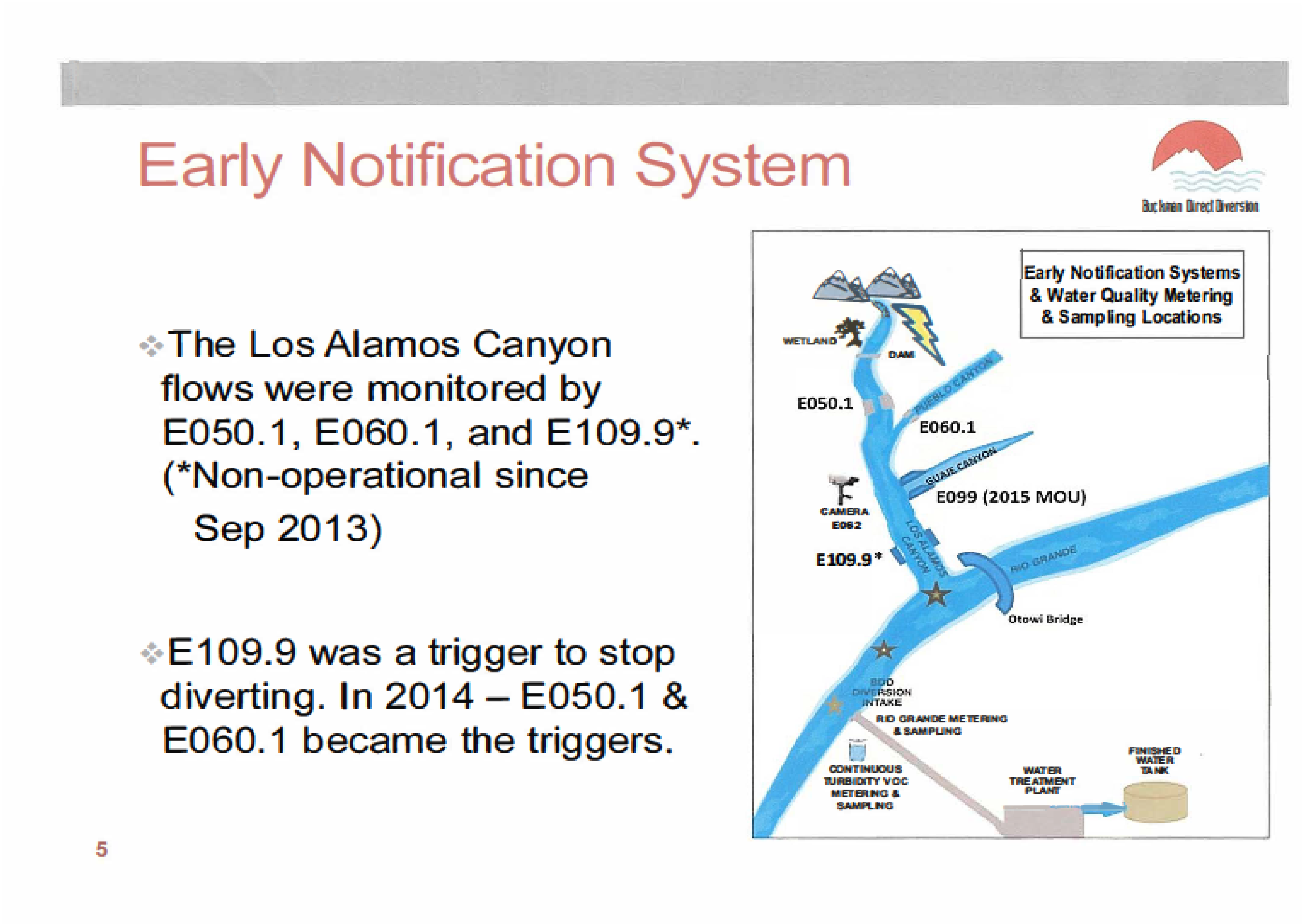

Figure 3 (Source: BDD PowerPoint on *Storm Water Quality Monitoring of Rio Grande at Buckman Direct Diversion, 2011-2014 Report, 2010 Memorandum of Understanding*, Slide 5)

In a report summarizing the results of the sampling performed from 2011-2014 under the 2010 MOU, the BDD stated that it sampled a total of 24 storm events occurring in Los Alamos Canyon, Pueblo Canyon, and the Rio Grande watershed, with many taking place during the 2011 Los Conchas fire. 2011-2014 BDD Report at i. NMED also collected stormwater data at the diversion under an unrelated program. In its report, the BDD used analytical data collected by the BDD and NMED without distinction. *Id*. at ii.

In summary, in the 2011-2014 BDD Report, the monitoring results confirmed that LANL legacy contaminants were being transported by stormwater through the canyons to the BDD in the Rio Grande. The Report also found that the 2011 Las Conchas fire played an important role in mobilizing contaminants in the Los Alamos Canyon/Pueblo Canyon watershed and transporting them to the BDD and that the water quality effects of this fire to the Rio Grande watershed from Otowi Bridge to BDD were significant. *Id*. at iii. A revised MOU was signed in 2015, which called for continued water quality sampling, and the BDD produced a second report in 2016 summarizing the additional three years of monitoring results.[49] Under the 2015 MOU, gage station E099 (Guaje Canyon above the confluence of Guaje Canyon and Los Alamos Canyon) was added to replace station E109.9, which was buried by sediment after a major storm event in 2013 and not repaired. 2015 BDD Report at 2.

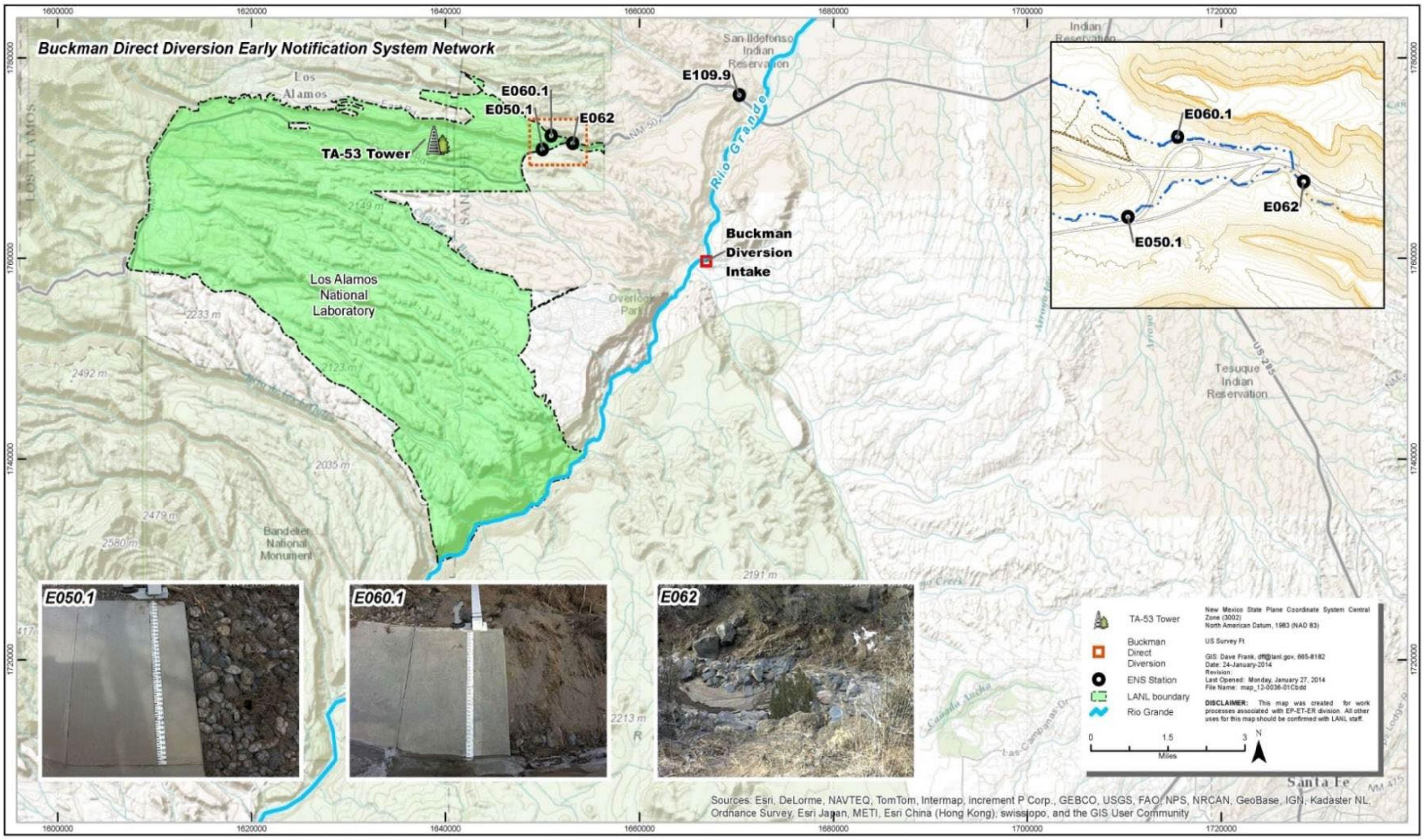

Figure 4 (Source: BDD 2015 Annual Report)

The water quality sampling results detailed in the 2011-2014 and 2015 BBD Reports provide evidence of stormwater flows from the Pajarito Plateau traveling through the Los Alamos and Pueblos Canyons to the Rio Grande. The sampling results from storm events during the 2011 Las Conchas fire are particularly strong evidence of pollutants from the Pajarito Plateau reaching the river. The Las Conchas fire, the largest wildfire in New Mexico history, started on the Pajarito Plateau about 5.5 miles west of the Bandelier National Monument and burned a total of 154,349 acres, threatening the Los Alamos Townsite and LANL.[50] As discussed above, the 2011-2014 BDD Report found that the fire on the Plateau played an important role in mobilizing contaminants in the Los Alamos Canyon/Pueblo Canyon watershed and transporting them through the Pueblo and Los Alamos Canyons to the Rio Grande and the BDD diversion, and that the water quality effects of this fire to the Rio Grande watershed were significant. Because the Los Alamos and Pueblo Canyons and their tributaries are discrete conveyances carrying pollutants from the MS4s to the Rio Grande, the canyons are point sources.

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[49] *Storm Water Quality Monitoring of Rio Grande at Buckman Direct Diversion*, 2015, Daniela K. Bowman, rev. 11/2016 (2015 BDD Report).

[50] https://www.nps.gov/band/learn/nature/lasconchas.htm.

In conclusion, based on EPA's field observations on September 21-22, 2022, including its analysis of remote sensing data, and its analysis of LANL Surface Water Data, the BDD Reports, and flow data provided by NMED, EPA finds that the canyons leading from the Pajarito Plateau to the Rio Grande serve as discrete conveyances, i.e., point sources, that carry stormwater containing pollutants of concern from MS4s in the Los Alamos Urban Area and LANL to the Rio Grande.

Designation Decision

Based on the above, EPA initially determines that stormwater discharges from MS4s located in the Los Alamos Urban Area as defined by the latest decennial Census[51] and on LANL property within Los Alamos and Santa Fe Counties contribute to violations of NM WQS. Therefore, under the authority of CWA § 402(p)(2)(E), (p)(6), and 40 C.F.R. § 122.26(a)(9)(i)(D), EPA designates these stormwater discharges for NPDES permit coverage. EPA finds there are insufficient data to determine that discharges of stormwater from the community of White Rock contribute to any violations of NM WQS. Therefore, EPA is not designating those discharges as requiring NPDES permit coverage. EPA is soliciting comment on this initial designation until 90 days after publication in the *Federal Register*. As discussed above, if EPA finalizes this designation, these discharges will be eligible for coverage under the reissued New Mexico statewide MS4 NPDES general permit. Please submit any comments on this initial designation decision to *burrell.monica@epa.gov*.

Earthea Nance, Ph.D., P.E
Regional Administrator
EPA, Region 6
Dated: November 6, 2023

[51] Because the boundary of the Los Alamos Urban Area will update with each decennial Census, EPA is designating the Los Alamos Urban Area based on the latest decennial Census. This approach, under which future changes to the Los Alamos Urban Area are included in this Designation, is consistent with the approach used by EPA for automatic designation of small MS4s under 40 CFR 122.32(a)(1), as well as with the CWA 402(p)(6) requirement that EPA designate stormwater discharges, other than those discharges designated by regulation "to protect water quality."

Appendix 1: Petition

Appendix 2: Remand Order

Appendix 3: Summary of EJ Screen

Appendix 4: Maps of Designated Areas

Appendix 5: Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County

Appendix 6: Map of Jurisdictional Canyon Waters

Appendix 7: Map of Canyons that Serve as Conveyances

Appendix 1: Petition

A Petition by Amigos Bravos
for a Determination that Storm Water Discharges
in Los Alamos County
Contribute to Water Quality Standards Violations
and Require a Clean Water Act Permit

June 30, 2014

Ron Curry, Regional Administrator
EPA Region 6
1445 Ross Avenue, Suite 1200, Dallas, Texas 75202
gray.david@epa.gov

Dear Administrator Curry,

As the Regional Administrator of EPA Region 6, Amigos Bravos hereby petitions you for a determination, pursuant to 40 C.F.R. 122.26(a)(9)(i)(D), that non-de minimis, currently non-NPDES permitted storm water discharges in Los Alamos County are contributing to violations of water quality standards in certain impaired waters throughout the area, and therefore require a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402(p) of the Clean Water Act and/or designation as a municipal separate storm sewer system. *See* 33 U.S.C. §§ 1342(p)(2)(E), (p)(6); 40 C.F.R. §§ 122.26(a)(1)(v), (a)(9)(i)(D), (f)(2), (f)(4).

I. Regulatory Framework

In order to achieve the Clean Water Act's (CWA or the Act) fundamental goal of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters,"33 U.S.C. § 1251(a), EPA and states delegated authority to administer the Act must establish minimum water quality standards. 33 U.S.C. § 1313; 40 C.F.R. § 131.2. These standards define "the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses." 40 C.F.R. § 131.2. New Mexico has established, and EPA has approved, water quality standards pursuant to this requirement.

In order to ensure that such water quality standards will be achieved, no person may discharge any pollutant into waters of the United States from a point source without a National Pollutant Discharge Elimination System (NPDES) permit. 33 U.S.C. §§ 1311(a), 1362(12)(A). NPDES permits must impose water quality-based effluent limitations, in addition to any applicable technology-based effluent limitations, when necessary to meet water quality standards. 33 U.S.C. § 1311(b).

The Act defines "point source" as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit . . . from which pollutants are or may be discharged." 33 U.S.C. § 1362(14). EPA's Clean Water Act regulations further specify that "discharge of a pollutant" includes "additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man." 40 C.F.R. § 122.2. Consequently, although storm water discharges are often characterized as "non-point" in nature, it is legally well settled that "[s]torm sewers are established point sources subject to NPDES permitting requirements." *Environmental Defense Center v. EPA*, 344 F.3d 832, 841 (9th Cir. 2003) *(citing Natural Resources Defense Council v. Costle*, 568 F.2d 1369, 1379 (D.C. Cir. 1977)). As EPA has stated, "[f]or the purpose of [water quality] assessments, urban runoff was considered to be a diffuse source or nonpoint source pollution. From a legal standpoint, however, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA." National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990, 47,991 (Nov. 16, 1990).

Despite the fact that storm water runoff channeled through a conveyance is a point source subject to the Act's permitting requirements, EPA did not actually regulate storm water through the NPDES program until Congress amended the statute in 1987 to explicitly require it, *see* 33 U.S.C. § 1342(p), and EPA promulgated its Phase I and II regulations in 1990 and 1999, respectively.[1] As a result, the Clean Water Act now requires NPDES permits for discharges of industrial and municipal storm water. 33 U.S.C. § 1342(p)(2). While these are the only categories of storm water discharges called out for regulation in the text of the statute, Congress also created a catch-all provision directing EPA to require NPDES permits for any storm water discharge that the Administrator or the State director determines "contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States." 33 U.S.C. § 1342(p)(2)(E); 40 C.F.R. § 122.26(a)(1)(v).

This catch-all authority – known as EPA's "residual designation authority" (RDA) – is a critical tool to ensure that problematic discharges of storm water do not go unregulated. In the preamble to its Phase II Storm water regulations, EPA described the need for this authority: "EPA believes . . . that individual instances of storm water discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority to subsequently address a source (or category of sources) of storm water discharges of concern on a localized or regional basis."[2]

Citizens may petition EPA for designation of storm water sources for regulation under this authority. 40 C.F.R. § 122.26(f)(2) and (f)(4). In recent years, often acting in response to such petitions, EPA and delegated states have exercised this residual designation authority on multiple

[1] National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990); National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722 (Dec. 8, 1999).

[2] National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. at 68,781.

[3] U.S. EPA Region IX, Request for Designation of MS4 Discharges on the Island of Guam for NPDES Permit Coverage (Feb. 2011), available at http://www.epa.gov/region9/water/npdes/pdf/guam/ms4-

[2] National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. at 68,781.

occasions.[3]

Once EPA has made a finding or determination that a category of discharges meets the statutory criterion of "contribut[ing] to a violation of a water quality standard," it must designate that category for regulation, and those "operators shall be required to obtain a NPDES permit." 40 C.F.R. § 122.26(a)(9)(i)(D). In other words, "the Agency's residual designation authority is not optional." *In re Storm water NPDES Petition*, 910 A.2d 824, 835-36 (Vt. 2006). As EPA has explained, "designation is appropriate as soon as the adverse impacts from storm water are recognized." Letter from G. Tracy Mehan III, EPA Assistant Administrator, to Elizabeth McLain, Secretary, Vermont Agency of Natural Resources 2 (Sept. 16, 2003).[4]

EPA has not defined a threshold level of contribution to water quality standards violations that would suffice to make such a determination. However, the agency has advised delegated states that "it would be reasonable to require permits for discharges that contribute more than *de minimis* amounts of pollutants identified as the cause of impairment to a water body." *Id.*

In New Mexico, EPA Region VI is the permitting agency. Thus, the Region would make a determination under 40 C.F.R. § 122.26(a)(9) whether a storm water discharge is contributing to a water quality standards violation or is a significant contributor of pollutants. Once you receive an RDA petition requesting that EPA exercise this authority, the Agency must make a final decision on the petition within 90 days. 40 C.F.R. § 122.26(f)(5).

In responding to similar petitions filed last year, EPA Regions I, III and IX have indicated that they considered five factors. We do not concede that these five factors are consistent with the relevant provisions of the Clean Water Act or EPA's implementing regulations; however, they provide a useful framework for this analysis. The factors are:

1. Likelihood of exposure of pollutants to precipitation at sites in the categories identified in the petition;
2. Sufficiency of available data to evaluate the contribution of stormwater discharges to water quality impairment from the targeted categories of sites;
    a. Data with respect to determining causes of impairment in receiving water quality;
    b. Data available from establishment of Total Maximum Daily Loads;

[3] U.S. EPA Region IX, Request for Designation of MS4 Discharges on the Island of Guam for NPDES Permit Coverage (Feb. 2011), available at http://www.epa.gov/region9/water/npdes/pdf/guam/Guam-ms4-residual-designation-memo.pdf; Vermont Agency of Natural Resources, Department of Environmental Conservation, Final Designation Pursuant to the Clean Water Act for Designated Discharges to Bartlett, Centennial, Englesby, Morehouse and Potash Brooks (Nov. 2009), available at http://www.vtwaterquality.org/stormwater/docs/swimpairedwatersheds/sw_rda_permit_FINAL.pdf; U.S. EPA Region I, Final Determination Under Section 402(p) of the Clean Water Act—Long Creek (Oct. 2009), available at http://www.epa.gov/region1/npdes/stormwater/assets/pdfs/LongCreekFinalResidualDesignation.pdf; U.S. EPA Region I, Residual Designation Pursuant to Clean Water Act—Charles River (Nov. 2008), available at http://www.epa.gov/region1/charles/pdfs/RODfinalNov12.pdf.

[4] All documents cited in this Petition and the attached Statement of Facts are provided in the Appendix, which is submitted as part of the Petition.

3. Whether other federal, state, or local programs adequately address the known stormwater discharge contribution to a violation of a water quality standard.[5]

Additional factors can be found in Addendum D to a Region VI document titled "FACT SHEET, August 29, 2003, Proposed Issuance of National Pollutant Discharge Elimination System (NPDES) Storm Water General Permit for Small Municipal Separate Storm Sewer Systems (MS4s)" [hereinafter "Region VI Fact Sheet"]. The Region VI Fact Sheet details the results of an effort by EPA to determine the need for MS4 coverage within the region. The factors listed in Addendum D were used to decide which MS4s would be included in the general permit. The factors are:

1) Does the MS4 discharge storm water to sensitive waters?

"Sensitive waters" generally include public drinking water intakes and their designated protection areas; swimming beaches and waters in which swimming occurs; shellfish beds; state-designated Outstanding Resource Waters; National Marine Sanctuaries; waters within Federal, State and local parks; and waters containing threatened or endangered species and their habitat. Discharges of storm water to sole-source aquifers will be considered by EPA Region 6 on a case-by-case basis.

2) Is the MS4 a significant contributor of pollutants to waters of the United States?

A municipal storm water discharge that has been identified as a "contributing source of pollutants" to a Clean Water Act section 303(d)-listed waterway will be considered a significant contributor of pollutants for purposes of designation decisions. A storm water discharger that is required to reduce loading through an EPA-approved Total Maximum Daily Load (TMDL) analysis shall also be considered a significant contributor of pollutants to waters of the United States.

3) Is the MS4 densely populated?

Population density is related to the level of human activity, and has been shown to be directly linked to total impervious land surfaces; impervious surfaces are directly related to pollutant loadings from storm water runoff. EPA is also taking into consideration whether or not the MS4 serves a larger seasonal or commuter population.

4) Has the MS4 experienced high population growth over the last 10 years?

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[5] Enclosure to Letter from H. Curtis Spalding, Regional Administrator, EPA Region I, to Jeffrey Odefey, Christopher Kilian, and Jon Devine 4 (March 11, 2014); Enclosure to Letter from Shawn M. Garvin, Regional Administrator, EPA Region III, to Jeffrey Odefey, Director of Storm water Programs, American Rivers 6 (March 12, 2014); Enclosure to Letter from Jared Blumenfeld, Regional Administrator, EPA Region IX, to Jeffrey Odefey, Director of Storm water Programs, American Rivers 5 (March 12, 2014) [hereinafter "March 2014 Letters"].

> High population growth or growth potential means the local residential population has grown by 10% or more, based upon the latest Census Bureau information. A discussion on selection of 10% as a high growth rate outside urbanized areas was included in the proposed Phase II regulations published January 9, 1998 (63 FR 1561).
>
> 5) Is the MS4 contiguously located to an Urbanized Area?
>
> Jurisdictions that are directly adjacent to a U.S. Census Bureau-defined Urbanized Area will be considered to have potential impacts on a neighboring regulated municipality.
>
> 6) Is the MS4 physically interconnected to another MS4?
>
> As required by 40 CFR 123.35 (b)(4), an MS4 located outside a UA that contributes substantially to the pollutant loadings of a physically interconnected MS4 already regulated under Phase II must be included in the program. To be "physically interconnected," the MS4, including roads with drainage systems and municipal streets, is physically connected directly to a municipal separate storm sewer of another entity.
>
> 7) Is the storm water runoff from this MS4 effectively addressed by other water quality programs?
>
> EPA will consider, on a case-by-case basis, whether the storm water runoff from a potentially designated MS4 is effectively addressed under other regulations or programs, such as the Coastal Zone Act Reauthorization Amendments, the National Estuary Program under Clean Water Act section 320, and/or other non-point source programs. Information in support of this criterion should be provided directly to EPA Region 6 by the candidate MS4.

Region VI Fact Sheet at 51-3 (Addendum D). In the Fact Sheet EPA describes the analytical process it used: "water quality considerations and overall impacts of storm water discharges will be given more 'weight' than population characteristics in this decision-making process." *Id*. at 53.

II. Factual Background

A statement that summarizes the undisputed facts and some relevant documents is attached as Exhibit A, and is incorporated herein by reference. A summary of this statement is set forth below:

A. <u>LAY OF THE LAND</u>

Los Alamos County in located in north-central New Mexico, approximately 60 miles north northeast of Albuquerque and 25 miles northwest of Santa Fe. Statement of Facts in Support of Amigos Bravos' Petition at 1 (Paragraph 1) (Attached as "Exhibit A") [hereinafter "Statement of

Facts"]. The main population center is called the Los Alamos Townsite. *Id.* (Paragraph 2). The other densely inhabited place in the County is the community of White Rock Canyon. *Id.* Los Alamos County is also home to the 36 square mile Los Alamos National Laboratory (LANL or the Laboratory). *Id.* (Paragraph 4).

The Los Alamos Townsite and the urbanized areas of LANL sit on the Pajarito Plateau. *Id.* (Paragraph 5). The Pajarito Plateau consists of a series of finger-like mesas separated by deep east-to-west-oriented canyons cut by streams. *Id.* (Paragraph 6). Most Laboratory and community developments are confined to the mesa tops. *Id.* Urban landscapes at the Townsite and at LANL include parking lots, roads, and structures. *Id.* (Paragraph 7).

LANL property contains all or parts of seven primary watersheds that drain directly into the Rio Grande. *Id.* at 2 (Paragraph 11). Listed from north to south, these watersheds are: Los Alamos, Sandia, Mortandad, Pajarito, Water, Ancho, and Chaquehui Canyons. The Los Alamos Townsite and the urbanized areas of LANL drain into five canyons: Los Alamos, Pueblo, Sandia, Bayo and Mortandad Canyons. *Id.*

B. WATER IMPAIRMENT

The Statement of Facts provides a detailed discussion of urban-related surface water pollution downgradient from LANL and the Los Alamos Townsite.

1. Several Canyons are Impacted by Runoff Pollution

Los Alamos Canyon within LANL property is impaired for gross alpha (a measurement of overall radioactivity), PCBs, aluminum, copper, mercury, and zinc. *Id.* (Paragraph 16). New Mexico Environment Department (NMED) data show levels of PCBs in Los Alamos Canyon downgradient from most of the urbanized areas at LANL to be over 11,000 times greater than the New Mexico Human Health water quality criteria and 51 times greater than the New Mexico Wildlife Habitat water quality criteria. *Id.* at 3 (Paragraph 18).

Sandia Canyon is impaired for PCBs, aluminum, copper, gross alpha, and mercury. *Id.* (Paragraph 19). Post-development erosion and sedimentation are listed as sources of impairment in the 2012-2014 State of New Mexico Clean Water Act 303b/305b 2014 Integrated Report [hereinafter "303b/305b Report"]. Statement of Facts at 3 (Paragraph 19). NMED data show levels of PCBs in Sandia Canyon below much of the urbanized areas at LANL to be over 14,000 times greater than the New Mexico Human Health water quality criteria and 66 times greater than the New Mexico Wildlife Habitat water quality criteria. *Id.* (Paragraph 20). In a 2013 request to EPA for alternative compliance with its Clean Water Act discharge permit, LANL explains that copper, zinc, and PCB storm water pollution above New Mexico water quality standards was from urban storm water sources. *Id.* at 7 (Paragraph 56).

Mortandad Canyon is impaired for aluminum, copper and gross alpha. *Id.* at 2 (Paragraph 15). Impervious surface/parking lot runoff, post-development erosion and sedimentation, and watershed runoff following forest fire are listed as sources of impairment in the 303b/305b Report. *Id.*

Pajarito Canyon is impaired for gross alpha, aluminum, PCBs, and copper. *Id.* at 3 (Paragraph 21). Post-development erosion and watershed runoff following forest fire are listed as sources of impairment in the 303b/305b Report. *Id.*

Pueblo Canyon is impaired for gross alpha, PCBs, aluminum, copper, and zinc. *Id.* at 2 (Paragraph 13). Industrial/commercial site storm water discharge, post-development erosion and sedimentation are listed as sources of impairment by the NMED in the 303b/305b Report. *Id.* NMED data show levels of PCBs in Pueblo Canyon right in the middle of the Los Alamos urbanized areas to be over 3,500 times greater than the New Mexico Human Health water quality criteria and 16 times greater than the New Mexico Wildlife Habitat water quality criteria. *Id.* (Paragraph 14).

2. Urban Runoff is the Cause

The data and studies summarized in the Statement of Facts firmly link the water quality impairment downgradient from the Pajarito Plateau to storm water runoff from urban areas.

LANL conducted two detailed studies of storm water runoff from the Pajarito Plateau. One study focused on PCB contamination and the second focused on metals contamination. In these studies LANL collected samples from non-urban, non-laboratory influenced reference sites as well as from sites representing runoff from the urbanized areas of the Los Alamos Townsite. Neither the reference nor the urban sites were influenced by point source discharges from LANL's individual storm water permit. These studies show a significant contribution of both PCBs and metals from urban runoff on the Pajarito Plateau.

The LANL PCB study found 40 of the 41 Los Alamos urban storm water samples were above the New Mexico human health water quality criteria for PCBs and 19 of the 41 Los Alamos urban storm water samples were above the New Mexico wildlife habitat water quality criteria for PCBs. *Id.* at 4 (Paragraphs 33-34). The LANL report concluded that suspended PCBs carried by urban runoff from the Los Alamos Townsite were 10 to 200 times more enriched with PCBs than at non-urban influenced Pajarito Plateau sites. *Id.* at 5 (Paragraph 36).

In 2007 the NMED collected storm water samples from urban sites containing PCBs as high as 255 times the state's PCB human health water quality criteria. *Id.* at 8 (Paragraph 64). NMED sampling data in 2006 and 2007 show levels of PCBs in storm water draining off of urban areas in Los Alamos Townsite to be more than 34,000 times greater than the NM Human Health water quality criteria. *Id.* (Paragraph 65).

A Laboratory study of metals contamination in storm water runoff from urban areas at LANL and the Los Alamos Townsite found exceedances of New Mexico water quality criteria for cadmium, copper, and zinc. *Id.* at 6 (Paragraphs 43-50). In addition, the LANL metals report demonstrated that values for copper, zinc and nickel in urban storm water runoff in Los Alamos County substantially exceeded non-urban influenced Pajarito Plateau storm water concentrations. *Id.* at 6-7 (Paragraphs 49-51).

As noted above, in its 303b/305b Report the State of New Mexico found that water quality in Sandia, Mortandad, Pajarito, and Pueblo Canyons is impaired because of urban-related causes such as impervious surfaces, parking lots, construction and development. *Id.* at 2-3 (Paragraphs 13, 15, 19, 21). NMED data also shows substantial water quality impairment in Los Alamos Canyon downgradient from most of the urbanized areas at LANL. *Id.* at 8 (Paragraph 64).

The LANL studies of PCB and metal contaminated runoff tie these contaminants to the urban areas of the Pajarito Plateau. In LANL's 2013 request to EPA for alternative compliance with its Clean Water Act discharge permit, the Laboratory argues that the cause of its exceedances of New Mexico water quality criteria for zinc and copper is urban runoff from sources such as motor oil accumulation on parking lots, brake pad and tire material released on pavement, galvanized fencing, culverts and other building materials. *Id.* at 5 (Paragraphs 38-41).

III. Analysis

Los Alamos County and LANL have a storm water pollution problem. The NMED's 2006 and 2007 data shows dramatic exceedances of the state's PCB human health water quality criteria. The state's 303b/305b Report documents many more exceedances of standards – for a variety of pollutants and locations – and identifies storm water runoff as a major cause. LANL's own documents confirm these findings and identify urban runoff as the culprit.

A. EVALUATION FACTORS FROM MARCH 2014 LETTERS

The evaluation factors from the March 2104 Letters confirm that this Petition should be granted.

Factor one is the **"[l]ikelihood of exposure of pollutants to precipitation at sites in the categories identified in the petition."** The 303b/305b Report and the LANL reports show that exceedances of state water quality criteria are associated with storm water; in other words, precipitation comes in contact with sites within Los Alamos County containing pollutants that end up in the storm water flow.

The Petition also meets the second factor, **"sufficiency of available data to evaluate the contribution of stormwater discharges to water quality impairment from the targeted categories of sites."** The first sub-factor is the sufficiency of "[d]ata with respect to determining causes of impairment in receiving water quality." The 2006/2007 NMED data, the 303b/305b Report, the LANL PCB and metals reports and the LANL requests for alternative compliance all provide data and/or analysis that support the Petition. The second sub-factor, the sufficiency of "[d]ata available from establishment of Total Maximum Daily Loads," is not relevant here as there are no TMDLs for the water-bodies at issue.

Finally, the third factor, **"[w]hether other federal, state, or local programs adequately address the known stormwater discharge contribution to a violation of a water quality standard,"** is also met. As noted above, there is no TMDL that addresses this storm water-borne pollution. Further, the individual permits for LANL and Los Alamos County do not cover storm water discharges from the urbanized features that generate the pollution. The LANL requests for alternative compliance repeatedly state that there is no mechanism under the Laboratory's individual storm water permit to control the water quality exceedances found in their sampling because the pollution is caused by runoff from urban features.

EPA's Multi Sector General Permit (MSGP) provides no protection from the sources of pollution involved here. The MSGP applies to operators of storm water discharges associated with thirty different industrial activities, such as scrap recycling facilities, auto salvage yards, and steam electric generating facilities. However, the MSGP does not cover general urban storm water discharges such as the discharges from parking lots and roads that are causing the toxic runoff in Los Alamos County.

B. FACTORS FROM REGION VI FACT SHEET

Application of the factors in the Region VI Fact Sheet also supports this petition.

Factor one is, **"[d]oes the MS4 discharge storm water to sensitive waters?"** Sub-factors identified by EPA include public drinking water intakes, swimming areas, federal and state parks and threatened or endangered species. Factor one is met for a variety of reasons.

Regarding intake for public drinking water systems, both Santa Fe's and Albuquerque's public water intakes are potentially affected. The runoff from Los Alamos is enough of a public health concern to the downstream City of Santa Fe that it shuts down its surface water diversion on the Rio Grande (the receiving water for runoff from Los Alamos County) used to supply drinking water when storm water flows from Los Alamos are predicted. Statement of Facts at 8-9 (Paragraph 66). Farther downstream, the City of Albuquerque draws fifty percent or more of its drinking water from a surface diversion on the Rio Grande. *Id.* at 9 (Paragraph 67). Consistent with this, the designated uses to be supported by New Mexico Water Quality Standards for the Rio Grande from the Cochiti Pueblo boundary to north of where runoff from Los Alamos' canyons enters the river include "primary contact" (that is, ingestion) and "public water supply." *Id.* (Paragraph 68).

Regarding the sub-factor for swimming areas, the Rio Grande feeds Cochiti Lake, which is a very popular swimming location in the summer for residents of Albuquerque and others. *Id.* (Paragraph 69).

Regarding the sub-factor for federal and state parks, the Rio Grande is adjacent to Bandelier National Monument and makes up more than four miles of its eastern boundary. *Id.* (Paragraph 70).

Finally, although they are not threatened or endangered, the Rio Grande provides habitat for re-introduced river otters, which have been observed below the point where the Los Alamos canyons intersect the river. *Id.* (Paragraph 71).

Factor two is, **"[i]s the MS4 a significant contributor of pollutants to waters of the United States?"** The Region VI Fact Sheet, in explaining this factor notes, "[a] municipal storm water discharge that has been identified as a 'contributing source of pollutants' to a Clean Water Act section 303(d)-listed waterway will be considered a significant contributor of pollutants for purposes of designation decisions." Region VI Fact Sheet at 52. The 303b/305b Report identifies storm water discharges from Los Alamos County as causes for the impairment to several water courses discharging into the Rio Grande. Further, the LANL PCB and metals reports as well as its request for alternative compliance confirm that exceedances of water quality standards are caused by storm water discharges from Los Alamos County.

Factor three, **"[i]s the MS4 densely populated?"** is met because Los Alamos has been designated as an "urban cluster," based on the results of the 2010 census. 77 Fed. Reg. 18,651, 18,662 (Mar. 27, 2012). In addition Los Alamos Townsite meets the small MS4 definition as detailed in 40 CFR 122.32 in that it has a population greater than 10,000 and a population density of greater than 1,000 per square mile. Statement of Facts at 1 (Paragraph 2). Adding to the density in Los Alamos County is its growing commuter population. As of the year 2000 the commuter population in the county was 8,673 and had grown steadily from 1980 through 2000. *Id.* (Paragraph 3). By 2010 the commuter population had grown to 9,072. *Id.*

Factor three, **"[h]as the MS4 experienced high population growth over the last 10?"** is not met based on permanent population but the commuter population has grown steadily, as noted above.

Factors five and six – whether contiguous to an urbanized area, and whether physically interconnected to another MS4 -- are not met. However, as the Region VI Fact Sheet explains at page 53: "water quality considerations and overall impacts of storm water discharges will be given more 'weight' than population characteristics in this decision-making process."

Factor seven, **"Is the storm water runoff from this MS4 effectively addressed by other water quality programs?"** is the same as the third factor from the March 2014 Letters. This factor is met as noted above.

C. THE PETITION SHOULD BE GRANTED

Petitioner Amigos Bravos, and others, have repeatedly requested LANL and Los Alamos County to address this pollution and also requested that EPA Region VI mandate such efforts. MS4 coverage is required to address this pollution.

Based on the well-documented water quality impairment caused by urban runoff from Los Alamos County sites, Amigos Bravos requests that EPA require an individual NPDES permit (or permits)[6] for these discharges into municipal separate storm sewer systems. In the alternative, Amigos Bravos requests that EPA designate the systems through which these discharges travel

[6] Because of its existing monitoring infrastructure and baseline studies as well as the unique concerns associated with storm water flows mobilizing historic contamination from the Lab, Amigos Bravos believes LANL should have an individual MS4 permit with appropriate treatment and monitoring requirements. See Letter from Rachel Conn to William Honker (June 30, 2014) (copy provided in the Appendix). However, whatever form the permit takes -- whether general or individual – EPA has a responsibility to protect water quality by subjecting urban stormwater from the Los Alamos to Clean Water Act regulation.

as a municipal separate storm sewer system under the Act and add it to the general permit.

For all the foregoing reasons, the Petition has merit and should be granted.

Sincerely,

/s/ Rachel Conn

Rachel Conn
Projects Director
Amigos Bravos

Cc: William K. Honker
Claudia V. Hosch
Brent Larsen
Nancy K. Stoner
Michael H. Shapiro
Sarah Holcomb, NMED

Statement of Facts in Support of Amigos Bravos' Petition[1]

1. Los Alamos County in located in north-central New Mexico, approximately 60 miles north northeast of Albuquerque and 25 miles northwest of Santa Fe.[2]

2. According to the 2010 Census, the county has a population of 17,950. The main population center is called the Los Alamos Townsite. The Townsite is a Census Designated Place (CDP) and according to the 2010 Census the population of the CDP was 12,019. According to the 2010 Census, the density of the Los Alamos Townsite CDP is 1,078.7 persons per square mile. The other densely inhabited place in the County is the community of White Rock Canyon, which is also a CDP. According to the 2010 Census the population of White Rock Canyon is 5,725 and the density is 811.8 persons per square mile. 2010 Census, http://quickfacts.census.gov/qfd/states/35/3542320.html

3. The number of commuters who work in Los Alamos County but live elsewhere has increased from 1980 to 2000.[3] In 1980 the number of commuters was 4,263, which increased to 6,485 in 1990. The year 2000 figure is 8,673. In 2010 the number of commuters had increased to 9,072.[4]

4. Los Alamos County is home to the 36 square mile Los Alamos National Laboratory (LANL), which was founded to undertake the Manhattan Project.[5]

5. The Los Alamos Townsite and the urbanized areas of LANL sit on the Pajarito Plateau.

6. The Pajarito Plateau consists of a series of finger-like mesas separated by deep east-to-west-oriented canyons cut by streams. The mesa tops range in elevation from approximately 7,800 feet on the flanks of the Jemez Mountains to about 6,200 feet at the edge of White Rock Canyon. Most Laboratory and community developments are confined to the mesa tops. 2012 Environmental Report at 1-2.

7. Urban landscapes at the Townsite and at LANL include parking lots, roads, and structures ranging in age from the 1940s to 2012. These features release a variety of soluble and insoluble constituents to storm water, including metals and organic

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[1] All the documents reference herein are included in the Appendix, which accompanies the Petition.
[2] Los Alamos National Laboratory, *Polychlorinated Biphenyls in Precipitation and Stormwater within the Upper Rio Grande Watershed* 2 (May 2012) (LA-UR-12-1081) (PCB Report).
[3] Los Alamos County Community Development Department, *Los Alamos County Affordable Housing Plan* 38 (Jan. 14, 2010) (Table 14), www.losalamosnm.us/cdd/Documents/Affordable%20Housing/LAAffordableHousingPlan2010.pdf
[4] U.S. Census Bureau, *Table2. Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Workplace Geography: 2006-2010* http://www.census.gov/population/metro/data/other.html (sum of column E values for rows 73589-621; omitting row 73604).
[5] Los Alamos National Laboratory, *Los Alamos National Laboratory Environmental Report 2012*, 1-1 and 1-2 (2012) (LA-UR-13-27065) (2012 Environmental Report).

compounds.[6]

8. LANL lies in the upper Rio Grande watershed denoted by U.S. Geological Survey (USGS) hydrologic unit codes 13020101 and 1301000. http://water.usgs.gov/wsc/reg/13.html.

9. LANL has approximately 2,800 structures with approximately 8.6 million square feet of roof space. 2012 Environmental Report at 1-7.

10. The Laboratory has a footprint of developed area that is consistent with urban development. Metals Report at 5.

11. LANL property contains all or parts of seven primary watersheds that drain directly into the Rio Grande. Listed from north to south, these watersheds are Los Alamos (includes Pueblo, DP and Bayo Canyons), Sandia, Mortandad, Pajarito, Water, Ancho, and Chaquehui Canyons. 2012 Environmental Report at 6-2. A map of these watersheds can be found at in the 2012 Environmental Report at page 6-3.

12. The Los Alamos Townsite and the urbanized areas of LANL drain into 7 canyons – Los Alamos Canyon, DP Canyon, Pueblo Canyon, Sandia Canyon, Pajarito Canyon, Bayo Canyon and Mortandad Canyon. 2012 Environmental Report at 6-3.

13. Pueblo Canyon is impaired for Gross Alpha, PCBs, Aluminum, Copper, and Zinc. Industrial/commercial site storm water discharge, post-development erosion and sedimentation are listed as sources of impairment.[7]

14. New Mexico Environment Department (NMED) data presented in NMED's Pajarito Plateau Assessment show levels of PCBs in Pueblo Canyon right in the middle of the urbanized areas at LANL and at Los Alamos Townsite (sampling station EO55) to be over 3,500 times greater than the New Mexico Human Health WQC and 16 times greater than the New Mexico Wildlife Habitat WQC.[8]

15. Mortandad Canyon is impaired for Aluminum, Copper and Gross Alpha. Impervious surface/parking lot runoff, post-development erosion and sedimentation, and watershed runoff following forest fire are listed as sources of impairment. 303b/305b 2014 Report, Appendix A at 238.

16. Los Alamos Canyon within LANL property is impaired for Gross Alpha, PCBs, Aluminum, Copper, Mercury, and Zinc. *Id.* at 125 and 127.

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[6] Los Alamos National Laboratory, *Background Metals Concentrations and Radioactivity in Storm Water on the Pajarito Plateau Northern New Mexico* 2 (April 2013) (LA-UR-13-22841) (Metals Report).
[7] State of New Mexico Water Quality Control Commission, *2012-2014 State of New Mexico Clean Water Act 303b/305b 2014 Integrated Report* Appendix A, 137 to 139 (303b/305b Report).
[8] NMED, *Pajarito Plateau Assessment for the 2010-2012 Integrated Report* data set with PCBs and map of sampling stations http://www.nmenv.state.nm.us/swqb/303d-305b/2010-2012/Pajarito/index.html (Pajarito Plateau Study).

17. Los Alamos Canyon from the Los Alamos Reservoir to headwaters, located above urbanized areas fully supports all assessed designated uses. *Id.* at 126.

18. NMED data presented in NMED's Pajarito Plateau Assessment show levels of PCBs in Los Alamos Canyon, which is located below most of the urbanized areas at LANL (sampling station E030), to be over 11,000 times greater than the New Mexico Human Health WQC and 51 times greater than the New Mexico Wildlife Habitat WQC. See Pajarito Plateau Study (data set with PCBs and map of sampling stations).

19. Sandia Canyon is impaired for PCBs, Aluminum, Copper, Gross Alpha, and Mercury. Post-development erosion and sedimentation are listed as sources of impairment. 303b/305b 2014 Report, Appendix A at 250-51.

20. NMED data presented in NMED's Pajarito Plateau Assessment show levels of PCBs in Sandia Canyon, which is located below most of the urbanized areas at LANL (sampling station E123), to be over 14,000 times greater than the New Mexico Human Health WQC and 66 times greater than the New Mexico Wildlife Habitat WQC. See Pajarito Plateau Study (data set with PCBs and map of sampling stations).

21. Pajarito Canyon is impaired for Gross Alpha, Aluminum, PCBs, and Copper. Post-development erosion and watershed runoff following forest fire are listed as sources of impairment. 303b/305b 2014 Report, Appendix A at 240-43.

22. LANL has coverage under an individual storm water permit NM0030759 (LANL IP), issued by the Environmental Protection Agency. This permit covers 405 contaminated sites, which are called either Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs). These sites are monitored at 250 Site Monitoring Areas (SMAs). NM0030759 only regulates these sites. NM0030759 does not regulate general urbanized runoff at LANL or from the Los Alamos Townsite. See NPDES permit # NM0030759 (LANL IP).

23. The target action levels (TALs) developed in the LANL IP are based on and equivalent to New Mexico State water quality criteria. LANL IP at 3 (Part I).

24. In 2012, copper concentrations in filtered storm water were detected above the New Mexico chronic aquatic life water quality criteria (WQC) for copper in Sandia Canyon (4 of 5 samples). In 2012, copper concentrations in filtered storm water were detected above the NMWQCC acute aquatic life WQC for copper in Acid Canyon, DP Canyon, and at the upper Los Alamos sediment detention basins (5 of 39 samples). All of these locations receive a large percentage of runoff from developed areas. 2012 Environmental Report at 6-25.

25. In 2012 sampling of storm water occurred in watersheds along the western boundary of LANL and in urban, developed landscapes in the Los Alamos townsite and on LANL property. The results were included in a report evaluating background and

baseline concentrations of particular metals, weak acid, dissociable cyanide, gross-alpha radioactivity, and radium isotopes. Metals Report at 1.

26. LANL acknowledges that elevated zinc concentrations in storm water are associated with developed areas. 2012 Environmental Report at 6-26.

27. Only 1 of the 34 precipitation and snowpack samples (that is, background samples) collected by LANL for their PCB report were above the New Mexico human health WQC of 0.64 ng/L, and none were above the wildlife habitat WQC of 14 ng/L. PCB Report at 18.

28. Otowi Bridge on the Rio Grande is located above the runoff from the majority of urban influenced canyon systems from Los Alamos County and LANL (Los Alamos Canyon, Pueblo Canyon, Sandia Canyon, Mortandad Canyon, Bayo Canyon and Mortandad Canyon). See maps found at 2012 Environmental Report at 6-3 and PCB Report at 10.

29. The Buckman Well Field on the Rio Grande is located below the runoff from the majority of Los Alamos County and LANL urban influenced canyon systems. See maps found at 2012 Environmental Report at 6-3 and PCB Report at 10.

30. When collecting data for the PCB report, storm water samplers were placed in ephemeral channels around the edge of urban development in Los Alamos County and LANL. No urban samplers were located below any know areas of concentrated contamination (point sources). PCB Report at 59.

31. No known natural sources of PCBs exist. Because of their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were historically used in hundreds of industrial and commercial applications. These applications included electrical, heat-transfer, and hydraulic equipment; plasticizers in paints, plastics, calking, and rubber products; pigments, dyes, and carbonless copy paper; and many other uses. More than 1.5 billion pounds of PCBs were manufactured in the U.S. until domestic manufacture of commercial mixtures, known as Aroclors, ceased in 1977. Approximately 450 million pounds of PCBs have been released to the environment (ATSDR 2000, 213440). *Id.*

32. 41 Los Alamos urban influenced storm water samples were collected and analyzed for PCBs. *Id.* at 62.

33. 40 of the 41 (98%) Los Alamos urban storm water samples were above the New Mexico human health WQC for PCBs. *Id.*

34. 19 of the 41 (46%) Los Alamos urban storm water samples were above the New Mexico wildlife habitat WQC for PCBs. *Id.*

35. In the LANL PCB Report upper tolerance limits (UTLs) were calculated in ProUCL for the best fit distribution to calculate the upper limit concentrations for PCBs under

baseline conditions. (ProUCL is EPA-developed statistical software; http://www.epa.gov/osp/hstl/tsc/ProUCL_v5.0_fact.pdf.) The upper tolerance limit (UTL) for PCBs at Los Alamos urban influenced storm water sites (98 ng/L) was substantially higher than the PCB UTL at Los Alamos area non-urban influenced storm water sites (13 ng/L). PCB Report at 49, 64.

36. Suspended PCBs carried by urban runoff from the Los Alamos townsite were 10 to 200 times more enriched with PCBs than at non-urban influenced Pajarito Plateau sites. *Id.* at 62.

37. The LANL PCB Report shows that urban development in Los Alamos County is contributing large amounts of PCBs to receiving waters. The PCB Report calculated the baseline value for total PCBs in storm water runoff from the Los Alamos Townsite to be 98 ng/L, which is substantially greater than the baseline value of 11.7 ng/L that was measured for reference non-urban influenced runoff in Los Alamos County. *Id.* at 49, 64.

38. The higher concentrations associated with the Los Alamos urban runoff as opposed to the Pajarito Plateau reference sites "likely results from the contribution of additional diffuse local [Los Alamos] sources in the urban environment." This is consistent with information from the Agency for Toxic Substances and Disease Registry as well numerous studies that report PCB concentrations in storm water in urban areas are higher than in rural locations. Los Alamos National Laboratory, *Alternative Compliance Request for S-SMA-2* 23 (April 2013) (Alternative Compliance Request 2).

39. Studies have shown that motor oil accumulation on parking lots that then is discharged during storm events is a large contributor of zinc in storm water. *Id.* at 15.

40. Tire material consists of 1% zinc by weight, which is released with tire wear as particulate dust or as deposits onto pavement. This release of zinc from tire wear has been found to be a source in storm water runoff (Golding 2006). *Id.*

41. Vehicle brake emissions are one of the most important sources of copper in the urban environment (Sondhi 2010). Copper and other metal additives have been used in brake pads since the 1960s. Between 1998 and 2002, the use of copper in domestic brake pads increased by 90% to meet new federal safety regulations. The content of copper in brake pads varies from 15%–25% at present and accounted for an estimated 47% of copper in a Maryland urban residential neighborhood. Brake emissions in California were estimated to contribute 80% of the copper found in urban storm water runoff. Alternative Compliance Request 2 at 15.

42. LANL repeatedly says in their Alternative Compliance Requests that there is no mechanism under the Individual Stormwater Permit to control the water quality

exceedances found in their sampling because the pollutants come from urban sources, not the Lab.[9]

43. In 2009 LANL prepared a report to measure background levels of metals and radioactivity in storm waters of the Pajarito Plateau unaffected by Laboratory point source activities and baseline levels of metals and radioactivity in urban (runoff from buildings, roads, parking lots, and associated infrastructure) storm water in the Los Alamos area. Metals Report at 1.

44. Sample locations in the Metals Report were chosen to represent urban environments on the Pajarito Plateau (Los Alamos Townsite and LANL). *Id.* at 5.

45. Nineteen samples for the Metals Report were collected from reference areas (not influenced by urban runoff) and analyzed for 26 constituents (metals and radionuclides). These samples were used to determine baseline values for these constituents. *Id.* at 19, 28.

46. Storm water samples from urban areas at LANL and Los Alamos Townsite were collected from 2008-2012 and used to develop the Metals Report. *Id.* at 33.

47. The maximum value for dissolved cadmium in urban runoff samples from LANL and Los Alamos Townsite was 0.894 ug/L. *Id.* at 33. The TAL and NM WQC for dissolved cadmium is 0.6 ug/L. LANL IP at 4 (Part I).

48. LANL sampling found concentrations of dissolved copper in Los Alamos urban storm water discharges at values well above the NM WQC. The maximum value for dissolved copper in urban runoff samples from LANL and Los Alamos Townsite was 31.8ug/L and the mean value was 10.17 ug/L. Metals Report at 34. The TAL and NM WQC for dissolved copper is 4.3 ug/L. LANL IP at 4 (Part I).

49. The Metals Report shows that urban development in Los Alamos County is contributing large amounts of copper to receiving waters. The Metals Report calculated the baseline value for dissolved copper in storm water runoff in Los Alamos County to be 32.3 ug/L, which is substantially greater than the baseline value of 3.43 ug/L that was measured for reference non-urban influenced runoff in Los Alamos County. Metals Report at 17, 37.

50. The Metals Report shows that urban development in Los Alamos County is contributing large amounts of zinc to receiving waters. The Metals Report calculated the baseline value for dissolved zinc in storm water runoff in Los Alamos County to be 1,120 ug/L, which is substantially greater than the baseline value of 109 ug/L that was measured for reference non-urban influenced runoff in Los Alamos County. *Id.*

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[9] Alternative Compliance Request 2 at 31-2; Los Alamos National Laboratory, *Alternative Compliance Request for S-SMA-.25* 28 (April 2013) (Alternative Compliance Request .25).

51. The Metals Report shows that urban development in Los Alamos County is contributing large amounts of nickel to receiving waters. The Metals Report calculated the baseline value for dissolved nickel in storm water runoff in Los Alamos County to be 7.57 ug/L, which is substantially greater than the baseline value of 3.53 ug/L that was measured for reference non-urban influenced runoff in Los Alamos County. *Id.*

52. LANL sampling found concentrations of dissolved zinc in Los Alamos urban storm water discharges at values well above the NM WQC. The maximum value for dissolved zinc in urban runoff samples from LANL and Los Alamos Townsite was 882 ug/L and the mean value was 181 ug/L. *Id.* at 34. The TAL and NM WQC for dissolved copper is 42 ug/L. LANL IP 4 (Part I).

53. LANL, in their 2013 Alternative Compliance request to EPA, reports that there is copper storm water pollution above NM WQC from urban development in Sandia Canyon. Alternative Compliance Request .25 at 15.

54. LANL, in their 2013 Alternative Compliance request to EPA, reports that data strongly indicate that zinc pollution in storm water in Sandia Canyon is associated with urban runoff. *Id.* at 16.

55. LANL reports in their 2013 Alternative Compliance request to EPA that the primary source of PCB exceedances of permit TALs (and therefore NM WQC) at site monitoring area S-SMA-.25 is from urban runoff. *Id.* at 22.

56. In their 2013 Alternative Compliance Request to EPA, LANL claims that installing controls at the storm water point sources in S-SMA-.25, a drainage area in the Sandia Canyon Watershed, would not lead to attainment of TALs (the same as NM WQC) because the primary source of exceedances are from storm water runoff from urban and natural background sources. *Id.* at 26, 28. LANL goes on to identify urban storm water runoff as the main source of TAL and NM WQC exceedances for zinc, copper and PCBs. *Id.* at 28.

57. LANL identifies urban runoff from sources such as brake pad wear on parking lots, galvanized fencing, culverts and other building materials as the sources of zinc and copper exceedances of TALs (same as NM WQC). *Id.* at 31.

58. Site-specific storm water run-on samples collected by LANL in Sandia Canyon demonstrate urban storm water runoff contributes to TAL (same as NM WQC) exceedances of PCBs. *Id.*

59. In another drainage area in Sandia Canyon (S-SMA-2.0), LANL identifies anthropogenic urban sources as one of the sources of TAL (and NM WQC) exceedances for PCBs. Alternative Compliance Request 2 at 14.

60. LANL identifies runoff from urban development as the likely source of TAL (and NM WQC) exceedances for copper. At one specific site in Sandia Canyon, which is

the focus of one of their alternative compliance request, copper exceedances from urban runoff ranged from 4.78 ug/L to 21.3 ug/L. The TAL (same as NM WQC) for copper is 4.3 ug/L. *Id.* at 16.

61. LANL identifies runoff from urban development as the likely source of TAL (and NM WQC) exceedances for zinc. At one specific site in Sandia Canyon (S-SMA-2.0), which is the focus of one of their alternative compliance requests, zinc exceedances from urban runoff ranged from 30.9 ug/L to 61.2 ug/L. The TAL (same as NM WQC) for zinc is 42 ug/L. *Id.* at 21.

62. LANL states in their Alternative Compliance Request 2.0 that controls in place under the LANL IP and controls proposed to be installed under the LANL IP would not affect the urban source of PCBs in storm water found at S-SMA-2.0, a drainage area in Sandia Canyon. *Id.* at 27.

63. In 2009 the New Mexico Environment Department (NMED) issued a Notice of Violation (NOV) and proposed penalty of $13,200 to Los Alamos County for violating state surface water quality standards by discharging contaminated storm water.[10]

64. NMED collected storm water samples on 8/3/07 that showed a geometric mean of 0.16316 ug/ of PCBs. They collected another set of samples on 9/5/07 that revealed a geometric mean of 0.00360 ug/L of PCBs. These samples were approximately 255 times and six times the state's PCB human health WQC. The 8/3/07 sample was 12 times the PCB wildlife habitat WQC. Press Release LA County Violations.

65. NMED sampling data in 2007 and 2006 show levels of PCBs in storm water draining off of urban areas in Los Alamos Townsite to be more than 34,000 times greater than the NM Human Health WQC. The concentration of PCBs at Los Alamos County Yard (site 1; 28CtyYdSite1) on 8/2/06 was 22.2 ug/L, which is over 34,000 times greater than the Human Health WQC. A sample taken on 7/26/07 from Timber Ridge (Timber Ridge drainage; 28TimbRg000.2) showed a PCB concentration of 0.133 ug/L, which is 207 times greater than the Human Health WQC. Timber Ridge is a development of apartment buildings in Los Alamos Townsite that drains into Los Alamos Canyon.[11]

66. The City of Santa Fe diverts water from the Rio Grande at its surface water diversion, the Buckman Direct Diversion Project. This surface water is critical to Santa Fe's effort to meet its current and future water needs. City of Santa Fe, *How the BDD Works*, http://bddproject.org/about-the-bdd/how-the-bdd-works/. Santa Fe shuts down its diversion whenever the City's monitors in Los Alamos and Pueblo Canyons

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[10] New Mexico Environment Department, *Press Release: Environment Department Issues Notice of Violation and Penalty to Los Alamos County for Allowing Discharge of PCBs into Canyon from County's Annex* (December 15, 2009) (Press Release LA County Violations).

[11] This NMED sampling data was obtained via an Inspection of Public Records Act request. The data is included in the Appendix.

detect storm water flows. City of Santa Fe, *Buckman Direct Diversion Project Water Quality FAQs*, http://bddproject.org/water-quality/water-quality-faqs/.

67. The City of Albuquerque also diverts surface water from the Rio Grande and uses it for drinking water. Albuquerque Bernalillo County Water Utility Authority, *San Juan Chama Project*, http://www.abcwua.org/San_Juan_Chama_Project.aspx. The City relies upon this diversion project, referred to as the San Juan-Chama Drinking Water Project, for the majority of the City's drinking water and projects a substantial need for this surface water far into the future.[12]

68. The designated uses to be supported by New Mexico Water Quality Standards for the Rio Grande from the Cochiti Pueblo boundary to north of where runoff from Los Alamos' canyons enters the river include "primary contact" (that is, ingestion) and "public water supply." 20.6.4.114.A NMAC.

69. Below where the Los Alamos canyons feed into it, the Rio Grande flows into Cochiti Lake, "[o]ne of the Albuquerque metro-area's most popular swimming spots," with "more than 600 people on the beach every day of a holiday weekend," according to the Army Corps of Engineers. http://krqe.com/2014/05/22/cochiti-lake-swim-beach-closed-for-memorial-day/

70. The Rio Grande is adjacent to Bandelier National Monument and makes up more than four miles of its eastern boundary. https://www.lib.utexas.edu/maps/national_parks/bandelier_park97.pdf

71. The Rio Grande supports a population of re-introduced river otters. Beginning in 2008, 33 river otters have been released to the Rio Grande; since then otters have been spotted in the Rio Grande and its tributaries below where the Los Alamos canyons feed into the Rio Grande.[13]

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[12] Albuquerque Bernalillo County Water Utility Authority, *Water Resources Management Strategy Implementation 2024 Water Conservation Plan Goal and Program Update* 2 (July 2013), http://www.abcwua.org/uploads/files/2024_Water_Conservation_Plan_Update.pdf (Figure 1).

[13] James N. Stuart, *River Otter Reintroduction Update* (Feb, 23, 2012) (presentation by NMG&F to N.M. Game Commission).

Appendix 2: Remand Order

FILED
United States Court of Appeals
Tenth Circuit

January 21, 2022

Christopher M. Wolpert
Clerk of Court

UNITED STATES COURT OF APPEALS

FOR THE TENTH CIRCUIT

THE INCORPORATED COUNTY OF LOS ALAMOS, NEW MEXICO,

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,

Respondent,

and

TRIAD NATIONAL SECURITY, LLC,

Intervenor - Respondent.

No. 20-9534

ORDER

Before **MATHESON** and **BACHARACH**, Circuit Judges.

This matter is before the court on Respondent U.S. Environmental Protection Agency's Unopposed Motion for Voluntary Remand (the "Motion"). The respondent agency, the Environmental Protection Agency ("EPA"), moves the court to direct a limited remand to the agency to reconsider the matter on which review is sought in this court – namely, the EPA's grant of a petition to designate certain stormwater discharges in the Los Alamos County, New Mexico, as being subject to the Clean Water Act's permitting requirements. If remanded, the EPA intends to consider whether the U.S.

Supreme Court's recent decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 162 (2020), impacts the agency's decision at issue here. Reconsideration by the EPA potentially could resolve some or all of the issues presented in this case. The agency is not conceding error, does not request that the EPA's decision be vacated, and does not seek a full remand. The EPA agrees to suspend the permitting requirements on which the petitioner seeks review until the reconsideration proceedings at the agency have concluded, however.

The petitioner and the intervenor, Triad National Security, LLC, do not oppose the relief request.

Upon consideration, the Motion is granted. This matter is remanded to the agency for the limited purpose of reconsidering the EPA's decision that is the subject of this petition for review. Specifically, the EPA should reconsider its decision in light of the Supreme Court's decision in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 162 (2020). The EPA may conduct any and all proceedings it deems necessary and appropriate to reconsider the decision at issue in this case.

While the EPA reconsideration proceedings are ongoing, the EPA shall suspend the permitting deadlines set by the decision being reconsidered, as described in the Motion.

Proceedings in this petition for review are abated pending further order of this court.

The respondent shall file a status report in this court within 60 days of the date of this order to advise on the progress of reconsideration. In its status report, the EPA should provide enough detail about the pending agency proceedings to inform this court on whether continued abatement is warranted. When the EPA issues a decision on the matter being reconsidered, the EPA shall notify this court within five days after the decision is issued and provide a suggested course for future proceedings in this court.

Entered for the Court
CHRISTOPHER M. WOLPERT, Clerk

Lara Smith

by: Lara Smith
Counsel to the Clerk

Appendix 3: Summary of EJ Screen

Environmental Justice Screening Analysis (EJScreen) for Revised Designation Decision in Response to A Petition by Amigos Bravos for a Determination that Stormwater Discharges in Los Alamos County Contribute to Water Quality Standards Violations and Require Clean Water Act Permit Coverage

Los Alamos Area/County

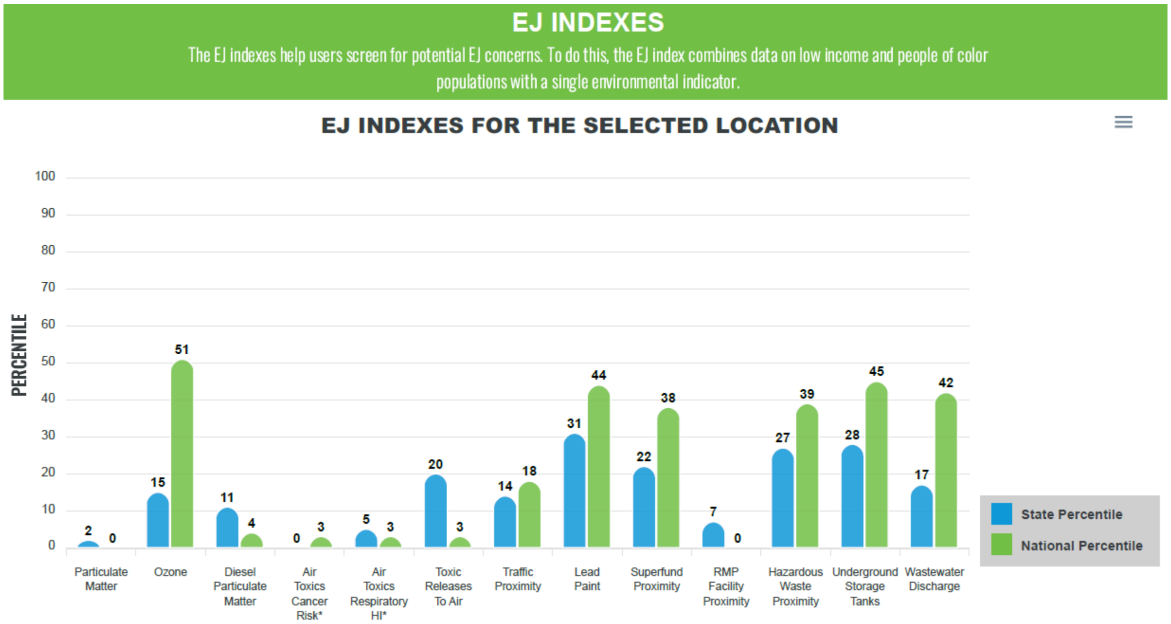
Executive Orders 14008 (sec. 219), 12898, and 13985, and 14096 direct agencies to make achieving environmental justice and equity a part of their mission. Executive Order 13985, *Advancing Racial Equity and Supporting for Underserved Communities through the Federal Government* signed on January 20, 2021, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." The EPA strives to enhance the ability of underserved communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. As part of an agency-wide effort, the EPA Region 6 will consider prioritizing enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on already underserved communities. For more information, please visit http://www.epa.gov/ejscreen.

As part of the designation development process, the EPA conducted a screening analysis to determine whether this action could affect overburdened communities. The EPA used EJScreen 2.2, a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool may be used to identify underserved communities and assist in informing where enhanced outreach may be warranted. EJ Screen 2.2 includes 13 EJ index and supplemental index names: Particulate matter, ozone, diesel particulate matter, air toxics cancer risk, air toxics respiratory hazard index, toxic releases to air, traffic proximity, lead paint, superfund proximity, RMP facility proximity, hazardous waste proximity, underground storage tanks, and wastewater discharge.

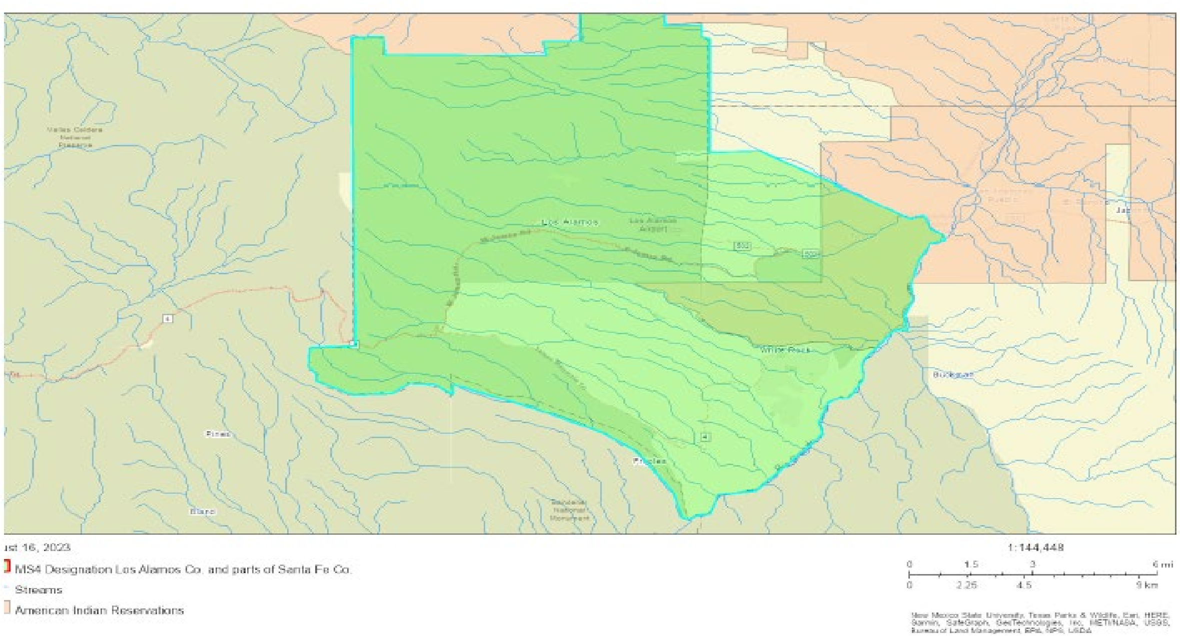
The study area was chosen selecting Los Alamos County and the northwest part of Santa Fe County in New Mexico, which includes the Triad National Security, LLC (Triad) and the U.S. Department of Energy's National Nuclear Security Administration (NNSA), the Los Alamos Urban Cluster as defined by the latest decennial Census, New Mexico Department of Transportation (NMDOT) located within the Los Alamos Urban Cluster as defined by the latest decennial Census, and NMDOT located within and interconnected with regulated LANL (Triad and NNSA) storm sewer systems in Los Alamos County, New Mexico. The population of the study area is 19,169. All of the thirteen (13) Environmental Justice Indexes were below the state and national 80th percentile (80%).

Based on EPA's analysis of the study area based on EJScreen results, EPA has not determined that there is a community with environmental justice concerns. EPA will publish a notice in the

Federal Register, open a public comment period on the nature and scope of the designation and offer Tribal consultation to affected Tribes in the area.

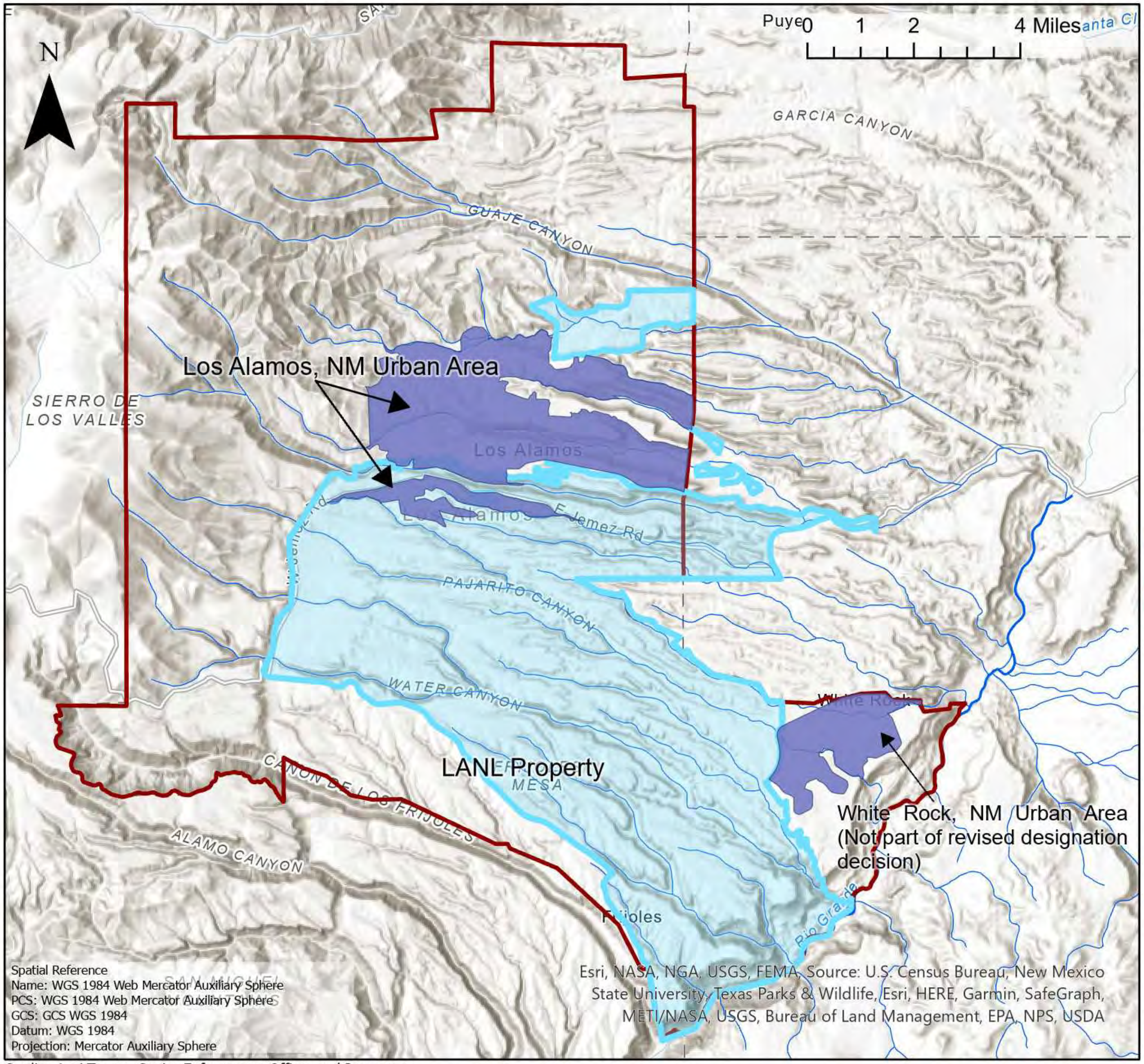


Los Alamos County, NM



Appendix 4: Maps of Designated Areas

Los Alamos Revised Residual Designation Appendix 4



Map 1. Designated Areas associated with the Los Alamos Revised Residual Designation

Map Description: This map shows the designated areas where small MS4s located in the Los Alamos Urban Area as defined by the latest decennial Census and MS4s located on LANL property within Los Alamos and Santa Fe Counties, New Mexico require NPDES permit coverage.

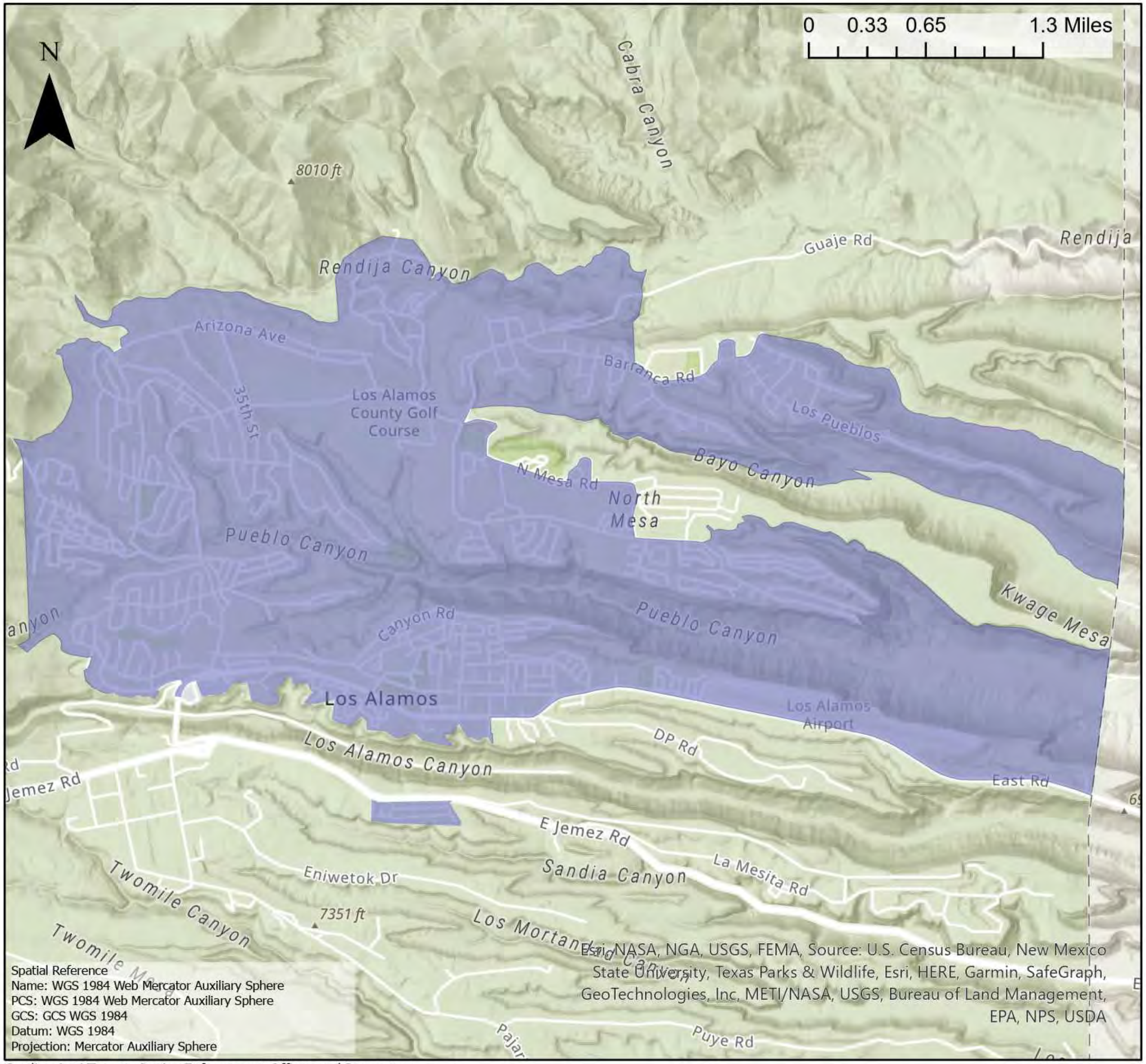
Legend

- 2020 Urban Areas
- LANL Property Boundary
- Los Alamos County

Surface water flowlines

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Los Alamos Revised Residual Designation Appendix 4



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Map 2. Los Alamos County controlled lands designated area associated with the Los Alamos Revised Residual Designation

Map Description: This map shows the designated areas where small MS4s located in the Los Alamos Urban Area as defined by the latest decennial Census (excluding LANL property) within Los Alamos County, New Mexico require NPDES permit coverage.

Legend

2020 Urban Areas

Appendix 5: Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

United States Environmental Protection Agency

Clean Water Act Jurisdictional Analysis of the Waters of Los Alamos County

Waters of the United States Jurisdictional Analysis Report

Tanner, Lori
11-1-2023

Contents

Summary

The U.S. Environmental Protection Agency (EPA) has prepared an evaluation of the Los Alamos County canyons surface waters' status as "waters of the United States" and of their potential to transport stormwater to the Rio Grande. This report contains memoranda by canyon articulating the jurisdictional conclusions for identified surface waters in each canyon. These conclusions are supported by a wide range of data and information. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. EPA utilized monitoring data, firsthand observations, and remote sensing-utilized mapping tools to support the evaluation of these stream reaches. Where stream gage data was not available to support the characterization of the canyon stream reaches, EPA relied on monitoring data associated with New Mexico's 303(d)/(305(b) List, firsthand observations of stream flow permanence indicators, and remote sensing derived information. EPA technical field staff conducted site visits to the canyons that lead from the Los Alamos Urban Area to the Rio Grande on September 21-22, 2022. Multiple stakeholders attended and observed those site visits. EPA technical field staff collected field data and measurements associated with evidence of water flow and permanence at multiple locations throughout the canyons.

Based on the Agency's analysis of available data and field observations, EPA finds that (1) some of the canyon surface waters, identified in this report, are "waters of the United States" because they are relatively permanent tributaries to the Rio Grande, which is a traditional navigable water, and (2) the canyons are conveyances that receive stormwater from Los Alamos Urban Area and Los Alamos National Laboratory and discharge directly to the Rio Grande, a traditional navigable water.

Waters of the United States

The Clean Water Act ("CWA" or "the Act") prohibits the unauthorized discharge of any pollutant to "navigable waters." 33 U.S.C. § 1311(a). The CWA defines "navigable waters" as "waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). EPA's regulations further define "waters of the United States." *See, e.g.*, 40 C.F.R. § 120.2.

The final "Revised Definition of 'Waters of the United States'" rule was published in the *Federal Register* on January 18, 2023, and took effect on March 20, 2023 (2023 Rule). As a result of litigation, the 2023 Rule was not operative in certain states and for certain parties, though it was operative in New Mexico. On May 25, 2023, the Supreme Court decided *Sackett v. EPA*. While the 2023 Rule was not directly before the Court, the Court considered the jurisdictional standards set forth in that rule. On August 29, 2023, EPA and the Department of the Army issued a final rule to amend the 2023 Rule, to conform the definition of "waters of the United States" to the Supreme Court's decision in *Sackett*. The conforming rule amends the provisions of the agencies' definition of "waters of the United States" that are invalid under the Supreme Court's interpretation of the Clean Water Act in the *Sackett* decision. The rule, "'Revised Definition of "Waters of the United States"; Conforming'" (Conforming Rule; 88 FR 61964, September 8, 2023), took effect upon publication in the *Federal Register* on September 8, 2023. The definition of "waters of the United States" that is now in effect in New Mexico is the 2023 Rule, as amended by the Conforming Rule. Among other revisions, the Conforming Rule removed the significant nexus standard and amended the definition of "adjacent," to conform to the Supreme Court's interpretation of the Clean Water Act in *Sackett*. The definition of "waters of the United States" in the 2023 Rule, as amended, is consistent with the Supreme Court's decision in *Sackett*.

Under the 2023 Rule, as amended by the Conforming Rule, "waters of the United States" are: (1) traditional navigable waters, the territorial seas, and interstate waters ("paragraph (a)(1) waters"); (2) impoundments of certain "waters of the United States" ("paragraph (a)(2) impoundments"); (3) tributaries of paragraph (a)(1) waters or paragraph (a)(2) impoundments that are relatively permanent, standing or continuously flowing bodies of water ("jurisdictional tributaries" or "paragraph (a)(3) waters"); (4) wetlands adjacent to paragraph (a)(1) waters or to relatively permanent paragraph (a)(2) or (a)(3) waters and with a continuous surface connection to those waters ("jurisdictional adjacent wetlands" or "paragraph (a)(4) waters"); and (5) intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to paragraph (a)(1) or (a)(3) waters ("paragraph (a)(5) waters"). 40 C.F.R. § 120.2(a) (as amended on September 8, 2023). A tributary may contribute flow through a number of downstream waters or features, including both non-jurisdictional features, such as a ditch excluded under paragraph (b) of the 2023 Rule, as amended, and jurisdictional waters that are not tributaries, such as an adjacent wetland. However, the tributary must be part of a system that eventually flows to a paragraph (a)(1) water. For a more detailed discussion of the definition of "waters of the United States" in the 2023 Rule, as amended, see the preamble to the Conforming Rule (88 FR 61964, September 8, 2023).

Geological Setting

Los Alamos County, New Mexico has a semiarid climate with an average rainfall of about 19 in. per year and average annual snowfall of approximately 43 in. per year. The area is located on the Pajarito Plateau, which is separated into fingerlike mesas by west-to-east-oriented canyons drained by streams flowing in their valleys. The area experiences a snowy winter season that controls snowmelt-driven streamflow in the spring and a rainy season that begins in early July and ends in early September, characterized by short, heavy downpours.[1] The mesas of the Pajarito Plateau are mostly composed of Bandelier Tuff, which is a type of soft rock that forms from hardened volcanic ash. Eastward near the Rio Grande, the Puye Formation, a layer of sand and gravel that underlies the Bandelier Tuff, becomes visible in places and can store groundwater. The Santa Fe Group sediment formation is the regional aquifer for the area and lies below the Puye Formation and Bandelier Tuff and contain large volumes of groundwater.[2] Consequently, the watersheds draining Los Alamos County contain numerous springs, streams, and alluvial groundwater.[3] The streams that lie within the valleys of the canyons flow through alluvial materials that exhibit highly spatially variable rates of surface water infiltration to groundwater in local and regional aquifers, but studies have generally shown high rates of infiltration into lateral subsurface flow of the vadose (underground water above the water table) zone.[4] The extensive scientific studies conducted in the area provide additional information to support an evaluation of the jurisdictional status of the waters within the canyons and they have been included as additional evidence throughout this report where appropriate.

EPA's September 2022 Field Visit Summary

This analysis focuses on the surface waters in or draining the Los Alamos Urban Area defined in the 2020 Census (including the Los Alamos Townsite) which includes the Los Alamos Canyon/Pueblo Canyon watershed, the Sandia Canyon watershed, the Mortandad Canyon watershed, and the Pajarito Canyon watershed. However, EPA also visited accessible sites and analyzed available data for Water Canyon and Ancho Canyon which drain other areas of Los Alamos County including some non-urban areas of the LANL property. Please refer to Site Map 1 for the MS4 Revised Designation study areas and Site Map 2 to see the canyon watersheds associated with this analysis in the attachments of this report. During field investigations on September 21st and 22nd, 2022, as described in Attachment 11 as well as in the canyon-specific analysis memoranda (Attachments 3 through 8), EPA observed and documented the characteristics of the streams that flow through the canyons and their flowpath to the Rio Grande. EPA observed standing or flowing surface water in some segments of the canyon streams. EPA noted connections to the Rio Grande through indicators of streamflow processes, hydrologic connectivity, ordinary high water mark, presence of hydrophytic vegetation, and other physical indicators of streamflow duration throughout the canyons. EPA observed streams with defined bed and banks from

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[1] Bennett, K. E., Miller, G., Talsma, C., Jonko, A., Bruggeman, A., Atchley, A., ... & Middleton, R. (2020). Future water resource shifts in the high desert Southwest of Northern New Mexico, USA. Journal of Hydrology: Regional Studies, 28, 100678.
[2] Los Alamos National Laboratory, Los Alamos National Annual Site Laboratory Environmental Report 2021, 1-4 (2021) (LA-UR-22-29103). (LANL 2021 Environmental Report).
[3] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.
[4] Robinson, B. A., Cole, G., Carey, J. W., Witkowski, M., Gable, C. W., Lu, Z., & Gray, R. (2005). A vadose zone flow and transport model for Los Alamos Canyon, Los Alamos, New Mexico. Vadose Zone Journal, 4(3), 729-743.

their headwaters in the Jemez Mountains crossing the mesas where they have formed in bedrock or shallow alluvial materials as well as short breaks in ordinary high water mark indicators due to on-stream sediment retention basins and other features. Many streams transition from bedrock-controlled channels on the mesas over waterfall features or high gradient stream channels to the larger, more sinuous streams with well-defined bed and banks forming in alluvial materials at the bottoms of the canyon valleys. Please refer to Site Map 4 in the attachments of this report for an overview of EPA site visit locations. EPA reviewed and analyzed relevant remote sensing data and imagery for the Los Alamos Area to gather additional information about the landscape and hydrology of the area to further support analysis of the onsite observations and the existing, publicly available monitoring and assessment data. Please refer to Site Map 3, Area Map 1, and Area Map 2, and Area Map 3 in the attachments of this report.

Jurisdictional Analysis and Summary of Findings

Extent of Waters of the United States

__The canyon surface waters identified in this report are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.__

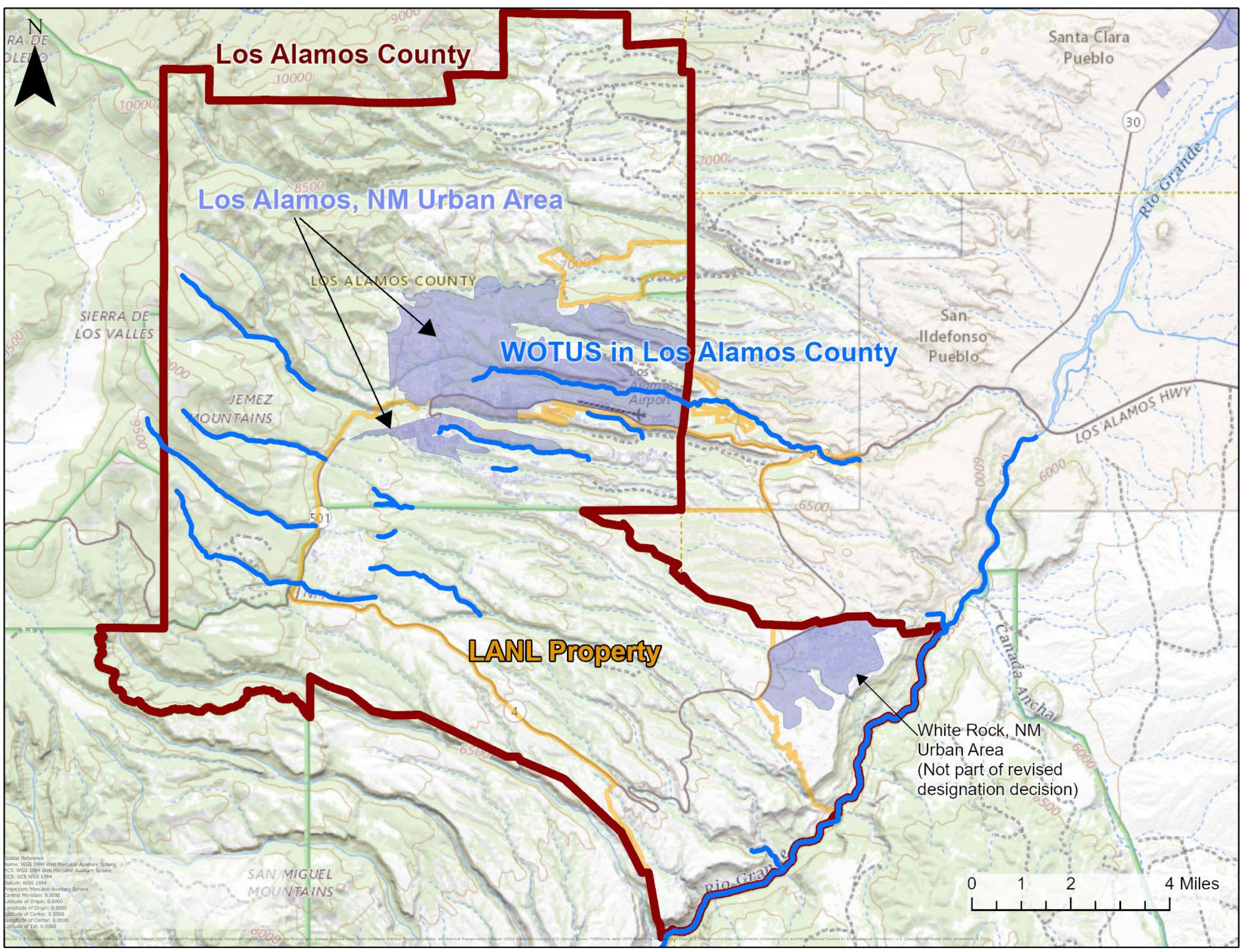

Figure 1. Summary of waters of the United States in Los Alamos County

EPA found that some of the stream reaches in the canyons are tributaries of the Rio Grande, a traditional navigable water, that are relatively permanent, standing, or continuously flowing bodies of water and therefore are waters of the United States. Those stream reaches are identified in this report, above in Figure 1, below in Table 1, and within the canyon-specific memoranda of the report attachments. EPA evaluated the flow permanence of stream reaches in the canyons that drain Los Alamos County under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. The waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

Table 1. Summary of jurisdiction under 2023 WOTUS Rule, as amended

<table>
<tr><th>NMED Water body name or description</th><th>Flow Duration Findings</th><th>WOTUS Findings</th></tr>
<tr><td>Upper Rio Grande</td><td>Continuously flowing water year-round.</td><td>Paragraph (a)(1) water, traditional navigable water.</td></tr>
<tr><td>DP Canyon (100m dwnstm grade ctrl to 400m upstm grade ctrl)</td><td rowspan="7">Tributaries have continuously flowing or standing water year-round.</td><td rowspan="17">Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Los Alamos Canyon (Los Alamos Rsvr to headwaters)</td></tr>
<tr><td>Sandia Canyon (Sigma Canyon to NPDES outfall 001)</td></tr>
<tr><td>Canon de Valle (LANL gage E256 to Burning Ground Spur)</td></tr>
<tr><td>Water Canyon (within LANL above NM 501)</td></tr>
<tr><td>Water Canyon (Area-A Cyn to NM 501)</td></tr>
<tr><td>Ancho Canyon (Rio Grande to Ancho Springs)</td></tr>
<tr><td>Acid Canyon (Pueblo Canyon to headwaters)</td><td rowspan="10">Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.</td></tr>
<tr><td>Pueblo Canyon (Los Alamos WWTP to Acid Canyon)</td></tr>
<tr><td>Pueblo Canyon (Los Alamos Canyon to Los Alamos WWTP)</td></tr>
<tr><td>DP Canyon (Los Alamos Canyon to 100m dwnstm of grade ctrl)</td></tr>
<tr><td>Los Alamos Canyon (San Ildefonso bnd to NM-4)</td></tr>
<tr><td>Effluent Canyon (Mortandad Canyon to headwaters)</td></tr>
<tr><td>Canada del Buey (Rio Grande to Mortandad Confluence USGS NHD Reach Code 13020201000196)</td></tr>
<tr><td>Canon de Valle (LANL bnd to headwaters)</td></tr>
<tr><td>S-Site Canyon (Water Canyon to headwaters)</td></tr>
<tr><td>Water Canyon (upper LANL bnd to headwaters)</td></tr>
</table>

Jurisdictional Analysis Narrative

Over millions of years on the mesas, the streams bringing down water from the Jemez Mountains have carved through the thin eolian materials into the bedrock of the volcanic tuff, cascaded down the colluvial aprons of the mesas and deposited the alluvial sediments of their floodplains through the bases of the canyons.[5] Aquatic systems that traverse plateaus and alluvial fans, such as those represented by the canyons of the Pajarito Plateau, may contain streams that exhibit a mosaic of flow duration classes based on highly localized factors. The drivers of flow duration include local and regional geology, surface water inputs, land cover, and water table elevation.[6] EPA observed that generally headwater stream reaches at higher elevations in the Jemez Mountains exhibited relatively permanent flows that are sustained, seasonal flows during at least part of the year supported by snowmelt and/or monsoon season rains and perennial springs. However, as the streams flow downstream onto the Pajarito Plateau, the driving factors of flow regime shift and predominantly result in stream reaches with non-relatively permanent flow that only flow in direct response to precipitation as the channels convey stormwater runoff downstream. One geologic factor that can account for changes in stream reach characteristics and flow duration is the differences in geomorphology of the stream channels on the Pajarito Plateau and downstream to the Rio Grande. Given these distinct geomorphic conditions across the Plateau, and the other spatial characteristics that can control streamflow duration, it is important to evaluate the flow permanence on a reach basis to help inform assessment of the jurisdictional status of the tributaries to the Rio Grande flowing across the plateau rather than making broad characterizations of the stream flow permanence and jurisdiction based on the canyon name in which they flow.

Typically, EPA would determine the flow characteristics of the entire reach of a tributary that is of the same Strahler stream order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream) and assess the flow characteristics of a particular tributary at the farthest downstream limit of such tributary. Where data indicate the flow characteristics at the downstream limit are not representative of the entire reach of the tributary, the flow characteristics that best characterize the entire tributary reach will be used. However, in Los Alamos County, EPA has chosen to utilize Assessment Units rather than Strahler stream order to characterize flow regime due to the availability of streamflow monitoring data across the area. Please see Site Map 3 in the attachments of this report. The State of New Mexico Water Quality Management Plan & Continuing Planning Process Hydrology Protocol uses assessment units of streams that are designed to represent waters with assumed homogenous water quality. These Assessment Units are identified by various factors such as hydrologic or watershed boundaries, geology, topography, incoming tributaries, surrounding land use/land management, water quality standards, etc. Throughout this report, EPA uses the relevant Assessment Unit names where possible to identify the canyon stream reach being evaluated or discussed. Where an Assessment Unit is not present to assist EPA in describing and evaluating the canyon streams, EPA uses the canyon name and any other relevant information such as U.S. Geological Survey (USGS) hydrologic unit reach code.

[5] Lepper, K., & Wilson, C. (2011). Chronology of colluvial apron deposition within Cañada del Buey, Pajarito Plateau, New Mexico. New Mexico Geology, 33(1).
[6] Fritz, K. M., Nadeau, T. L., Kelso, J. E., Beck, W. S., Mazor, R. D., Harrington, R. A., & Topping, B. J. (2020). Classifying streamflow duration: the scientific basis and an operational framework for method development. Water, 12(9), 2545.

This report contains memoranda by canyon articulating the jurisdictional conclusions for identified surface waters in each canyon. These conclusions are supported by a wide range of data and information summarized here and utilized in the memoranda. Attachment 9 of this report includes a summary of stream gage and precipitation station gage monitoring results from U.S. Department of Energy Environmental Management Los Alamos Field Office (LANL) gage stations for Water Years 2018-2022 which are publicly reported by LANL on a yearly basis. EPA evaluated the available stream gage data and precipitation data to determine whether stream reaches were flowing or standing continuously year-round, continuously during certain times of the year, or for a short duration only in direct response to precipitation. Many of the stream segments monitored by LANL flow continuously in response to multiple back-to-back precipitation events that occur during monsoon season in the surrounding area or snowmelt from higher elevations. LANL reports also note that perennial springs are present on the flanks of the Jemez Mountains and supply base flow to the upper reaches of some streams located in the canyons. While many of these upper reaches are relatively permanent tributaries to the Rio Grande, in reaches downstream from these upper reaches the volume of flow outside of the snowmelt and monsoon seasons is often insufficient to maintain surface flows across the plateau mostly because of losses in stream channel transmission. In addition to natural springs, other sources of water, such as treated effluent or other surface water discharges, also maintain continuous streamflow in some stream reaches in the canyons. There are stream segments where gage data shows relatively permanent flow duration.[7] Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

In addition to the available gage data for some of the stream segments, field monitoring and assessment data are also available for stream segments within the canyons as part of the New Mexico Environmental Department's (NMED's) assessment of the Upper Rio Grande Watershed, HUC: 13020101 and the Rio Grande-Santa Fe Watershed, HUC: 13020201. EPA also considered flow duration indicators, monitoring data, and flow regime assessment results for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report along links to the publicly available assessment data and results. These routinely collected and reported field assessment results, and the raw data utilized for the assessments, further demonstrate that some reaches of the tributaries to the Rio Grande within the canyons draining Los Alamos County exhibit relatively permanent flow.

[7] Los Alamos National Laboratory, Los Alamos National Annual Site Laboratory Environmental Report 2021, 1-4 (2021) (LA-UR-22-29103). (LANL 2021 Environmental Report).

EPA documented biological and physical indicators of streamflow presence as well as streamflow permanence during the September 2022 site visit. Attachment 11, The Field Observations Notes, of this report includes documentation of vegetation and aquatic macroinvertebrate communities which serve as biological indicators of stream flow permanence that EPA observed. During the 2022 site visit, EPA documented vegetative indicators of flow presence including the presence/absence of rooted vegetation within stream channels and whether those plants are hydrophytic for the region. EPA noted that the presence of prevalent upland vegetation within certain portions of the stream channels indicated that there were likely infrequent surface flows in those portions of the stream channels since the vegetation communities were similar to those in the surrounding upland areas. Conversely, EPA also documented where riparian and upland vegetation communities were distinctly different as streams with long streamflow durations tend to support riparian vegetation with a distinct set of plant species not found in surrounding uplands. Many of these plants will include hydrophytes that require saturated soil for some of their lifespan. In some cases, upland species will grow more vigorously in and or near the channel than in surrounding uplands.[8] In some of the stream reaches, EPA documented the presence of cattails (*Typha)* species within a stream channel which have been assigned a National Wetland Plant List wetland indicator status of "Obligate" for the Western Mountains, Valleys, and Coast, and the Arid West, meaning the plant is a hydrophyte and almost always occurs in wetlands. Another species that EPA documented in riparian areas of some of the stream channels was *Salix exigua* (narrowleaf willow) which has a wetland indicator status of "facultative wetland," meaning the plant usually occurs in wetlands but may occur in non-wetlands.[9] The presence of hydrophytes with "obligate" and "facultative wetland" indicator status like *Salix exigua* in streams and riparian areas is a strong indicator of flow permanence in Mountain West and Arid West streams. Studies of indicators of flow permanence in streams have found that plants with facultative wetland and obligate indicator status are equally important for determining streamflow duration. Other biological indicators of streamflow permanence observed in some of the canyon stream channels included aquatic macroinvertebrates and periphyton. Periphyton are a complex mixture of algae, including filamentous algae, that are common on submerged surfaces in aquatic ecosystems.[10] The presence of *Trichoptera* larvae, also known as caddisfly larvae, are an indicator of flow permanence. Mayflies, stoneflies, and caddisflies are widespread insects in perennial and intermittent streams but are not typically found in ephemeral streams.[11] For example, the Los Alamos Canyon stream near the confluence with DP Canyon contained

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[8] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

[9] USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 12/08/2022). National Plant Data Team, Greensboro, NC USA. Note: *This list is used for all wetland determinations and delineations performed for Section 404 of the Clean Water Act, the Swampbuster provisions of the Food Security Act, and the National Wetlands Inventory.*

[10] New Mexico Environment Department/Surface Water Quality Bureau (NMED/SWQB). Hydrology Protocol for the Determination of Ephemeral, Intermittent, and Perennial Waters; New Mexico Environment Department, Surface Water Quality Bureau: Albuquerque, NM, USA, 2010; p. 34. Available online: https://www.env.nm.gov/surface-water-quality/wp-content/uploads/sites/25/2019/11/WQMP-CPP-Appendix-C-Hydrology-Protocol-20191122-Public-Draft.pdf (accessed on 6 July 2020).

[11] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.
Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Lowman, H., Allen, A., Leidy, R., Robb, J.T., and David, G.C.L. 2021. User Manuel for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0. Document No. EPA800-5-21001

pools of standing water, saturated sediments in the stream channel, wrack deposits on the banks, and well-defined bed and banks. The Sandia Canyon headwaters stream at gage E121 shows the undercut banks and riparian vegetation that are typical of the perennial stream segments of Sandia Canyon. DP Canyon approximately 30 meters downstream of the grade control structure has a robust riparian vegetation community of plants with hydrophytic wetland indicator status like *Salix exigua* (narrowleaf willow). Finally, the headwaters of Water Canyon flowed through wetlands with multiple obligate and facultative wetland plant species including *Salix exigua, Salix irrorata, Populus angustifolia*. EPA also noted the presence of *Trichoptera* larvae, *Gerridae, and* Periphyton in the stream channel

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in the canyons draining Los Alamos County. Attachment 11, The Field Observations Notes, of this report also includes documentation of ordinary high water mark (OHWM), presence of streamflow, and indicators of streamflow duration that EPA observed during the September 2022 site visit. One of the primary physical indicators of streamflow presence that EPA utilized was the OHWM which also defines the lateral extent of nontidal aquatic features in the absence of adjacent wetlands in the United States. The federal regulatory definition of the OHWM, 33 CFR 328.3(c)(7), states, "The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The OHWM is identified through physical characteristics that correspond to a break in bank slope, a transition in vegetation type and coverage, and changes in sediment characteristics. The physical characteristics corresponding to the location of the OHWM can be divided into four indicator categories: geomorphic, vegetation, sediment, and ancillary. Geomorphic refers to that part of the landscape shaped by stream processes and, therefore, shaped by a range of flows. Vegetation and sediment are described separately to increase understanding of how stream processes influence vegetation growth and sediment erosion and deposition. Ancillary indicators are a separate category because they are common fluvial characteristics, such as the deposition of large wood (LW), that do not necessarily fit into the three previous categories but can assist in determining the location of the OHWM in some circumstances. [12] Some of the strong indicators of ordinary high water mark at many of the canyon stream reaches that EPA visited included the well-defined channel bed and banks, wrack lines, and strong riparian vegetation signatures. For example, accumulation of organic litter like wrack lines on streambanks or outside of a stream can also be used to provide evidence of high flows. These indicators highlighted the difference in the hydrologic regime between the channel and the upland areas in the canyon. EPA observed indicators of ordinary high water mark in stream reaches that appeared to flow continuously year round or during certain parts of the year, as well as stream reaches that appeared to only flow infrequently or in direct response to precipitation, which EPA corroborated with the available gage data and field monitoring and assessment data for the stream reaches. The presence of indicators of ordinary high water mark and other physical indicators of streamflow through these channels demonstrate that these channels contribute flows downstream, and for the non-relatively permanent stream reaches in some cases served as connections of the upstream relatively permanent stream reaches to the Rio Grande. As

[12] November 2022, ERDC/CRREL Technical Report 22-16. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams. Interim version. https://hdl.handle.net/11681/46102

explained in the first section of this report, upstream jurisdictional tributaries may contribute flow downstream to traditional navigable waters via intervening non-jurisdictional stream reaches.

EPA also noted temporary breaks in ordinary high water mark in the canyon stream channels due to features like grade control structures installed in the canyons to control sediment runoff within the canyons.[13] Grade control structures often slow surface water movement and trap sediments that would otherwise influence channel morphology, so upstream of grade control structures a channel may lose indicators of ordinary high water mark though would have such indicators both further upstream and downstream. Consistent with longstanding practice, a human-made discontinuity in the ordinary high water mark does not typically sever jurisdiction upstream where the ordinary high water mark has been removed by development, agriculture, or other land uses. EPA found indicators of flow both above and below the discontinuity to support that the discontinuity was a temporary break in the ordinary high water mark did not sever jurisdiction upstream. It is typical to see channels become more strongly defined as they move downstream from grade control structures and regain velocity and the ability to transport flows with sediments. In some of the non-relatively permanent channels downstream of detention or grade control structures, EPA noted the presence of smaller low flow channels set within well-defined floodplains within the canyons with stream channel morphology that reflected a pattern of infrequent but high flows through the stream reach. In the low flow channels, EPA noted vegetation communities of upland plants indicating potentially infrequent surface flows, however the presence of large gravels and cobbles deposition on the floodplains indicated occasional high very flows with the ability to transport significant alluvial material downstream.

EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. EPA utilized monitoring data, firsthand observations, and remote sensing-utilized mapping tools to support the evaluation of these stream reaches. Where stream gage data was not available to support the characterization of the canyon stream reaches, EPA relied on monitoring data associated with the 303(d)/(305(b) List, firsthand observations of stream flow permanence indicators, and remote sensing derived information. The canyons of Los Alamos County were drained by streams that exhibited indicators of ordinary highwater mark and flowed directly or indirectly through other waters to a traditional navigable water, the Rio Grande. A subset of those streams exhibited indicators of perennial and intermittent flow streamflow regimes or have associated monitoring and assessment data demonstrating their streamflow regimes. EPA was able to determine which canyon streams have flowing or standing water year-round or continuously during certain times of the year and are therefore relatively permanent standing or continuously flowing bodies of water that flow directly or indirectly through other waters to a traditional navigable water. Thus, these canyon waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande. The streams in the canyons with ordinary high water mark indicators that flow directly or indirectly to a traditional navigable water but did not meet the relatively permanent standard are not themselves jurisdictional as tributaries to a traditional navigable water. However, the non-relatively permanent stream reaches downstream of relatively permanent reaches observed by EPA serve as the flowpath to the Rio Grande. Please refer to the specific memorandums contained within

[13] Los Alamos National Laboratory, Los Alamos National Annual Site Laboratory Environmental Report 2021, (2021) (LA-UR-22-29103). (LANL 2021 Environmental Report).

this report for each of the watersheds for identification and additional information on the relatively permanent tributary reaches within the canyons draining Los Alamos County.

Presence of Conveyances

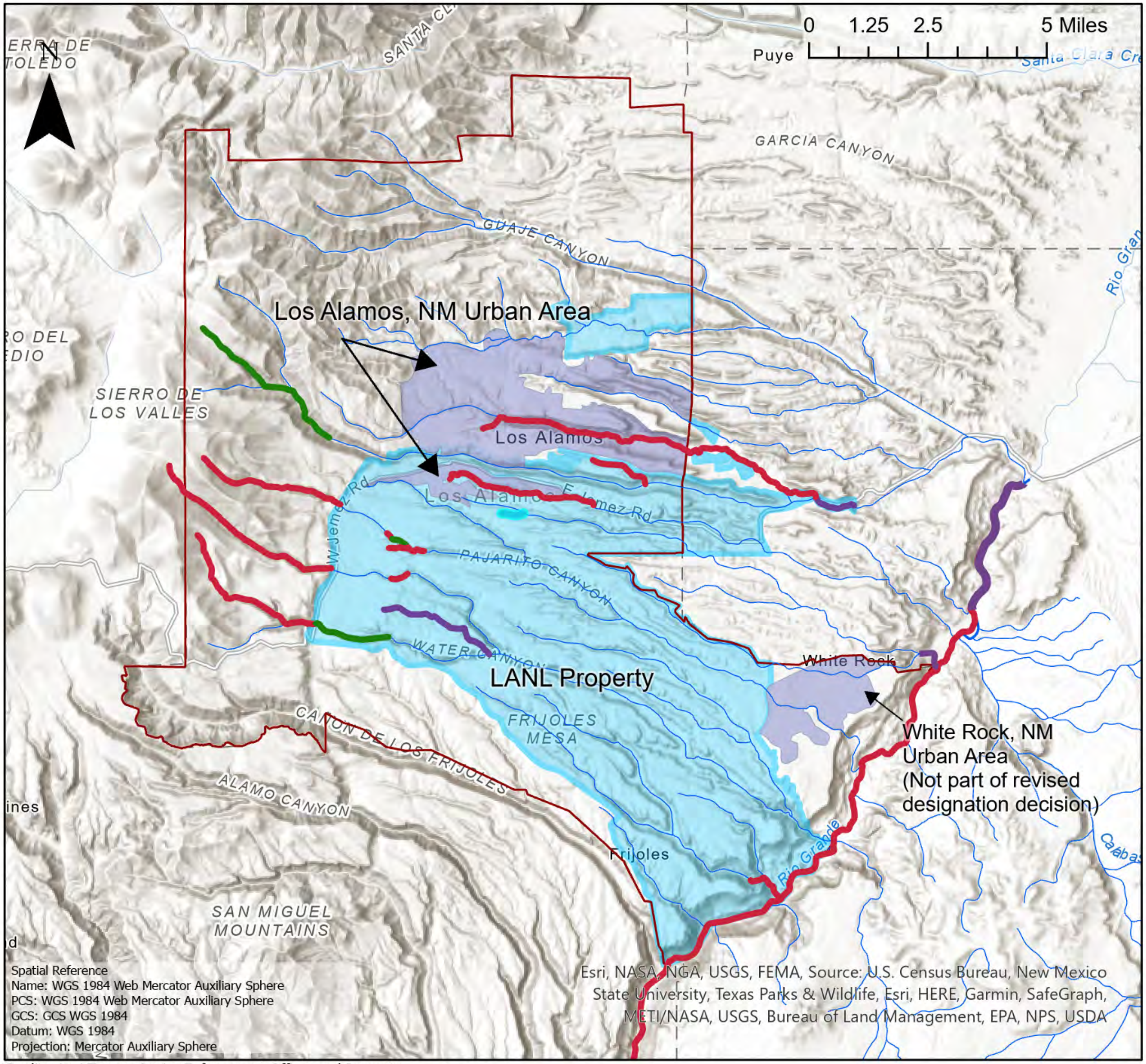
The canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The Clean Water Act defines "point source" as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit ... from which pollutants are or may be discharged." 33 U.S.C. § 1362(14). A waterway or channel may serve as a discrete conveyance regardless of its own jurisdictional status as a “water of the United States.” EPA observed indicators in the field and has evaluated evidence from remote data that establishes that the stream channels in the Los Alamos Canyon/Pueblo Canyon watershed are serving as discrete conveyances of stormwater and treated water discharged through culverts, pipes, and ditches to downstream jurisdictional waters, including relatively permanent tributaries of the Rio Grande as well as the Rio Grande itself under some precipitation events. Based on field observations, analysis of remote sensing data, and evaluation of data reported by the Los Alamos National Laboratories (LANL), New Mexico Environment Department, and the Buckman Direct Diversion operators, EPA has concluded that discharges from the Los Alamos Urban Area sometimes reach the Rio Grande. Storm events and snowmelt in general create these flows and are contributed to by stormwater discharges from municipal separate storm sewer systems (MS4s) draining from the Los Alamos Urban Area to the canyons of Los Alamos County.

The examples of point source discharges observed by EPA from Los Alamos County residential and industrial areas, as well as outfalls from the Los Alamos National Laboratories, flow from the identified, representative point sources through ditches and stream channels that serve as discrete conveyances to waters of the United States, including the Rio Grande, a traditional navigable water. This report includes a memorandum detailing EPA’s finding on the case-specific evaluation of the Rio Grande’s status as a traditional navigable water near Los Alamos. The canyon-specific site maps in this this report’s attachments demonstrate that the representative point sources identified by EPA during the September 2022 site visit discharge directly to "waters of the United States” or through conveyances directly to “waters of the United States.” Please refer to the canyon watershed-specific memorandums contained within this report for identification and additional information on the connections from the point sources to the stream reaches within the canyons draining Los Alamos County that are either waters of the United States or conveyances to waters of the United States and their connections to the Rio Grande.

Attachment 1. Report Maps

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Findings Map 1: Waters of Los Alamos County WOTUS findings

Map Description: This map shows canyon streams within and/or draining Los Alamos County found to be jurisdictional under the Clean Water Act and their current ATTAINS water quality ratings.

Legend

WOTUS with ATTAINS Assessment Ratings

- Unassessed
- Good
- Polluted

Surface water flowlines (NHD Plus V. 2.1)

QA_MA

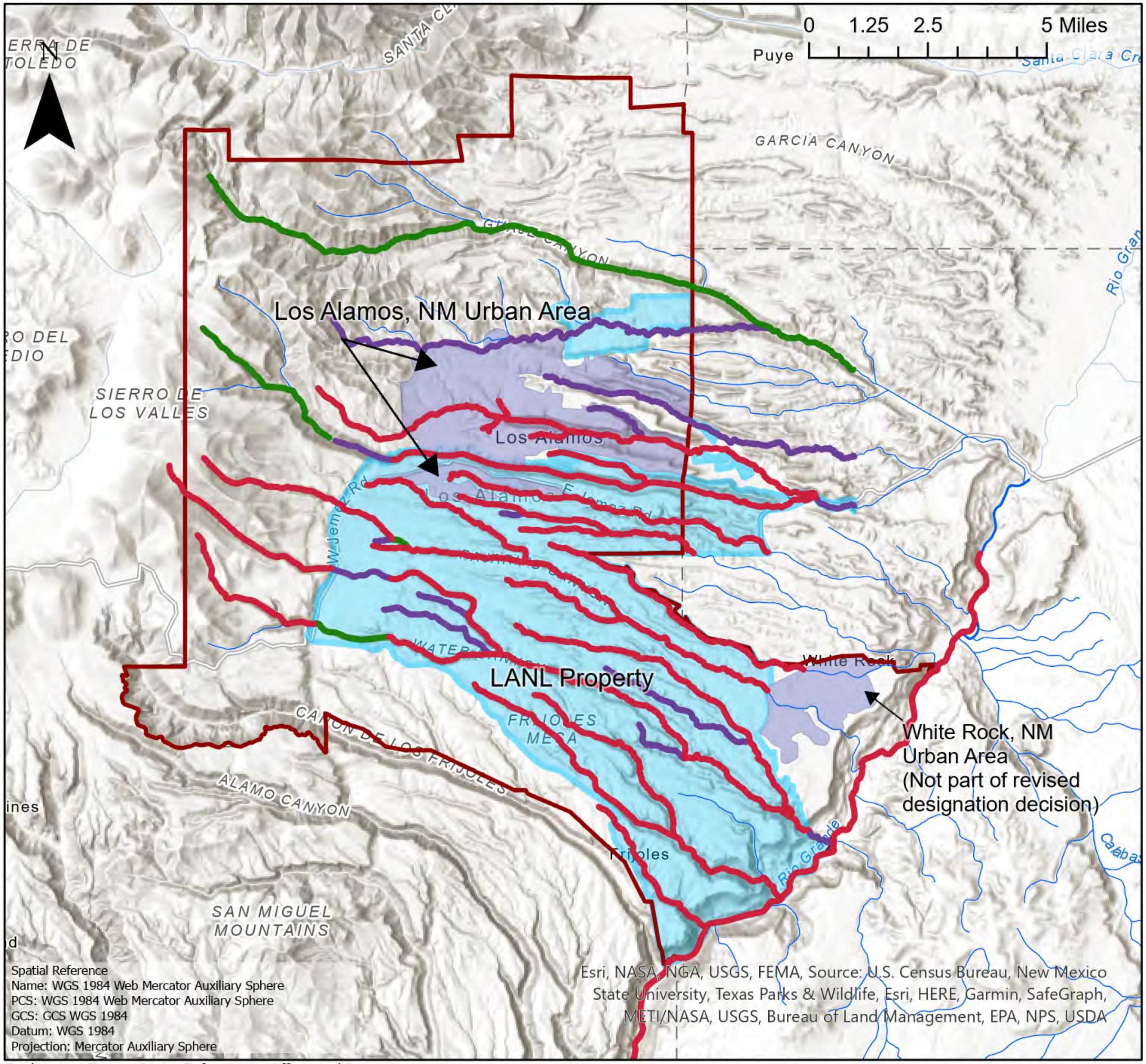
- ≤100
- ≤10,000

Geopolitical boundaries

- Los Alamos County
- 2020 Urban Areas
- LANL Property Boundary

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Findings Map 2: Waters of Los Alamos County discrete conveyance findings

Map Description: This map shows canyon streams and features within and/or draining Los Alamos County found to be discrete conveyances , i.e., point sources, that carry these pollutants to the Rio Grande with their current ATTAINS ratings.

Legend

Point source waters with ATTAINS Assessment Ratings

- Unassessed
- Good
- Polluted

Surface water flowlines (NHD Plus V. 2.1)

QA_MA

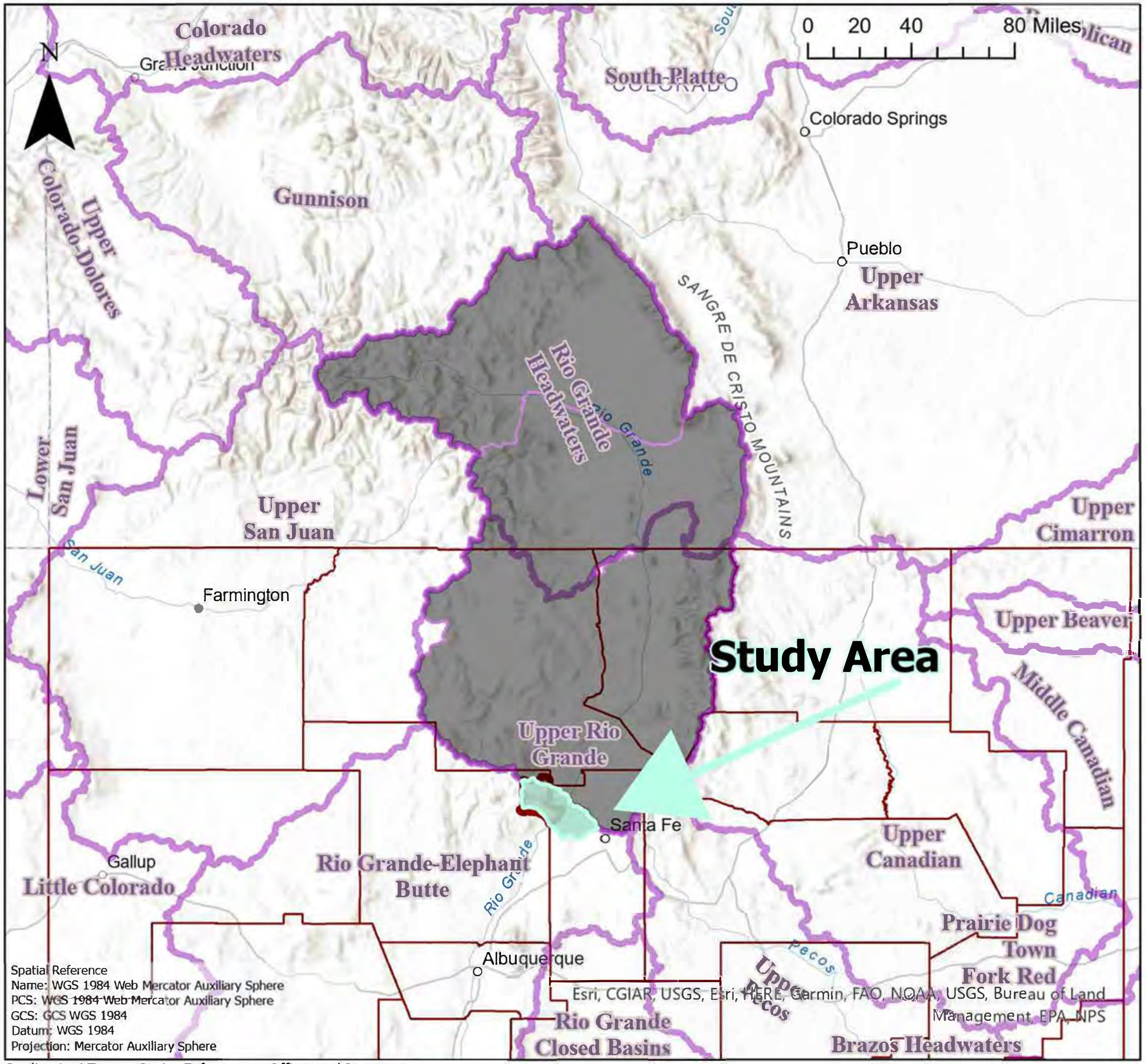
- ≤100
- ≤10,000

Geopolitical boundaries

- Los Alamos County
- 2020 Urban Areas
- LANL Property Boundary

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Area Map 1: HUC 6 Watersheds

Map Description: Watersheds associated with Study Area catchment include Rio Grande Headwaters, Upper Rio Grande, and Rio Grande-Elephant Butte.

Legend

Rio Grande study reach catchment

HUC 6 Watersheds draining to Rio Grande at Los Alamos, Sondoval, Santa Fe County Lines

National Hydrography Dataset Plus Version 2.1

6-digit HU (Basin)

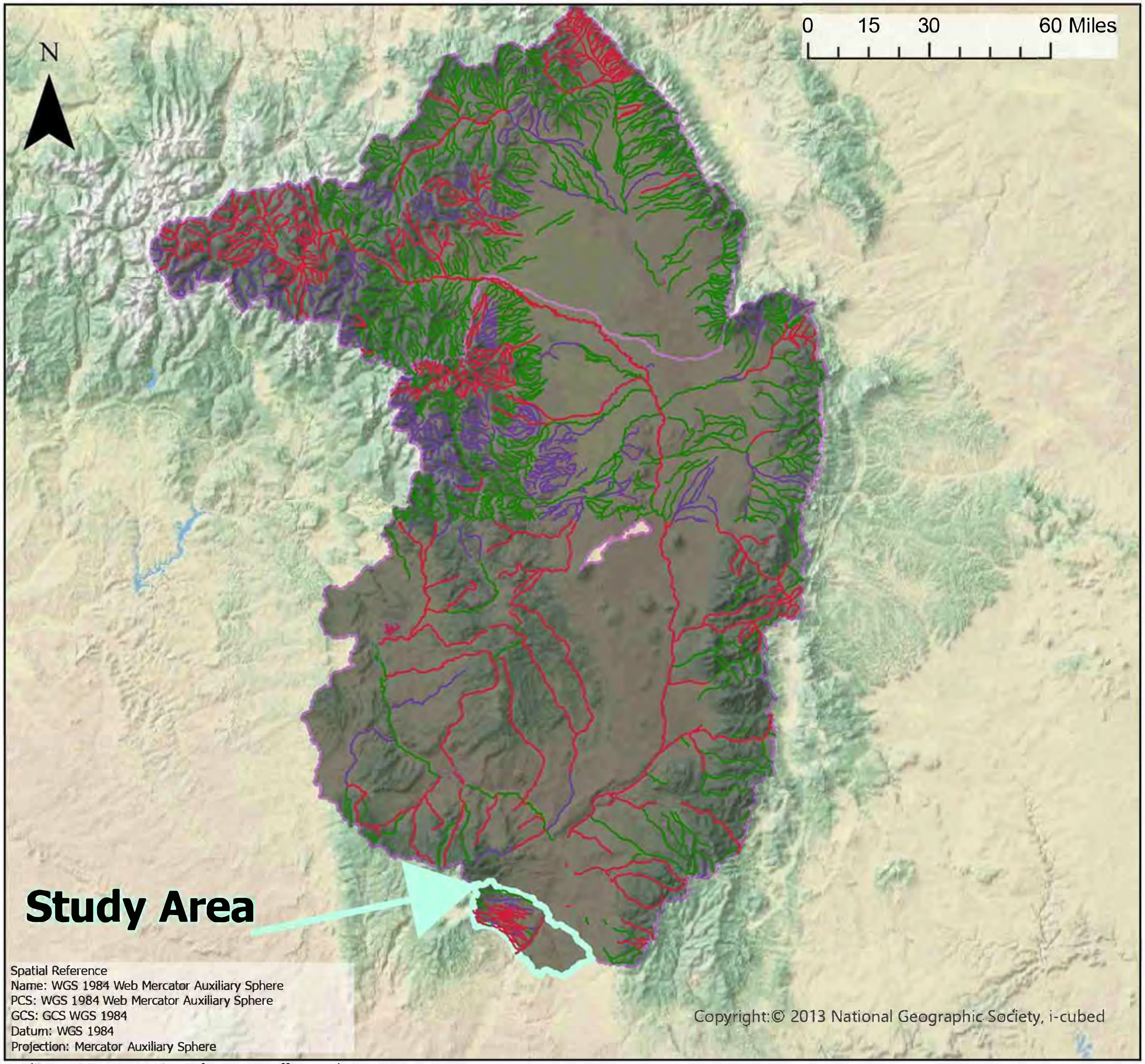
Geopolitical boundaries

Los Alamos County

New Mexico Counties

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Area Map 2: Upstream Water Quality

Map Description: US EPA Attains Water Quality ratings upstream of Rio Grande Study Reach.

Legend

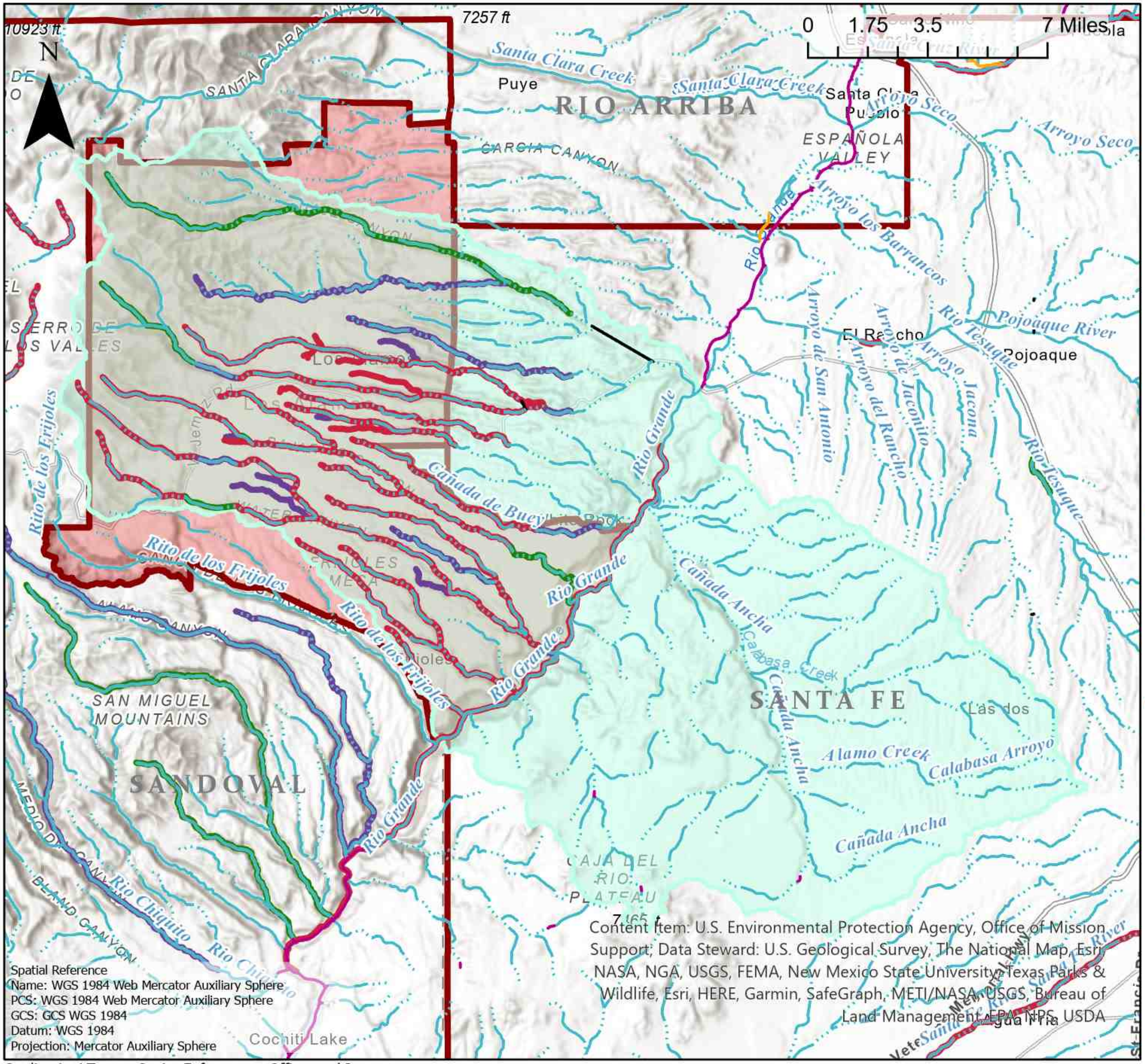
ATTAINS Assessment Ratings (2022)

- Unassessed
- Good
- Polluted
- Unassessed
- Good
- Polluted

Watersheds

- Rio Grande study reach catchment
- HUC 6 Watersheds draining to Rio Grande at Los Alamos, Sondoval, Santa Fe County Lines

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Area Map 3: Rio Grande catchment associated with analysis

Map Description: Catchment area of the Rio Grande reach that receives flows from the canyons draining Los Alamos County.

Legend

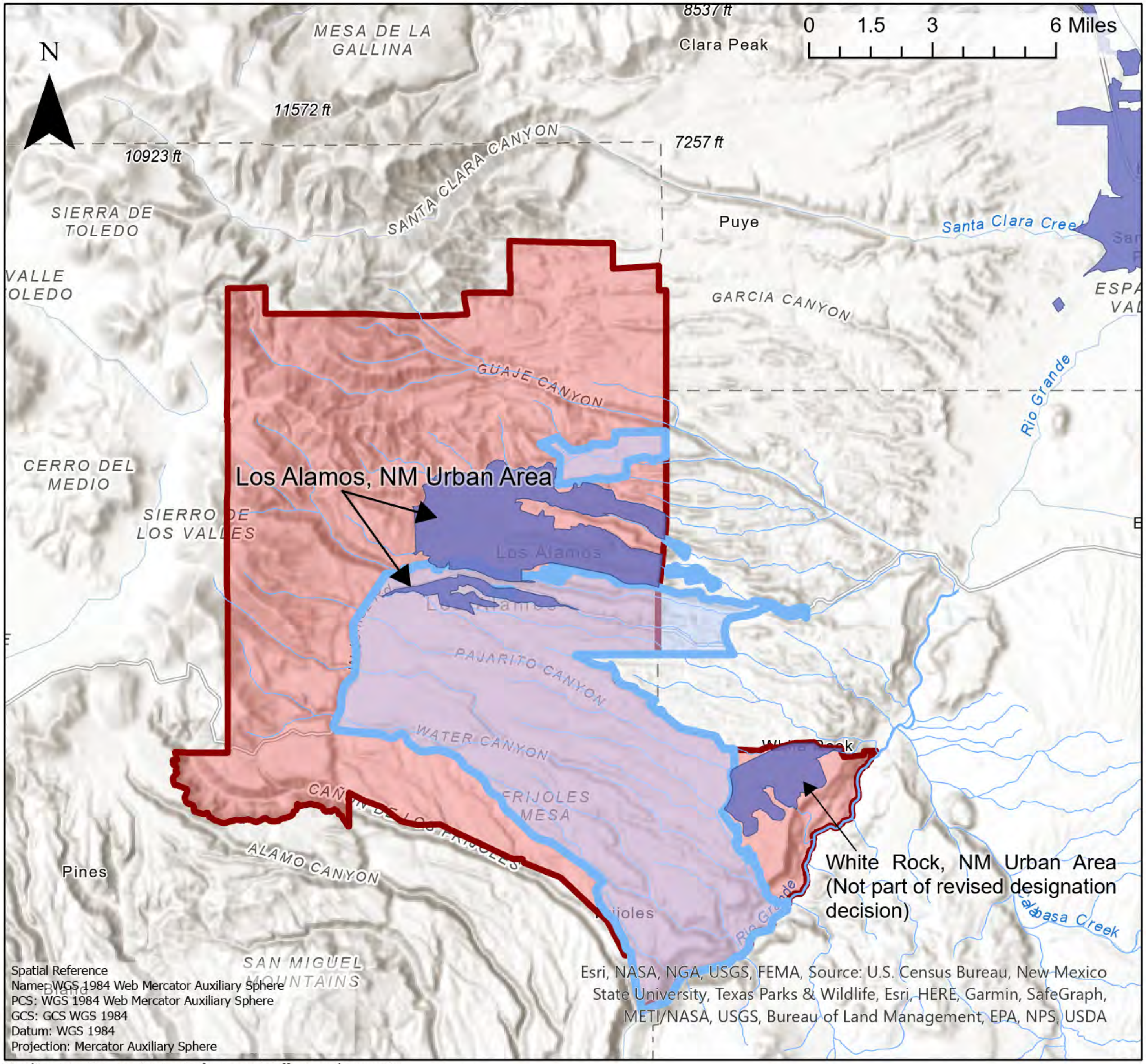
WATERS NHD (USGS 2022)
- Perennial
- Intermittent
- Artificial Path
- Canal Ditch
- Coastline
- Pipeline
- Connector

ATTAINS Assessment Rating
- Unassessed
- Good
- Polluted

Watersheds
- Rio Grande study reach catchment

Geopolitical boundaries
- Los Alamos County
- New Mexico Counties

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Site Map 1: Los Alamos MS4 Revised Designation jurisdiction study areas

Map Description: This map shows the watersheds of the canyons draining the residual designation consideration areas for the Los Alamos, NM Urban Area and the Los Alamos National Laboratories property area.

Legend

Census 2020

- 2020 Urban Areas
- LANL Property

NHD Plus V. 2.1

Flowlines

QA_MA

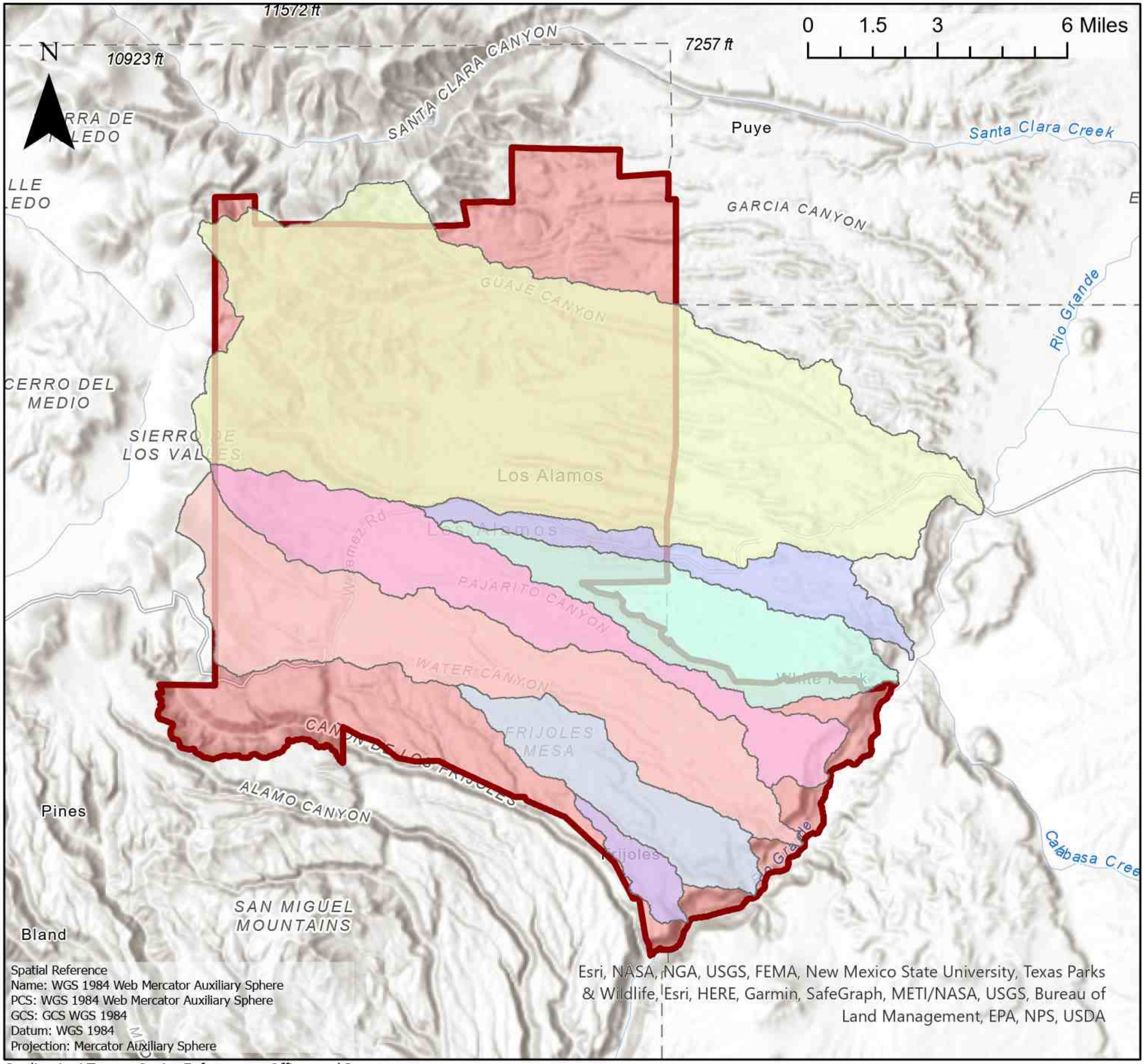
- ≤100
- ≤10,000

Geopolitical boundaries

- Los Alamos County

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Site Map 2: Canyons draining Los Alamos County

Map Description: Watersheds of the canyons draining Los Alamos County within the study area.

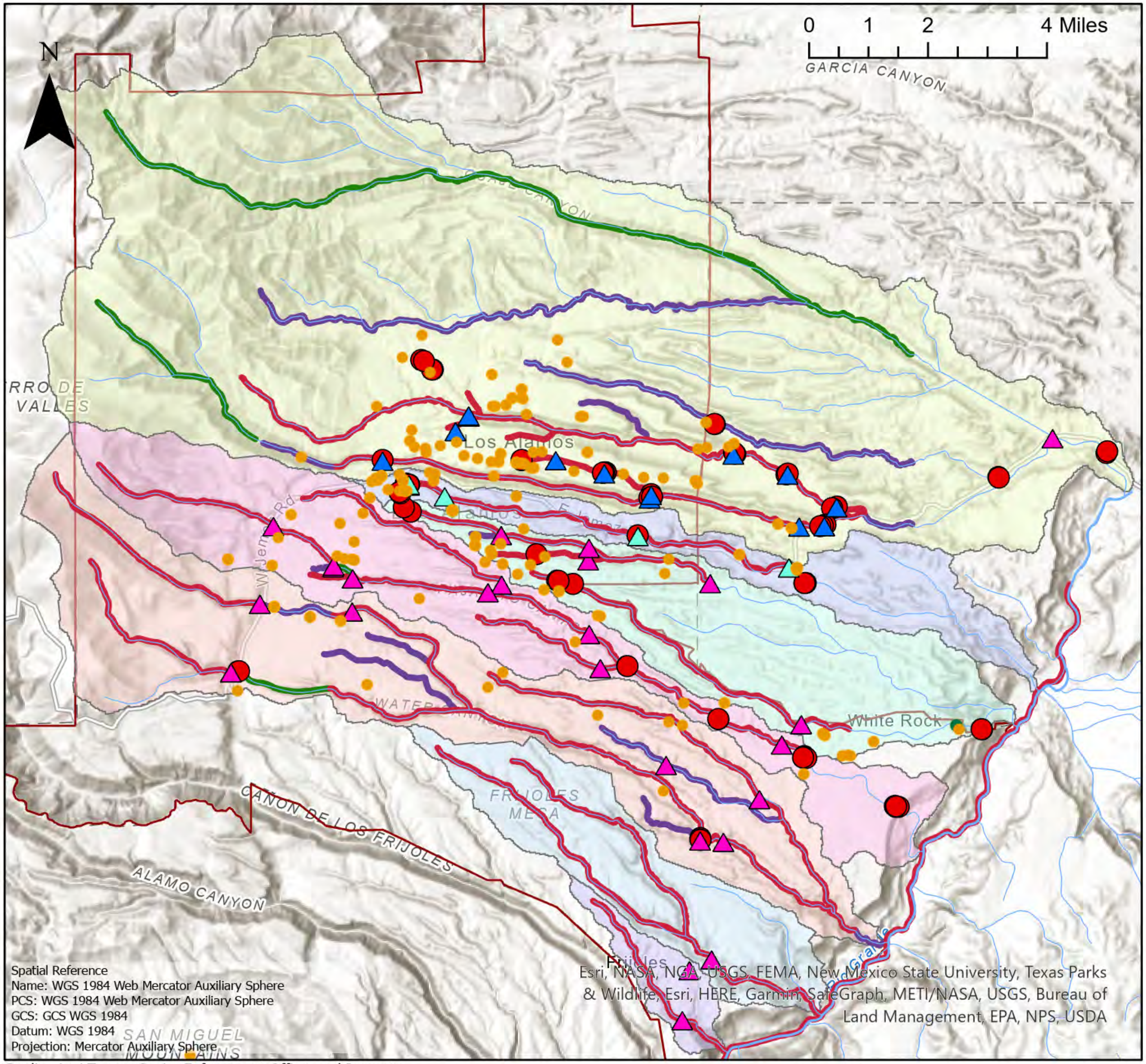
Legend

Los Alamos County canyons

- Los Alamos and Pueblo Canyons
- Sandia Canyon
- Mortendad Canyon
- Pajarito Canyon
- Water Canyon
- Ancho Canyon
- Chaquehei Canyon
- Los Alamos County

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Site Map 3: Summary of data Waters of Los Alamos County WOTUS evaluation

Map Description: This map illustrates some of the types and distribution of some of the data EPA considered when evaluating the canyon streams in Los Alamos Count

Legend

CWA Facilities
- NON-POTW
- POTW

Streamflow gages
- Sandia
- Los Alamos
- LANL

9/22 Site Visit
- Locations

NHD Plus V. 2.1 Flowlines

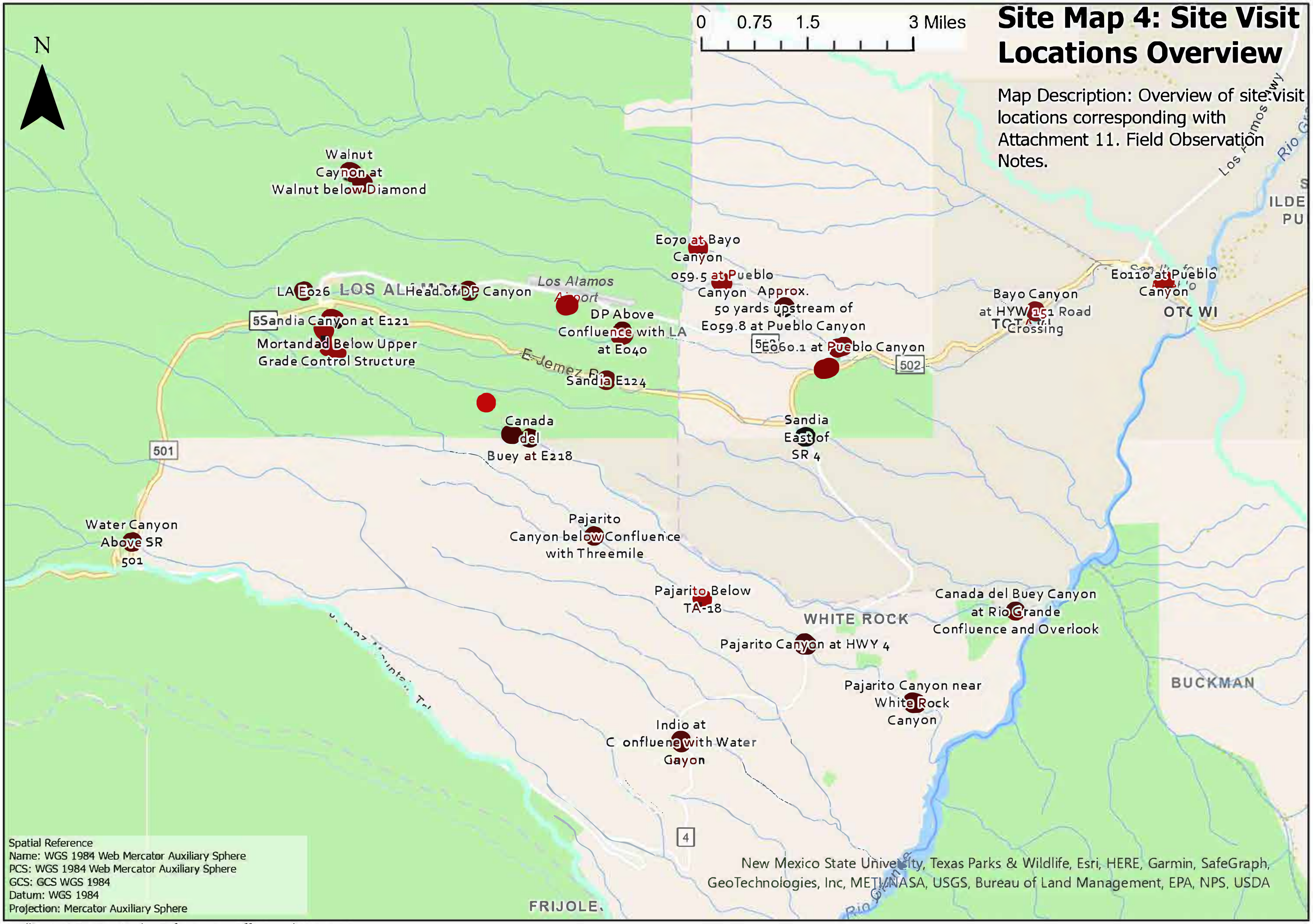
QA_MA
- ≤100
- ≤10,000

ATTAINS Assessments
- Unassessed
- Good
- Polluted

Los Alamos County canyons
- Los Alamos and Pueblo Canyons
- Sandia Canyon
- Mortendad Canyon
- Pajarito Canyon
- Water Canyon
- Ancho Canyon
- Chaquehei Canyon

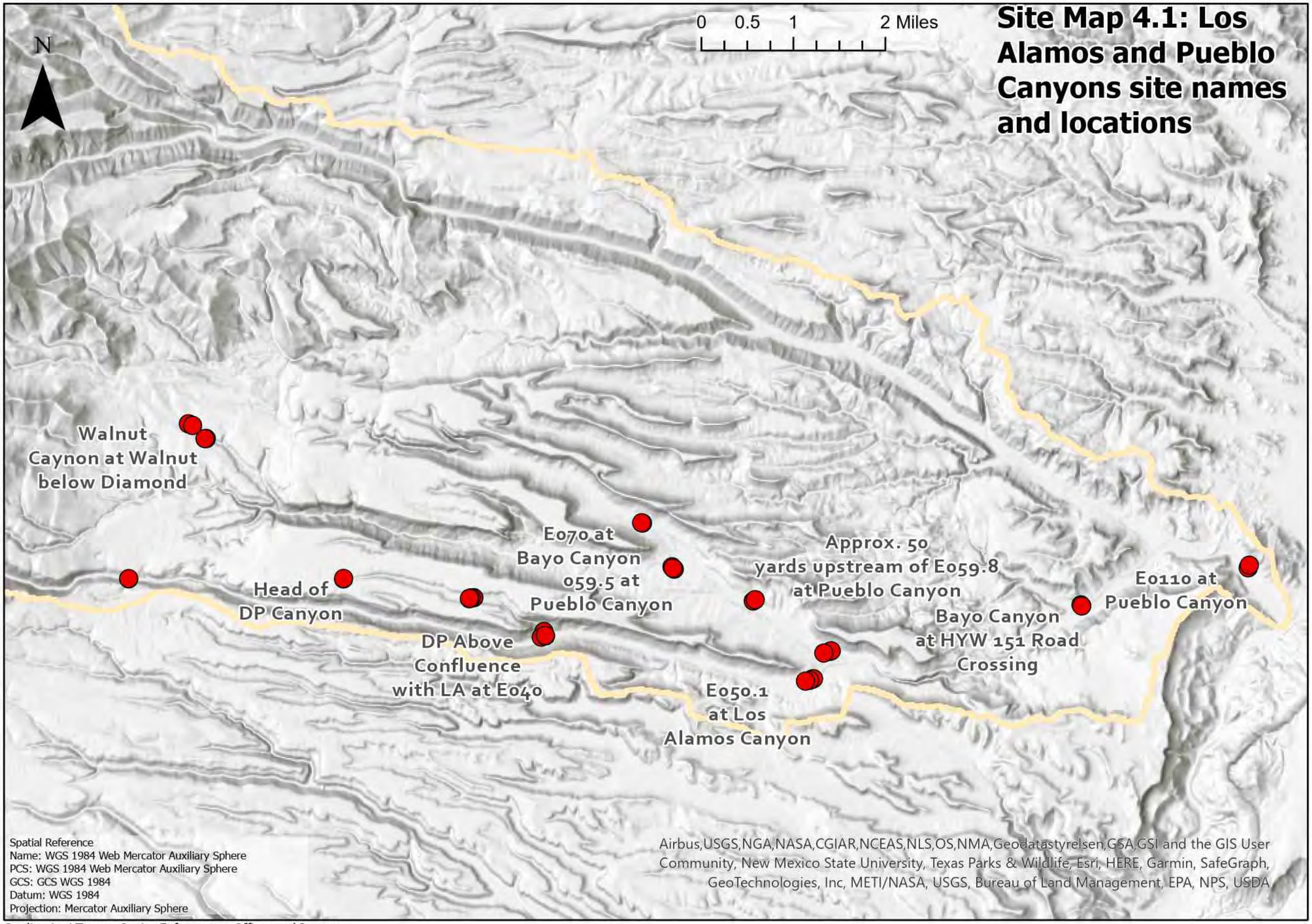
Geopolitical boundaries
- Los Alamos County

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Waters of the United States Jurisdictional Analysis Report: Waters of Los Alamos County



Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

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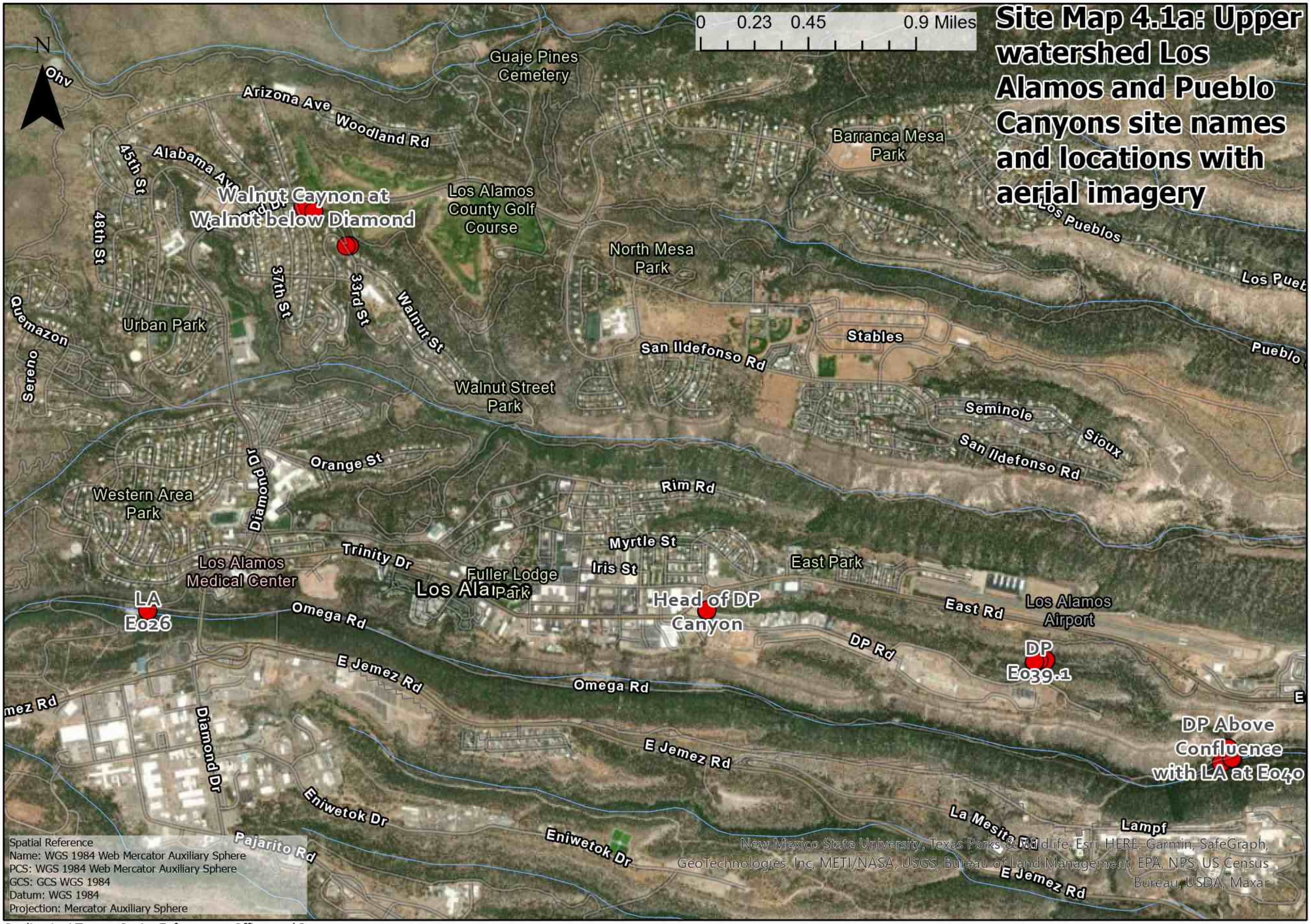

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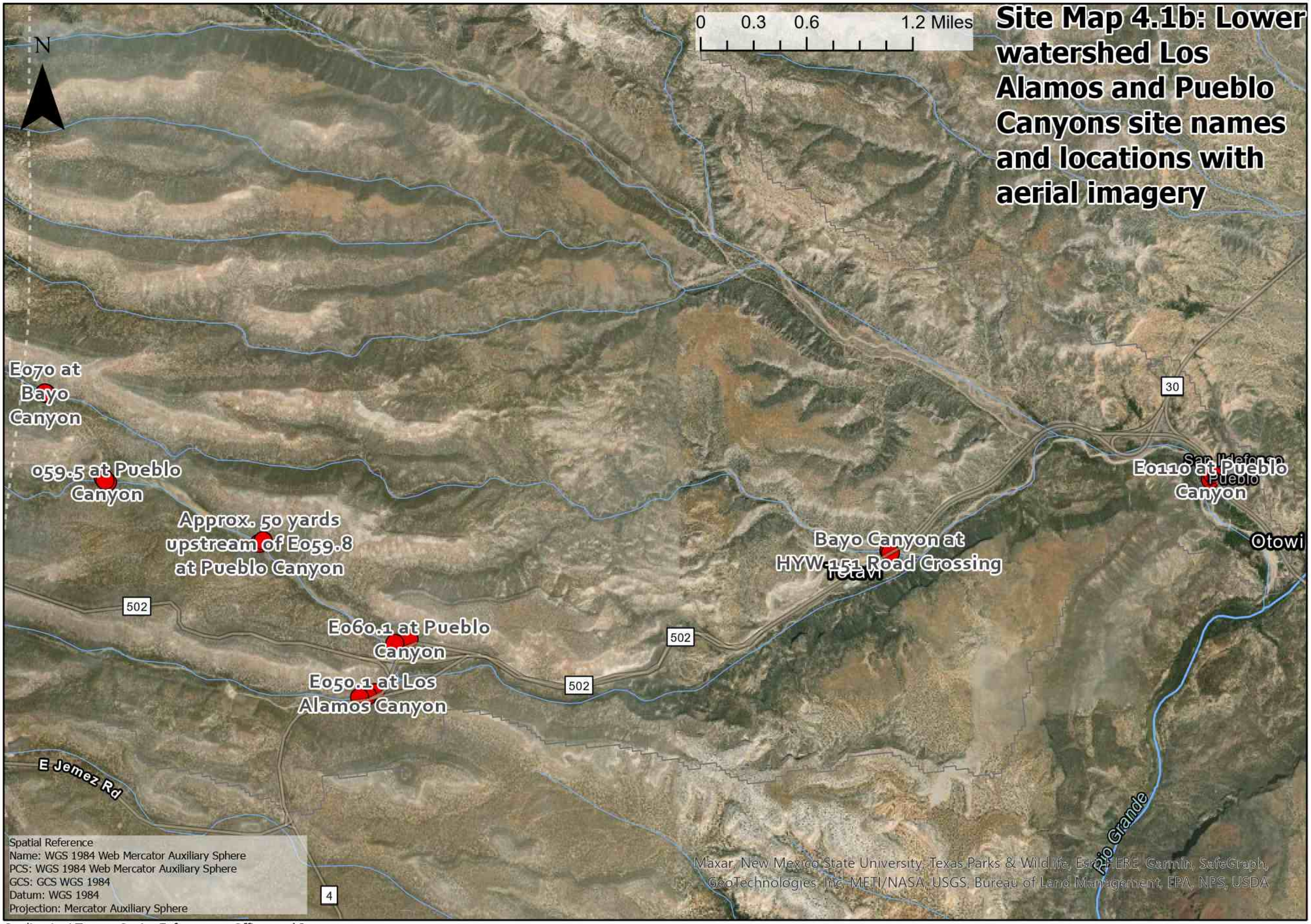

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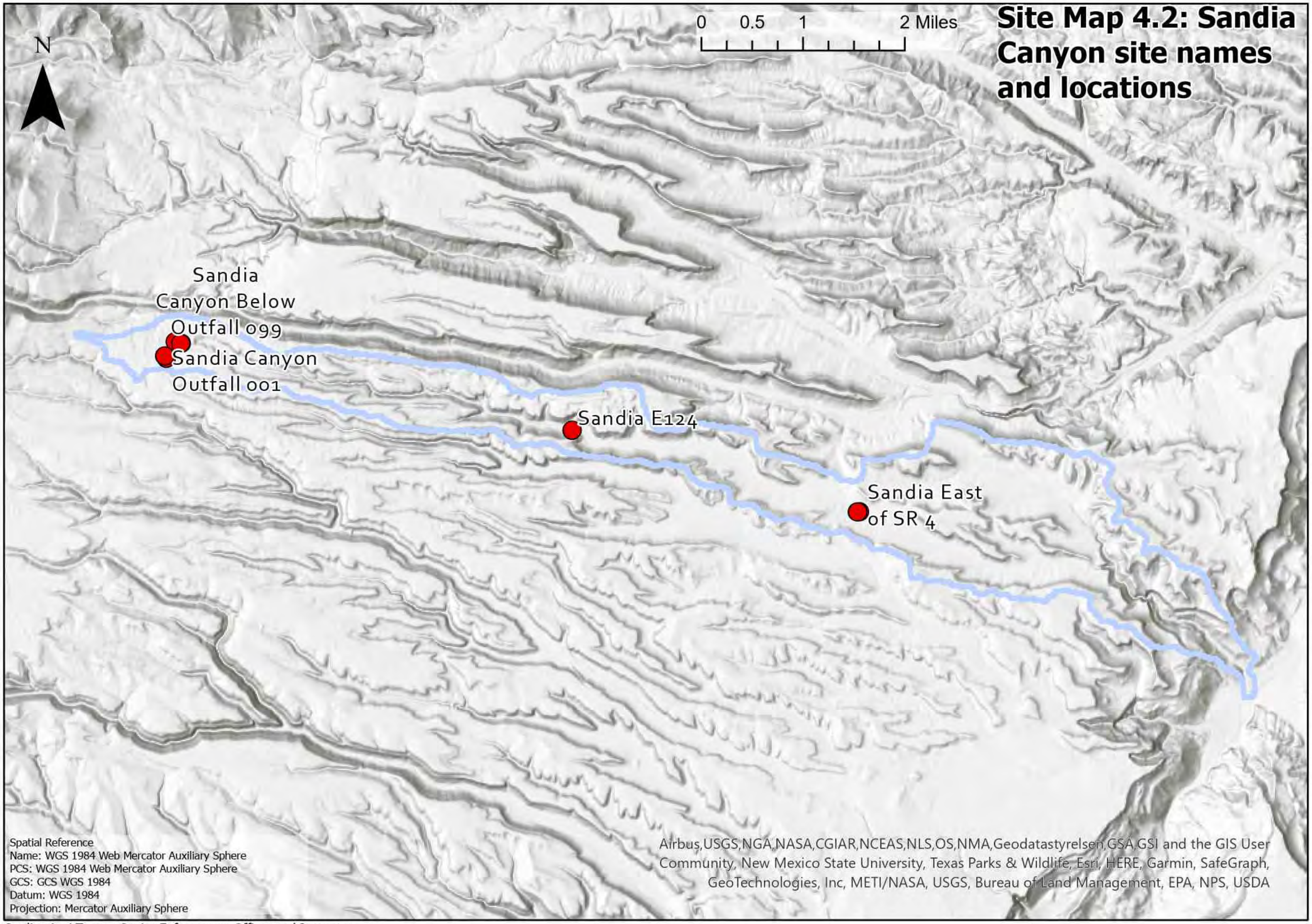

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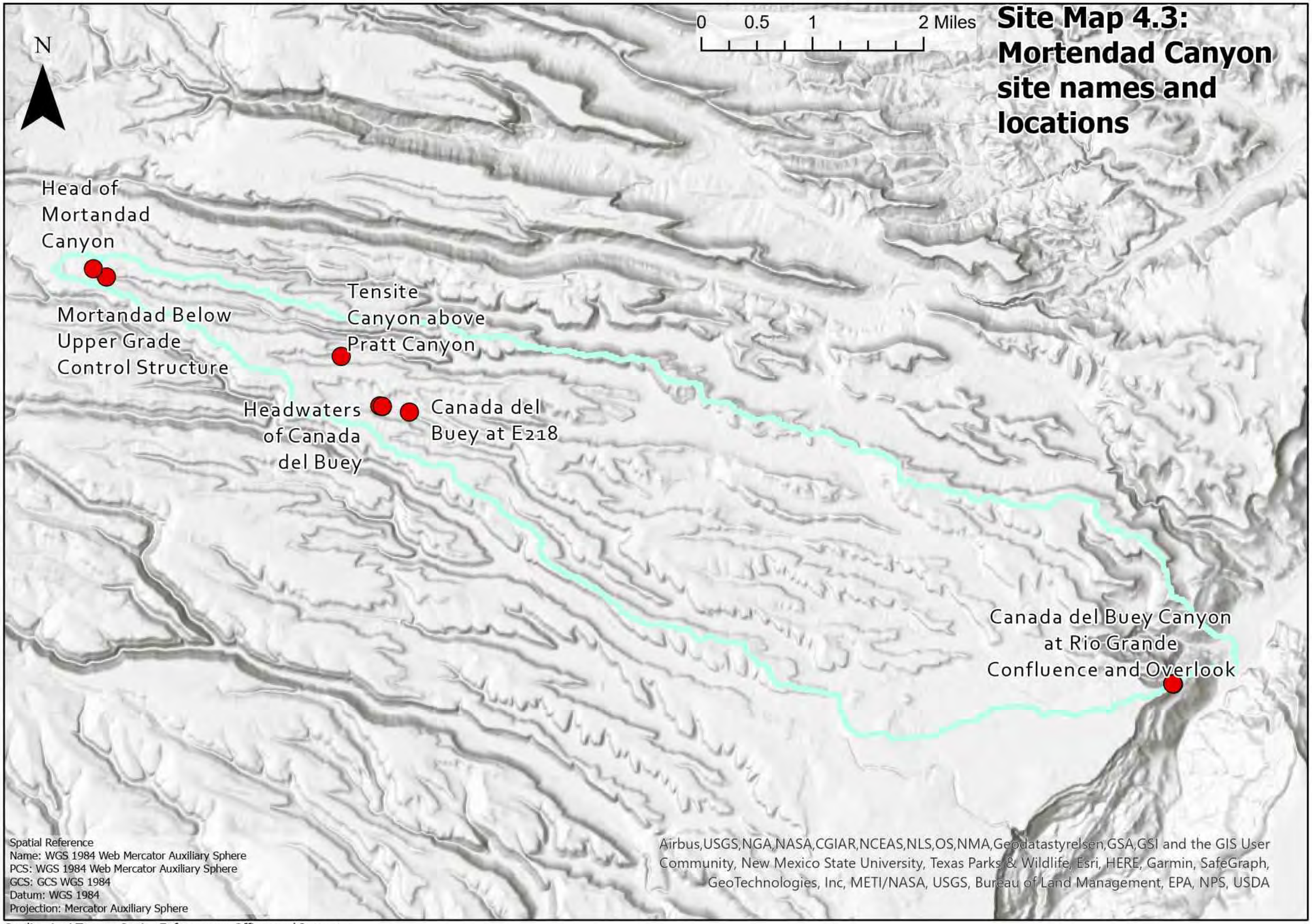

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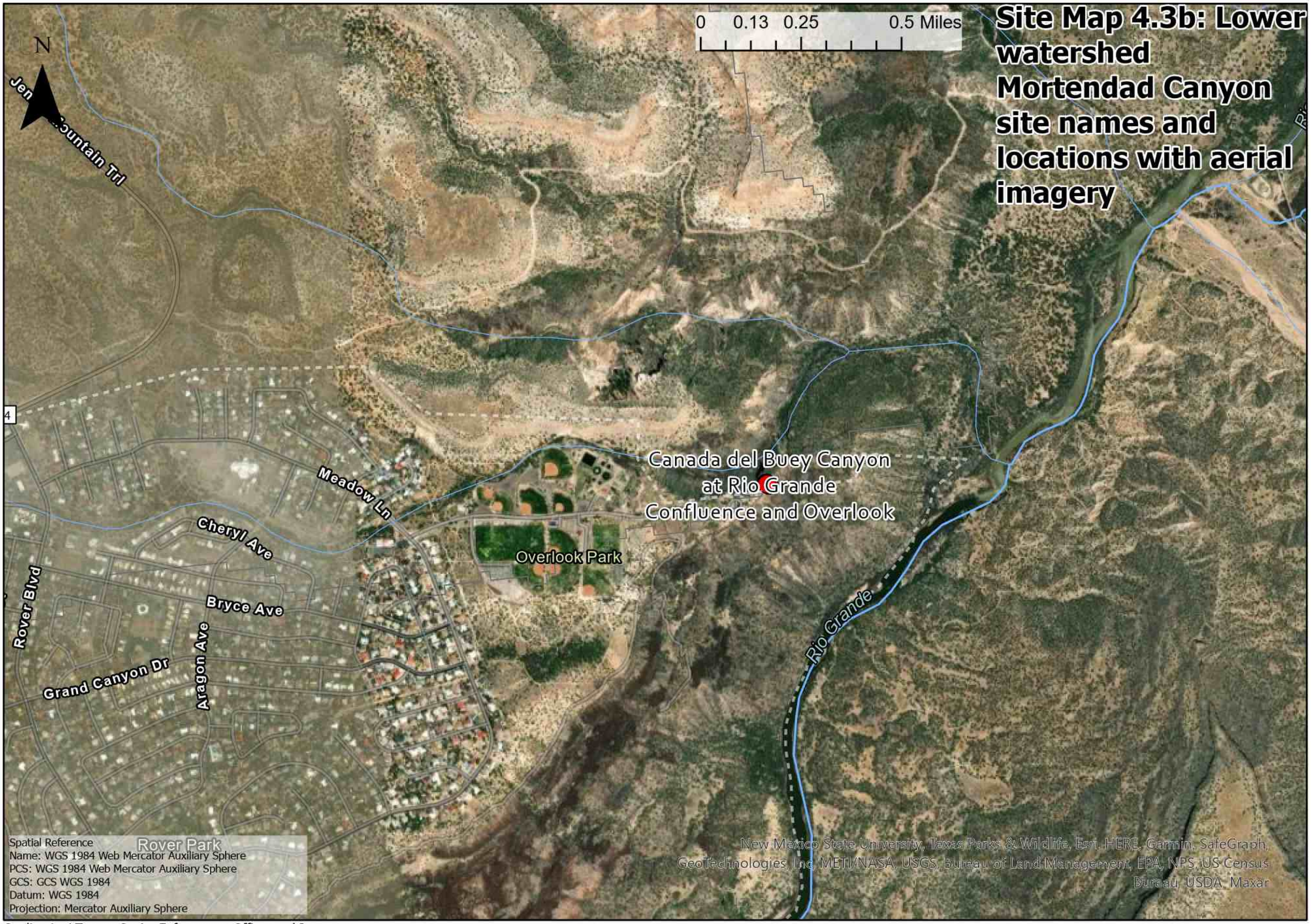

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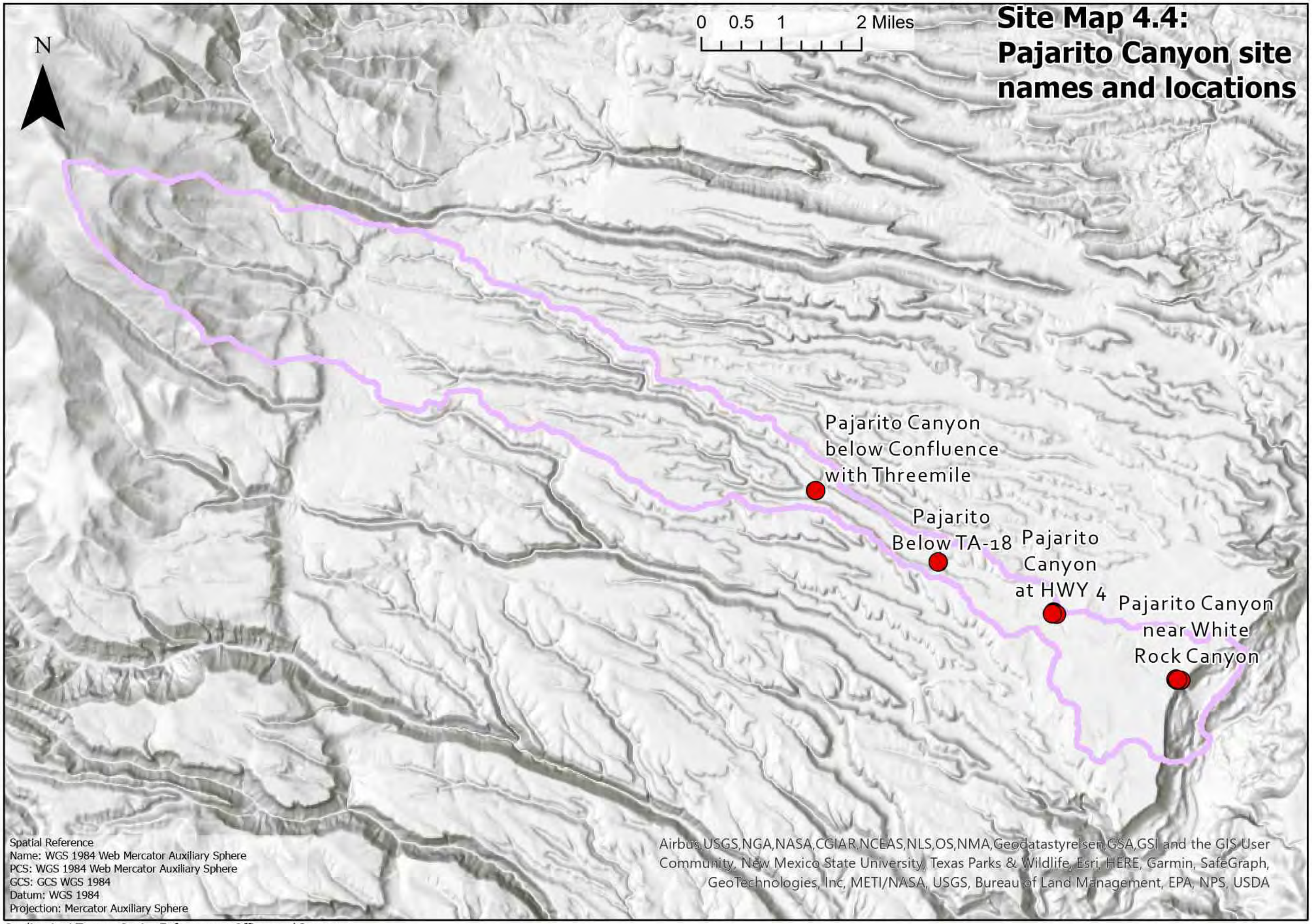

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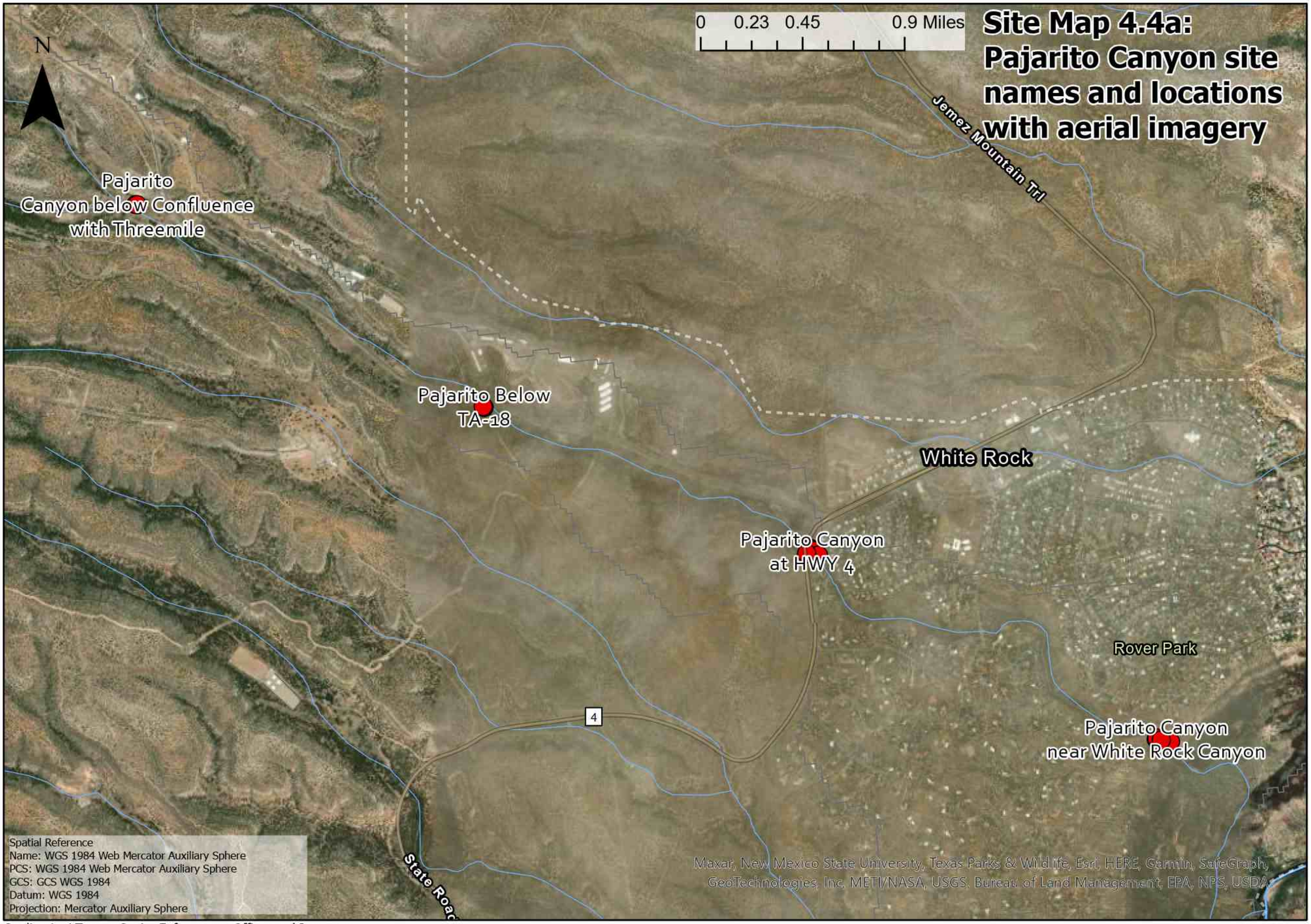

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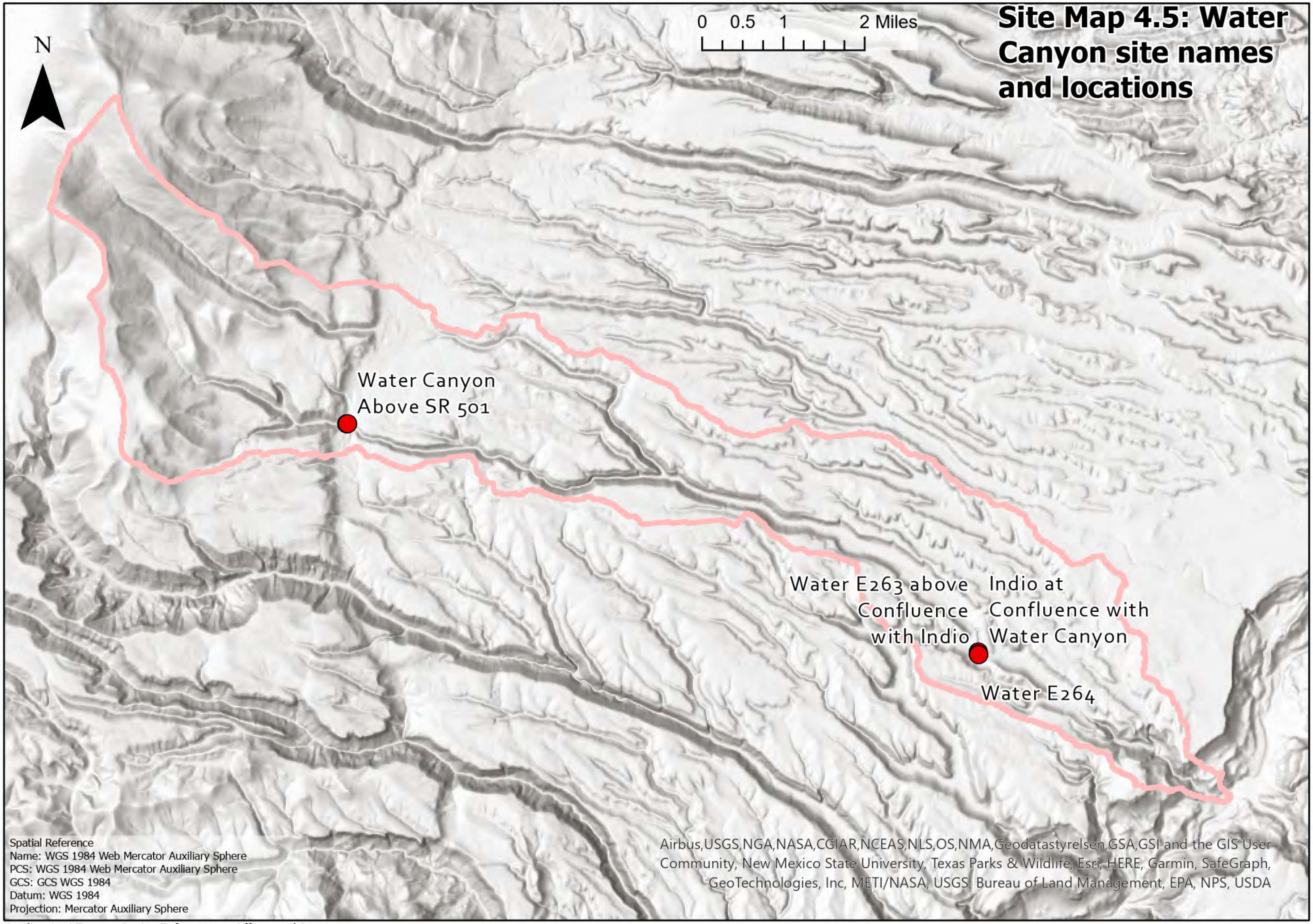

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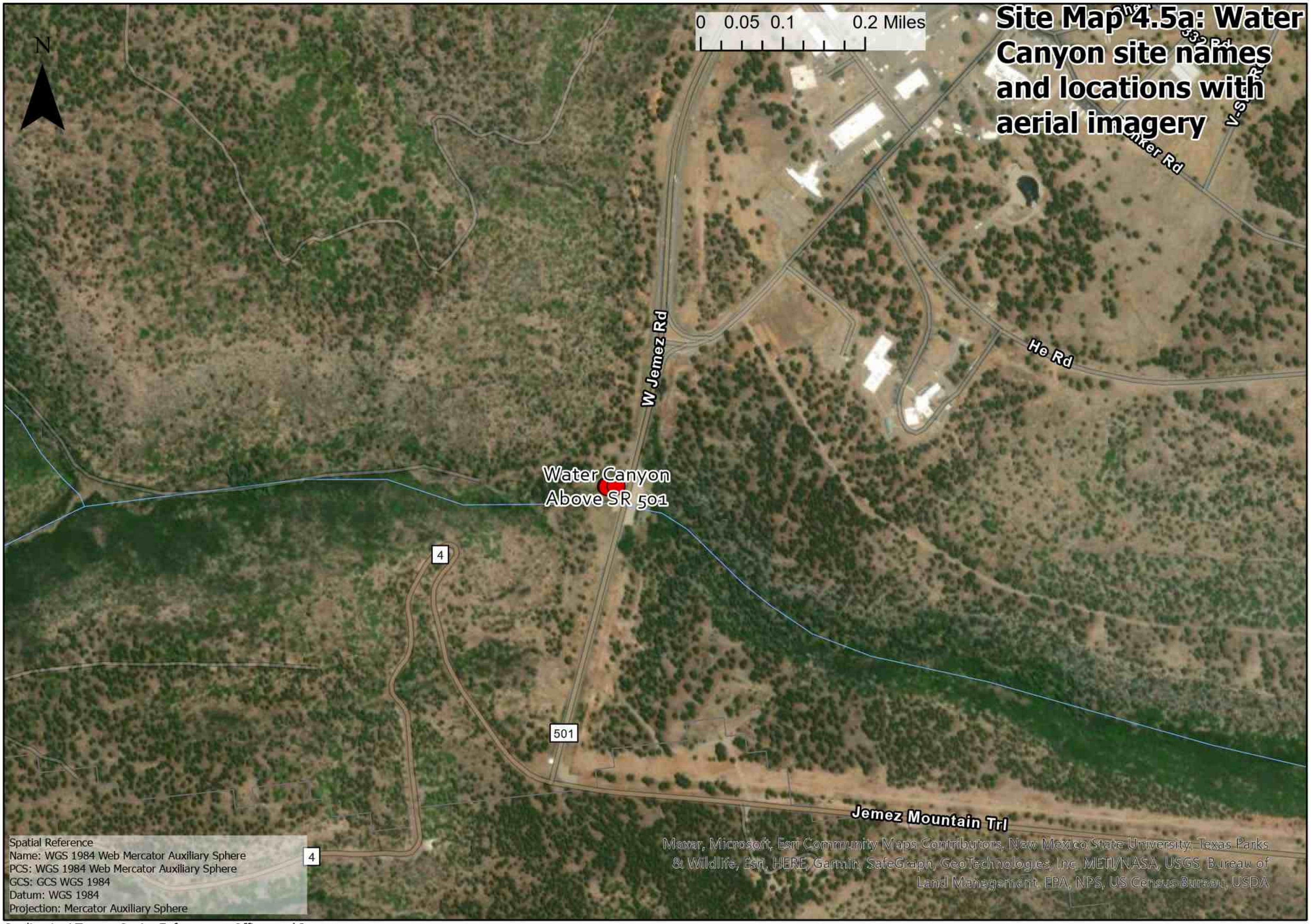

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Attachment 2. EPA Memorandum of Analysis of Rio Grande near Los Alamos, New Mexico as a Traditional Navigable Water

Summary of Findings

For purposes of Clean Water Act implementation, EPA has undertaken an analysis to determine whether the Rio Grande near Los Alamos, New Mexico is "navigable-in-fact" consistent with the Clean Water Act, the agencies' regulations, relevant case law, and existing guidance, including "Waters that Qualify as 'Traditional Navigable Waters' Under Section (a)(1) of the Agencies' Regulations." EPA has conducted a case-specific analysis to demonstrate that the Rio Grande from the Otowi Bridge to Cochiti Lake is navigable-in-fact and therefore a traditional navigable water. EPA has determined that this segment of the Rio Grande is a traditional navigable water because a number of factors demonstrate that this segment of the river is susceptible to being used for water-based interstate commerce by interstate or foreign travelers.

Standard for Evaluating Status as a Traditional Navigable Water

EPA and U.S. Army Corps of Engineers (Corps) ("the agencies") have provided guidance titled "Waters that Qualify as 'Traditional Navigable Waters' Under Section (a)(1) of the Agencies' Regulations," for determining whether a water is jurisdictional under paragraph (a)(1) of the agencies' regulations defining "waters of the United States" as a "traditional navigable water" for purposes of the Clean Water Act (CWA) and the agencies' implementing regulations. 33 C.F.R. § 328.3(a)(1); 40 C.F.R. § 120.2(a)(1). (Posted December 30, 2022). This guidance was originally referred to as "Appendix D" when it was attached to the May 30, 2007, U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook and has commonly been referred to as such. The text of the "traditional navigable waters" provision in paragraph (a)(1) has not changed through the various rulemakings defining "waters of the United States," and the agencies have continued to use the guidance for determining whether a water is a "traditional navigable water." See "Clean Water Rule: Definition of 'Waters of the United States,'" 80 FR 37054, 37074 (June 29, 2015); Navigable Waters Protection Rule: Definition of "Waters of the United States." 85 FR 22250, 22281 (April 21, 2020). There have been no substantive changes to the guidance since it was issued on May 30, 2007.

The (a)(1) "traditional navigable waters" include, but are not limited to, the "navigable waters of the United States." When determining whether a water body qualifies as a "traditional navigable water" (*i.e*., an (a)(1)(i) water), relevant considerations include whether a Corps District has determined that the water body is a navigable water of the United States pursuant to 33 C.F.R § 329.14, or the water body qualifies as a navigable water of the United States under any of the tests set forth in 33 C.F.R. § 329, or a federal court has determined that the water body is navigable-in-fact under federal law for any purpose, or the water body is "navigable-in-fact" under the standards that have been used by the federal courts. The 9th Circuit has also implemented the Supreme Court's holding that a water need only be susceptible to being used for waterborne commerce to be navigable-in-fact. *Alaska v. Ahtna*, Inc., 891 F.2d 1404 (9th Cir. 1989). In *Ahtna*, the 9th Circuit held that current use of an Alaskan river for commercial recreational boating is sufficient evidence of the water's capacity to carry waterborne commerce at the time that Alaska became a state. *Id*. at 1405. It was found to be irrelevant whether or not the river was actually being navigated or being used for commerce at the time, because current navigation showed that the river always had the capacity to support such navigation. *Id*. at 1404. In *FPL Energy Marine Hydro*, a case involving the Federal Power Act, the D.C. Circuit reiterated the fact that "actual use is not necessary for a navigability determination" and repeated earlier Supreme Court holdings that navigability and capacity of a water to carry commerce could be shown through "physical characteristics and experimentation." *FPL Energy Marine Hydro LLC v. FERC*, 287 F.3d 1151, 1157 (D.C. Cir. 2002). In that case, the D.C. Circuit upheld a FERC navigability determination that was based upon three experimental canoe trips taken specifically to demonstrate the river's navigability. *Id*. at 1158-59. In addition, the Supreme Court has been clear that "[e]vidence of recreational use, depending on its nature, may bear upon susceptibility of commercial use." *PPL Montana v. Montana*, 565 U.S. 576, 600-01 (2012) (in the context of navigability at the time of statehood); *id*. at 601 ("[P]ersonal or private use by boats demonstrates the availability of the stream for the simpler types of commercial navigation." (quoting *United States v. Appalachian Elec. Power Co*., 311 U.S. 377, 416 (1940))); *id*. (noting that the "fact that actual use has 'been more of a private nature than of a public, commercial sort . . . cannot be regarded as controlling'" (quoting *United States v. Utah*, 283 U.S. 64, 82 (1931))). Thus, commercial waterborne recreation (for example, boat rentals, guided fishing trips, or water ski tournaments) can be considered when determining if a water is a traditional navigable water.

Case-specific Analysis

On August 2, 2017, the Albuquerque District of the U.S. Army Corps of Engineers published an update of their list of Navigable Waters of the United States for the purposes of Section 10 of the Rivers and Harbors Act of 1989 which included the Rio Grande from the Albuquerque District Boundary in Val Verde County near the City of Del Rio upstream to the point of intersection of the Texas-New Mexico state line and Mexico. For purposes of implementing the Section 10 program, the upstream boundary of the navigable portion of the Rio Grande is at the American Dam. Please see Report Attachment Section 2 Navigable-In-Fact Exhibits for a copy of this 2017 list. Because the Albuquerque Corps District has not made an determination regarding whether upstream portions of the Rio Grande are "navigable waters of the United States," EPA has undertaken an analysis to determine whether the Rio Grande near Los Alamos, New Mexico is "navigable-in-fact" for Clean Water Act purposes, consistent with Clean Water Act, the agencies' regulations, relevant case law, and existing guidance, including "Waters that Qualify as 'Traditional Navigable Waters' Under Section (a)(1) of the Agencies' Regulations."

The Upper Rio Grande watershed, Hydrologic Unit Code (HUC 13020101), contains the Rio Grande and its tributaries in the northern central area of New Mexico, down to the Cochiti Lake Dam near Santa Fe. The US Geological Survey (USGS) operates a streamflow gage (USGS 08313000) the Rio Grande at Otowi Bridge approximately 900 feet upstream from the Los Alamos Canyon stream's confluence with the Rio Grande. The channel width at this gage station is approximately 140 feet wide with a mean annual flow rate of 870 cubic feet per second (CFS) in 2022. EPA has reviewed historical flow records at this gage over the past twenty years and notes that the lowest mean monthly discharges occurred in October at 609 CFS, and the highest mean monthly discharges occurred in May at 2,430 CFS. Please refer to flow records and gage height records Report Attachment Section 2. Navigable-In-Fact Exhibits for additional information. From the Otowi Bridge to Cochiti Lake, the Rio Grande is primarily a single channel with a few in-stream sand and gravel bars with an additional narrower, short side channels that appear to be abandoned meanders of the river within the Rio Grande canyon. The river channel maintains similar width and geomorphological characteristics throughout the reach where the streams of the Los Alamos County canyons contribute flows. The channel begins to widen and exhibit characteristics typical of the effects from the Cochiti Dam and Cochiti Lake reservoir approximately 10 miles downstream of the Ancho Canyon stream confluence. The Cochiti Dam is the first and only flow obstruction in this portion of the river.

The stretch of Rio Grande that receives flow from tributaries on the Los Alamos Plateau is susceptible to being used for waterborne interstate commerce by interstate and foreign travelers because of its current use for commercial recreational boating which specifically demonstrates the river's navigability. There are multiple boat launches along this segment of the river as well which is demonstrated by Bandelier National Monument's White Rock Canyon Trail and Launch Access Map (April 2013), which make this segment of the Rio Grande accessible to the public.[14] There is documented use of the river for navigation. This includes commercial recreational businesses in the area that utilize this segment of the

[14] https://www.nps.gov/band/planyourvisit/upload/Access-Points-To-Rio.pdf

Rio Grande when providing services such as rafting and boating outfitters and guided fishing for brown trout. The New Mexico Tourism Department highlights the Rio Grande in the area for anglers who are interested in catching native brown trout, German brown trout, rainbow trout, and northern pike. For the purposes of rafting and canoeing, the New Mexico Tourism Department describes the flow of the Rio Grande in this area from the Otowi Bridge down the 24-mile stretch to Cochiti Lake, where it backs up behind Cochiti Dam ("This whitewater stretch takes boaters through beautiful White Rock Canyon and its many side hikes, waterfalls and Indian ruins. A trail leads from the river to Bandelier National Monument. Some commercial companies offer guided overnight trips.").[15] A recent news article published in the *Los Alamos Reporter* exhibited photographs and descriptions of the "flotilla" of rafts utilized to access groundwater sampling locations in the lower reaches of tributaries to the Rio Grande downstream of Los Alamos National Laboratories (February 7, 2023).[16]

The physical characteristics, including flow data, support a determination of this segment of the Rio Grande is capable of navigation. The ongoing documented commercial recreational boating in the area demonstrates the river's susceptibility to being used for water-based interstate commerce by interstate and foreign travelers. For the purposes of this jurisdictional assessment, EPA has demonstrated that the Rio Grande from the Otowi Bridge to Cochiti Lake is navigable-in-fact, resulting in its designation as a traditional navigable water for purposes of the Clean Water Act. Please see Report Attachment Section 2. Navigable-In-Fact Exhibits for the information referenced and utilized to conduct this analysis.

[15] New Mexico Department of Tourism. "The Rio Grande and Rio Chama." https://www.newmexico.org/things-to-do/outdoor-adventures/rafting-kayaking/rio-grande-rio-chama/.

[16] "N3B Los Alamos Runs Robust Groundwater Monitoring Program For DOE-EM LANL Legacy Waste Cleanup." *Los Alamos Reporter*. February 7, 2023. https://losalamosreporter.com/2023/02/07/n3b-los-alamos-runs-robust-groundwater-monitoring-program-for-doe-em-lanl-legacy-waste-cleanup/.

Navigable In Fact Exhibits

US Army Corps of Engineers®
Albuquerque District

Navigable Waters of the United States in the Albuquerque District

Reviewed August 2, 2017

For purposes of Section 10 of the Rivers and Harbors Act of 1899, navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently being used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329.4). Navigable waters include lakes and other on-channel impoundments of navigable rivers. Under Section 10, the U.S. Army Corps of Engineers (USACE) regulates any work in or affecting navigable waters of the United States. The following waters are considered to be navigable waters of the United States and thus fall within the jurisdiction of the USACE in the Albuquerque District.

Rio Grande: From the Albuquerque District Boundary in Val Verde County near the City of Del Rio upstream to the point of intersection of the Texas-New Mexico state line and Mexico. For purposes of implementing the Section 10 program, the upstream boundary of the navigable portion of the Rio Grande is at the American Dam.

Navajo Reservoir Navajo Reservoir.

US Army Corps of Engineers®
Albuquerque District

Navigable Waters of the United States in the Albuquerque District

June 17, 2009

US ARMY CORPS OF ENGINEERS REGULATORY PROGRAM

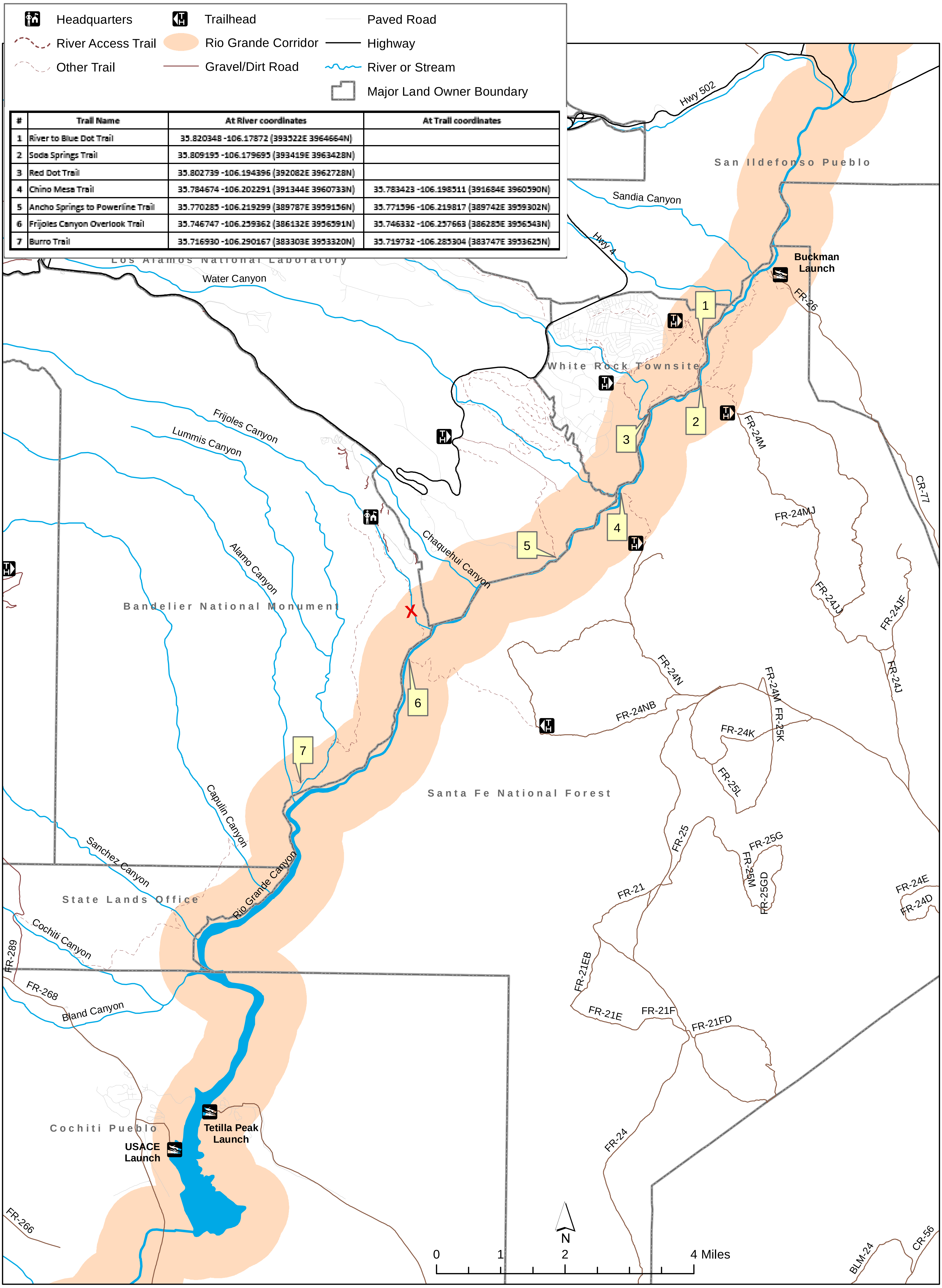
For purposes of Section 10 of the Rivers and Harbors Act of 1899, navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently being used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR 329.4). Navigable waters include lakes and other on-channel impoundments of navigable rivers. Under Section 10, the U.S. Army Corps of Engineers (USACE) regulates any work in or affecting navigable waters of the United States. The following waters are considered to be navigable waters of the United States and thus fall within the jurisdiction of the USACE in the Albuquerque District.

Rio Grande:	From the Albuquerque District Boundary in Val Verde County near the City of Del Rio upstream to the point of intersection of the Texas-New Mexico state line and Mexico.
Navajo Reservoir:	Navajo Reservoir just upstream of the dam.

Bandelier National Monument
New Mexico

National Park Service
U.S. Department of the Interior

White Rock Canyon Trail & Launch Access



#	Trail Name	At River coordinates	At Trail coordinates
1	River to Blue Dot Trail	35.820348 -106.17872 (393522E 3964664N)	
2	Soda Springs Trail	35.809195 -106.179695 (393419E 3963428N)	
3	Red Dot Trail	35.802739 -106.194396 (392082E 3962728N)	
4	Chino Mesa Trail	35.784674 -106.202291 (391344E 3960733N)	35.783423 -106.198511 (391684E 3960590N)
5	Ancho Springs to Powerline Trail	35.770285 -106.219299 (389787E 3959156N)	35.771596 -106.219817 (389742E 3959302N)
6	Frijoles Canyon Overlook Trail	35.746747 -106.259362 (386132E 3956591N)	35.746332 -106.257663 (386285E 3956543N)
7	Burro Trail	35.716930 -106.290167 (383303E 3953320N)	35.719732 -106.285304 (383747E 3953625N)

Produced by Ecology Group Office

April 2013

FILE: AccessPointsToRio.mxd

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angler guide

Rating · Hours · Sort by

Artful Angler

5.0 ★★★★★ (14) · Fishing charter

Open · Closes 8 PM · (505) 603-2119

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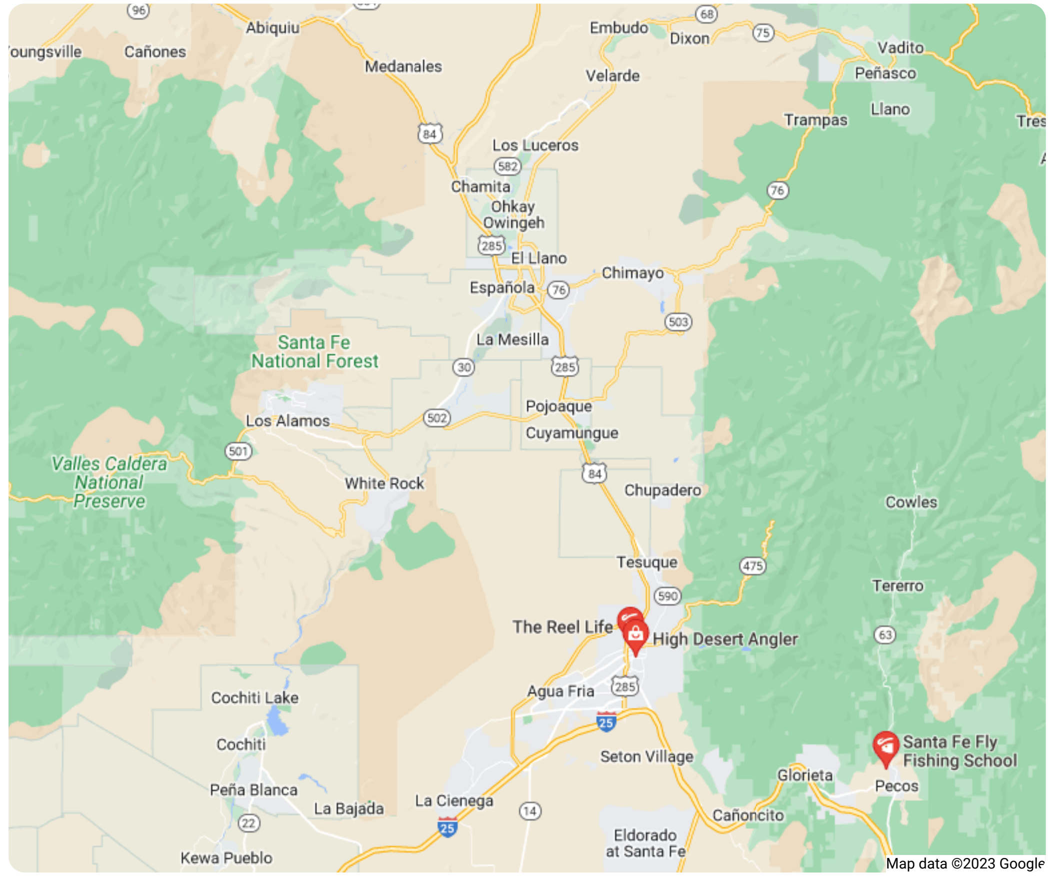

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outfitters

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New Wave Rafting

4.8 ★★★★★ (60) · Raft trip outfitter · 40+ years in business

Open · Closes 5 PM · Embudo, NM · (505) 579-0075

Onsite services not available

Website Directions Call Share

Big River Raft Trips

4.9 ★★★★★ (100) · Raft trip outfitter · 40+ years in business

Open 24 hours · Ranchos De Taos, NM · (575) 758-9711

Onsite services

Website Directions Call Share

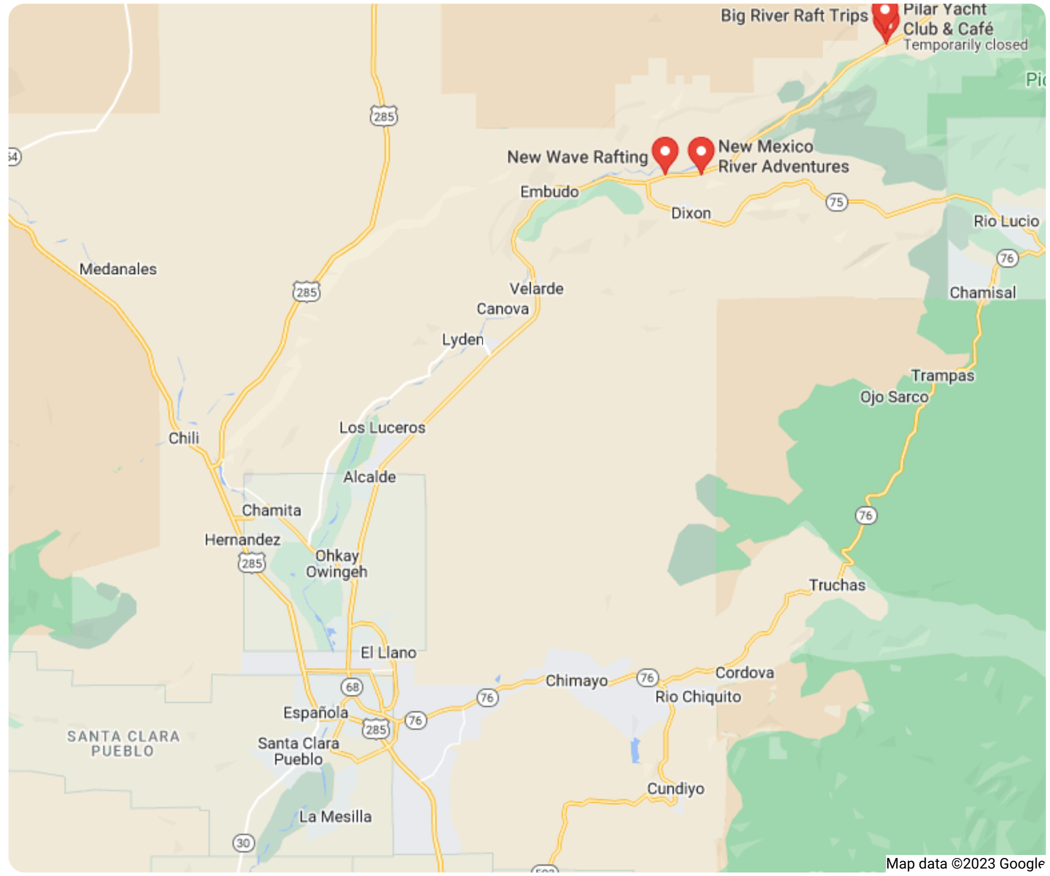
New Mexico River Adventures

4.9 ★★★★★ (1,281) · Raft trip outfitter · 3+ years in business

Open 24 hours · Embudo, NM · (800) 983-7756

"We always choose NMRA as our outfitters and they never disappoint."

Website Directions Call Share



SHARE

Fishing in New Mexico

One of the nicest things about fishing in New Mexico is the year-round season for most waters. Add the broad variety of species from panfish to trout, bass and catfish, northern pike and walleye, and you have one of the best places to fish in the nation. And don't forget about the phenomenon of winter ice fishing in the so-called desert Southwest.

Out-of-state anglers must purchase an annual fishing license, a one-day license or a five-day license. The fishing license year is April 1-March 31.

A few lakes and parts of some streams are designated "Special Trout Waters," more commonly referred to as "Quality Waters." On most of them, only artificial flies and lures with single, barbless hooks can be used. All have restrictions on bag and possession limits. Many tribal lands also offer public fishing.

Locations by Region

Northwest | North Central | Northeast | Southeast | Southwest | Central | Outfitters & Guides

NORTHWEST - Farmington - Aztec - Gallup

Navajo Nation – Whiskey Lake, north of Gallup at 8,000 feet, offers average catches of 14- to 18-inch rainbow trout and a decent opportunity for 20-24-inch and larger fish (closed Dec.-Apr.). Navajo fishing and boat permits are available at sporting goods stores in the Gallup and Farmington areas. Reliable advice on routing to Whiskey and all lakes on the Navajo Nation is strongly advised. Visit the Navajo Nation Department of Fish and Wildlife website for more information.

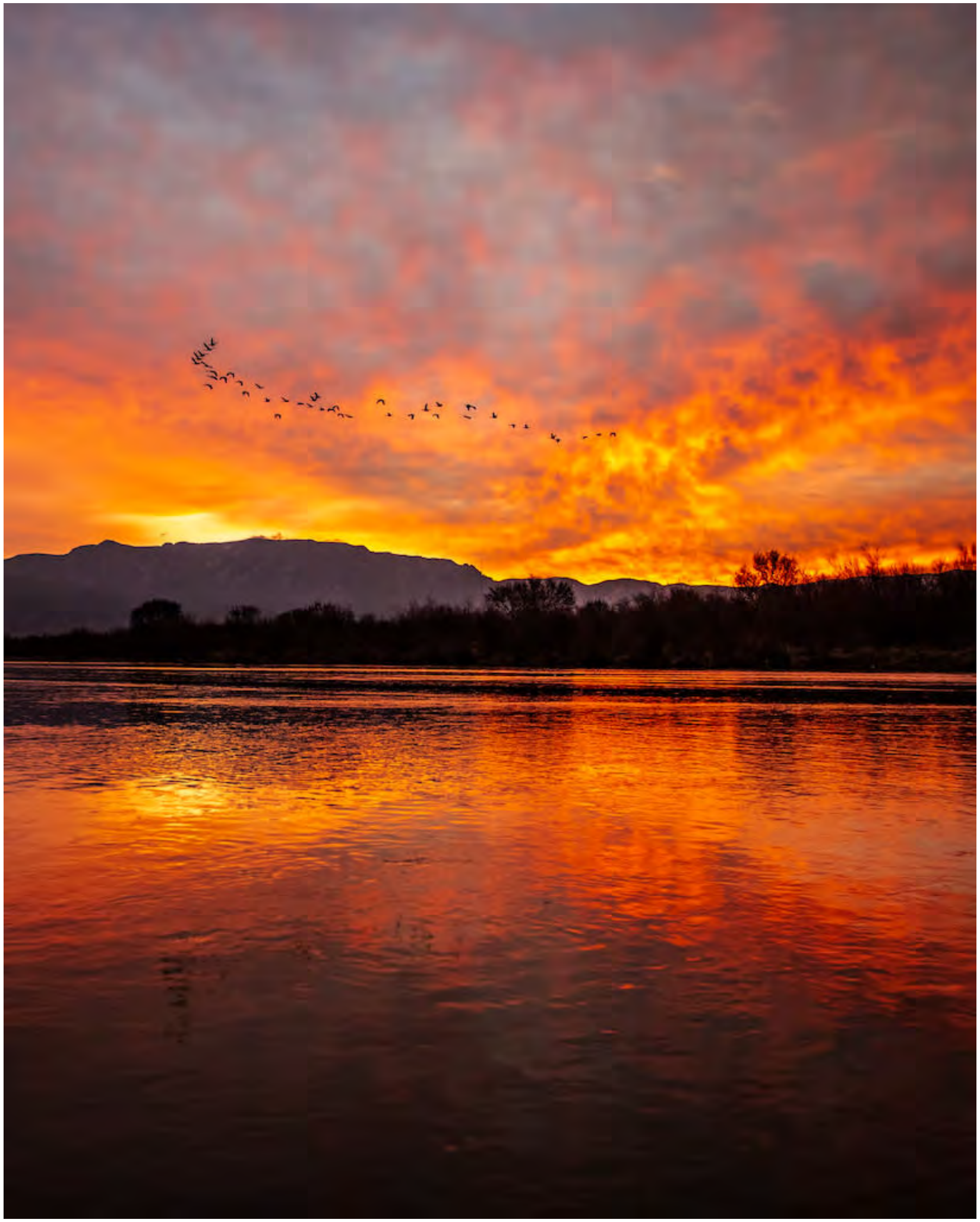
Visit Website

Navajo Lake State Park - This 15,000-acre irrigation impoundment in the Four Corners area is home to rainbow trout, brown trout, kokanee salmon (landlocked Pacific sockeye salmon), largemouth/smallmouth bass, northern pike, channel catfish, crappie and bluegill. Find information on Navajo Lake and the San Juan River below the lake.

Learn More

San Juan River - The San Juan River is a famous trout stream because the water portion directly below the dam is nearly always cold and clear because the dam slows the water and filters out the mud. This stretch is among the most hallowed trout fishing waters in North America. The rich waters spawn abundant flora, which in turn creates a fine environment for insect proliferation, which in turn supports one of the most prolific trout populations in any large river, both in terms of quantity and average fish size. It is illegal to fish with more than two flies on a single line when fishing the special trout water on the San Juan River.

Learn More



NORTH CENTRAL - Santa Fe - Taos - Abiquiu - Chama

Cochiti Lake - A U.S. Army Corps of Engineers (USACOE) lake 50 miles north of Albuquerque and about 10 miles west of 1-25 has black bass, white bass, bluegill, crappie, walleye, catfish and northern pike. While Cochiti Lake is located within the boundaries of Cochiti Pueblo, permission to fish there is not required, as it is a USACOE facility.

Visit Website

Heron Lake - Less than 20 miles southwest of U.S. 64 near Tierra Amarilla, Heron is a no-wake, 6,000-acre lake that favors fishing and sailing. Produces 14- to 20-inch kokanee, and 10-to 20-plus-pound lake trout. Many visitors use guides to provide proper equipment and advice.

Learn More

Jemez Mountains - Jemez streams and Fenton Lake are accessible via N.M. 44 northwest out of Bernalillo, then N.M. 4 north out of San Ysidro. Jemez waters are heavily stocked with catchable rainbows. Some streams have good populations of brown trout.

Learn More

Jicarilla Apache Nation - Probably the best lake in the state for large rainbow trout is Stone Lake - 18 miles south of U.S. 64 out of Dulce. Stone Lake is currently stocked with rainbow trout, largemouth bass and brown trout. Stone is most easily fished from small boats and float tubes, and is an extremely productive fishery with an unbelievable diversity and abundance of aquatic invertebrates. Tiger salamanders and Fat head minnows also contribute to trout diets in this lake and growth rates of 2 inches have been recorded at Stone Lake. However, prolonged drought conditions have seriously affected the Jicarilla fishing lakes, and decreased opportunities for fishermen. There are seven fishing lakes ranging in size from 35-500 acres, when full. Two of these lakes, Hayden Lake and La Jara Lake are currently dry. The other lakes including Stone Lake, Mundo Lake, Enbom Lake, Dulce Lake and Horse Lake have been impacted by drought conditions but are currently stocked for fishing. Bait fishing is allowed at Mundo and Enbom Lakes. At Stone Lake, however, only artificial flies and lures, with barbless hooks, are allowed. Mundo Lake offers rainbow trout, brown trout, largemouth bass, channel catfish, and bluegill. Stone Lake also has rainbow, brown and largemouth bass; Enbom Lake has rainbow trout; and Dulce Lake features channel catfish. Visit **www.jicarillahunt.com/fishing**

Private Waters on the Brazos River - The Brazos River east of Chama flows mostly on private land. Two long-established lodges with a variety of accommodations and prices offer access to the river's fine rainbow and brown trout - **Corkins Lodge** to 2.5 miles of private access, and **Brazos Lodge** to public access.

Jicarilla Apache Nation

Red River and Lower Red River - The Red River originates in the Wheeler Peak Wilderness Area above **Red River, NM**. The Red is New Mexico's largest tributary to the Rio Grande. There are two distinct sections on the Red River, the Upper Red and the Lower Red. The Upper Red River flows along Highway 578 and continues through the town of Red River. This section is heavily stocked with rainbows and has wild browns and includes a 3-mile section of designated "Special Trout Waters." The Upper Red fishes best May through October. The Lower Red River is a 4-5 mile stretch from **Questa, NM** to the confluence with the Rio Grande. This wild canyon section features pocket water, riffles, plunge pools and short deep runs. Easier access is at the Red River Fish Hatchery parking lot, ideal for a half day. The better fly fishing requires hiking down one of two trails in the **Wild and Scenic Rivers Area** of the Rio Grande, west of Questa, NM. Wild brown trout and some rainbows averaging 10-14 inches inhabit the Lower Red plus a few 15-16 inchers. In the winter nice cuttbows migrate into the Lower Red from the Rio Grande. The main fly fishing season is September through mid April, with fall and spring being best. The summer can be hit or miss with runoff and rain.

Red River

Questa

Rio Chama Below El Vado Lake - In and around El Vado Ranch, rainbow and brown trout inhabit the many holes, pools and ripples of the nearby lakes and streams. In fact, this part of the Rio Chama is spectacular and it is not uncommon to hook an 18-20 inch trout. Take N.M. 112 west of U.S. 64 near Tierra Amarilla and proceed to **Cooper's El Vado Ranch** right at the river; parking fee applies.

Learn More

Rio Grande - Anglers along the Rio Grande will be challenged by native brown trout, German brown trout, rainbow trout, and northern pike. All anglers, 12 years or older, must have the following in their possession: a valid New Mexico fishing license, a Wildlife Habitat Improvement validation, and a Habitat Management and Access Validation (only those younger than 18, 100% Disabled Resident Veterans and Resident Anglers 70 and older are exempt from purchasing this validation). Licenses are available at the Rio Grande Gorge Visitor Center. To improve trout fisheries, "Special Trout Waters" have been designated north from Taos Junction Bridge to Colorado. Anglers need to be aware of special restrictions that apply in this area.

Learn More

NORTHEAST - Las Vegas - Raton - Springer - Cimarron

Cimarron River – The Cimarron River flows east out of Eagle Nest Lake, U.S. 64, through Cimarron Canyon State Park. Good for 10- to 14-inch rainbows and browns. A stretch of "Special Trout Water" starts near Tolby Campground.

Learn More

Clayton Lake - A 176-acre impoundment, about 15 miles northwest of Clayton and north of U.S. 64, Clayton Lake State Park has one boat ramp. Fish for rainbows, walleye, largemouth, catfish and big bluegill.

Learn More

Eagle Nest Lake State Park – Eagle Nest Lake, a 2,000-acre impoundment alongside U.S. 64 northeast of Taos, is one of the state's premier kokanee and trout lakes, surrounded by the stunning scenery of the high mountains of the Moreno Valley. The lake at 8,300' elevation is a cool retreat from summer heat or a winter wonderland. Good in open water or through the ice for 14-inch plus rainbows.

Learn More

Springer Area Lakes - Springer Lake is about 5 miles west of Springer. Best (April-June and September-October) for 5- to 25-pound northern pike. Lake 13 on the Maxwell National Wildlife Refuge, off N.M. 445 just outside the village of Maxwell, produces rainbows in the range of 12 to 24 inches. Charette Lakes on a mesa southwest of Springer usually offer good fishing for 10- to 14-inch rainbows and perch. Maxwell and Charette Lakes closed November-February. Contact the Springer Chamber of Commerce, 575-483-2998 or **springercofc@railnet-isp.com**

Valle Vidal - The **Valle Vidal** is a lush mountain basin located in the heart of the Sangre de Cristo Mountains, in northern New Mexico. It is managed by the Carson National Forest primarily for its wildlife, as well as its outstanding scenic and recreational opportunities. The Valle Vidal is a veritable Rocky Mountain paradise, with abundant populations of regional wildlife, including mule deer, black bear, mountain lion, bald eagles, and native Rio Grande cutthroat trout. Shuree Ponds, open July 1 to Dec. 31, are stocked with 15-inch-plus rainbow trout, with one reserved for anglers under 12. Daily bag is two 15-inch or bigger fish.

Three lakes - along 1-40 between Tucumcari and Santa Rosa usually offer good fishing for walleye: Ute Lake, 25 miles northeast of Tucumcari along U.S. 54 near Logan; Conchas Lake, 31 miles from Tucumcari via N.M. 104; and Santa Rosa Lake, about 10 miles north of 1-40 out of Santa Rosa. The lakes also have smallmouth/largemouth bass and channel catfish; great some years for crappie; and Ute and Conchas also have white bass. Be sure to check water levels before planning any fishing trip.

Ute Lake State Park

Conchas Lake State Park

Santa Rosa Lake State Park

SOUTHEAST - Ruidoso - Cloudcroft - Mountainair

Brantley Lake - An impoundment on the Pecos River reached via CR 30 off U.S. 285, 12 miles north of Carlsbad, Brantley Lake has largemouth/spotted/white bass, walleye, catfish, crappie and bluegill. If you go, concentrate on the upper portions of the lake for channel catfish and white bass. Brantley is catch and release fishing only due to contamination concerns.

Learn More

Rio Peñasco on Private Land - The Peñasco is a spring creek with nine miles of trout water teeming with wild browns and rainbows along NM 82 east of Cloudcroft. A number of springs help maintain a water temperature of 52-60 degrees year round. Most of the wild browns and rainbows average 10-14 inches with realistic odds of trout reaching 20 inches. The constant water temperatures and tremendous aquatic insect population allow the trout to grow year round. The entire length of the Peñasco is privately owned. Mel and Jennifer Foley (505-687-2221) operate a 2-mile section known as The Rio Penasco Fishing Company. The Foleys offer day trips and overnight camping in comfortable tent-cabins with a full bathhouse. The Mesilla Valley Fly Fishers have a two-mile public access lease on the Cleve Ranch. A $10 daily permit is available at the well-posted parking areas along US Highway 82 or by calling the Anglers Nook in Las Cruces, NM (505-522-3810). Five miles of the Penasco on the Mulcock Ranch (505-687-3352) is available for day fishing with a nominal rod fee. The Mulcock Ranch currently features a bunkhouse available for camping.

Visit Website

Ruidoso Area – The Ruidoso River: The Ruidoso River is still recovering from the flooding of 2008 and intermittent low water levels due to drought in recent years. Fishing may be fair for small brown trout and good for rainbows if water levels allow stocking. Grindstone Lake: Stocking of rainbows has been sporadic the last few years due to water quality problems. During the summer, try fishing early in the day (before the sun hits the water) and cast to rising fish. Check stocking reports and lake levels before planning a fishing trip. Bonito Lake remains closed for fishing until further notice.

Ruidoso

SOUTHWEST - Silver City - Elephant Butte - T or C

Bill Evans Lake - Some 30 miles northwest of Silver City and about four miles southwest of U.S. 180, Bill Evans Lake is 300 feet above the river that fills it. Water from the Gila River is pumped up a high mesa to where a sparkling lake is impounded. The lake annually fills anglers' creels with crappie, channel catfish, bluegill and largemouth bass. Trout, although present throughout the year, are more active from October through May. Compared to other southwestern lakes, Bill Evans has relatively cool waters and largemouth bass grow slower than in warmer lakes. Call New Mexico Department of Game and Fish, 575-522-9796

Caballo Lake - About 16 miles south of Truth or Consequences via 1-25, Caballo Lake holds a large population of walleye in the 14-24 inch range and fishing should be very good. Fishing should be very good for blue and channel catfish ranging from 10-20 inches.

Elephant Butte Lake - New Mexico's big one, Elephant Butte Lake is a few miles north of Truth or Consequences, just east of 1-25. Current lake conditions appear to favor blue catfish. Fishing for them should be excellent. White and largemouth bass fishing will be fair throughout the lake during late spring and summer. The Department plans to stock 1 million striped bass fry this spring. Several large stripers were found in recent surveys, but they are few and far between. Fishing should be good for walleye.

Silver City Area - Fishing **Lake Roberts** for largemouth bass and bluegill is generally good from spring to early summer. Channel catfish should be good in summer. During the winter, fishing for stocked rainbow trout should be good. Fishing at **Quemado Lake** should be good for stocked rainbow trout throughout the year, but slows in the summer as water temperatures increase. Tiger muskies are available throughout the year and are currently being caught at record sizes at Quemado, as well as at **Bluewater Lake** (you can only keep one, however, and it has to be longer than 40 inches). Fishing for stocked rainbow trout at **Snow Lake** is best from November- March. Expect fishing to be slowest in the summer. Both the **Gila River** and the **San Francisco River** along with their many tributaries are located within the Forest. Upper reaches and headwater tributaries of both rivers offer trout fishing, the lower reaches of both rivers offer quality warm water fishing opportunities. Visit the **www.wildlife.state.nm.us** fishing report.

CENTRAL - Albuquerque

Sandia Pueblo lakes - Open all year. North of Albuquerque; take the Alameda exit west about a mile to N.M. 313, then north about a mile. Three small lakes with bass, catfish and rainbow trout; Anglers can expect to catch 10- to 13-inch rainbows. Subject to availability, sometimes stocked with 3- to 8-pound rainbows.

Sandia Pueblo

Tingley Beach: The three ponds at **Tingley Beach** provide something for everyone. Whether you want to fish the Catch and Release pond, or want to expose a young angler to the sport at the Kid's Pond, you're set at Tingley Beach. Catchable-size trout and catfish are stocked from October through April in large quantities. If you live within Albuquerque or the surrounding communities, Tingley Beach is a classic "urban fishery" and it's hard to beat.

OUTFITTERS & GUIDES

Zia Kayak Outfitters

ELEPHANT BUTTE

Angel Fire Resort

ANGEL FIRE

Caballo Lake State Park

TRUTH OR CONSEQUENCES

Camp Davis

ROCIADA

Chama Valley Chamber of Commerce

CHAMA

Cutthroat Fly Fishing

TAOS

Damsite Historic District

TRUTH OR CONSEQUENCES

Fisheads

NAVAJO DAM

Friends of the Bosque

SAN ANTONIO

LAND OF ENCHANTMENT GUIDES

VELARDE

Los Rios River Runners

TAOS

Marina Del Sur

ELEPHANT BUTTE

Mora Valley Ranch Supply Co.

MORA

Pecos River Cabins

PECOS

Red River Ski & Summer Area

RED RIVER

Sipapu Ski Resort

VADITO

Taos Ski Valley Chamber of Commerce and Visitors Center

TAOS SKI VALLEY

Valles Caldera National Preserve

JEMEZ SPRINGS

Vermejo, a Ted Turner Reserve

RATON

Bent Rod's Guide Services

ELEPHANT BUTTE

Inn of the Mountain Gods

MESCALERO

Fenton Lake State Park

JEMEZ SPRINGS

Land of Enchantment Fly Fishing Guides

SANTA FE

Majestic Enchantment Fly Fishing

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Los Alamos Reporter

The News from Los Alamos & Beyond

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FEBRUARY 7, 2023

N3B Los Alamos Runs Robust Groundwater Monitoring Program For DOE-EM LANL Legacy Waste Cleanup

A rafting trip to collect water samples from the Rio Grande and tributaries to White Rock Canyon is part of a robust groundwater monitoring run by N3B-Los Alamos. Photo Courtesy N3B

Groundwater Monitoring Program manager Keith McIntyre, left, and technical lead David Fellenz point out landmarks along the Rio Grande during an interview with the Los Alamos Reporter at the White Rock overlook. Photo by Maire O'Neill/losalamosreporter.com

Taking water from a spring for sampling. Scientists wear special protection from rattlesnake bites. Photo Courtesy N3B

BY MAIRE O'NEILL
maire@losalamosreporter.com

N3B Los Alamos is the legacy waste cleanup contractor for the Department of Energy Environmental Management Field Office at Los Alamos National Laboratory. Although N3B is in its fifth year at LANL, many local residents are not aware of their work priorities both throughout LANL property and offsite throughout the area including on Santa Fe National Forest and Pueblo de San Ildefonso land, and particularly in and around the Rio Grande.

Asked what they believe N3B's cleanup priority should be, many people indicated their desire to see contaminated material removed from LANL and the community as quickly as possible, however many others want the groundwater protected to make sure contaminants from LANL do not enter the Rio Grande or negatively impact people, the ecology and the environment.

To that end, some 4,000 water samples are collected each fiscal year under a robust groundwater sampling program run by N3B Los Alamos that includes monitoring of the Rio Grande in White Rock Canyon as well as gathering samples of several tributary canyons that run into the river.

The Los Alamos Reporter met recently with Keith McIntyre , Groundwater Manager and David Fellenz, the groundwater project's Technical Lead. Looking down from the White Rock Overlook, the two men pointed out the Buckman Diversion on the far side of the Rio Grande.

McIntyre got into a little detail about the program's annual trip down White Rock Canyon to sample springs and base flows.

"We come in at Buckman and float down and start sampling close to the Overlook. The last sample is at Frijoles Canyon and then we float all the way down to Cochiti Lake. It's a three day trip – 15 miles that we cover," he said.

Fellenz has made the trip downriver more than a dozen times. He said it's always a good time but always a lot of work.

Sampling consists of a total of 27 springs and base flow locations. The samples require a bit of a hike, so even though the scientists float the river, when they stop at a location, they hike to the individual springs.

"Everything that we use to sample we carry in with us. If the spring is flowing enough we can actually collect the water straight from the source. Otherwise we use a little battery-operated pump to pump the water into the containers," Fellenz said.

McIntyre said on the last trip there were three teams of four and they used a professional guide service. There were two people each raft and then a number of rafts just carrying equipment and ice chests.

"We had a total of 17 rafts. It was quite the flotilla," Fellenz said.

The team looks for radionuclides such as tritium, uranium, plutonium and radium, as well as metals, high explosives and PFAS chemicals.

"We are looking for a number of different constituents. We are looking for potential sources of Lab contamination that are expressed at the springs. In the over 20 years that we have been sampling this we have not had any exceedences that are related to Lab waste. We have seen some elevated metals. Mostly iron and manganese and that is because of the basalt we have around here so the springs that discharge at the interface of the basalt where it meets the underlying strata, there we typically see elevated manganese and iron, just based on the geology," McIntyre said. "All the time we've been doing this, the water we're seeing at these springs, by the time it makes it down here is very clean, high-quality water that's being discharged into the canyon."

The team is looking at the samples they collect for basically anything that would have been used at the Laboratory or would have been used just for commercial purposes.

"We're not seeing any of that expressed at the springs when we sample them," McIntyre said.

Results of every sample taken by the Groundwater Monitoring Team are available to the public on the Intellus NM website (https://www.intellusnm.com/), which stores environmental date provided by N3B and the New Mexico Environment. Literally millions are retrievable and users can avail of filters and maps to access specific records. It also provides the ability to compare LANL and NMED data or review trends over time and across locations.

NMED personnel joined the N3B team for the last Rio Grande trip and collected co-samples. Fellenz said NMED has had folks on the trip for the 12 years he has been doing it and even before that.

"The Rio Grande trip has the most work of any sampling event during the year. We were able to collect from 20 locations this year. There were a few that we were not able to sample from. A few were cancelled because the river was actually a little bit higher this year. Some of the springs are right at river level and the river was above the springs so we couldn't sample those. One was cancelled due to poison ivy – we didn't want to send people into a location where they could potentially come in contact with poison ivy. There were a few base flow locations that were dry so there was no water to sample. We collected 128 samples from the 20 locations. My fun statistic is that we sampled 75 gallons of water total which is what we collected from that sampling event," Fellenz said.

He said the team didn't find any surprises from the analytical side.

"Everything we were looking was background levels, which is what we were expecting. One of the surprises this trip is that right before we were going to go in October, typically when we do that the river is lower and we can get to all the springs. We were a little surprised that the river was as high as it was this year that some of the springs were underwater so they were not sampleable," Fellenz said.

Asked about the professional rafting guides, Fellenz said the scientists were doing their own rafts when the sampling first started.

"Part of the reason we go with a professional guide service is that they have experience in this type of environment. They also have first aid response because there's a lot of potential for first aid events. And the sampling days are typically 10-hour days so I'm not going to lie – it's really nice to come into camp and have someone else prepare me a dinner," he said.

McIntyre said it takes about a week before the trip to prepare all the bottles, ice chests and other equipment. He has been working on the Groundwater Monitoring Program for about 4 ½ years, having relocated from California where he had been in environmental work for 10 years – putting in wells, sampling wells and soil.

Fellenz's background is in aqueous geochemistry. He has been working at the LANL site for 12 years, initially doing field sample collection for all the wells. He says he still does that aspect of it but not quite as much, but he has a very intimate knowledge of all the locations.

When they are not on the Rio Grande trip, McIntyre said the program has a full complement of monitoring well sampling to do all over the Lab that keeps them busy all year round. They have a list of campaigns that they work on and rotate through each month.

Fellenz said last time he checked there were 204 locations to be sampled.

"We sample in the chromium area monthly and some of the other watersheds based on where they are and what contaminants we're concerned about. We sample either quarterly to annually. We're working right now on some of the RDX sampling we do on a quarterly basis. We have seen elevated levels of RDX. Right now we're sampling to understand the nature and extent as well as if there are any trends out there. Things seem to be pretty static in terms of what we're seeing as levels," he said.

Fellenz said N3B samples alluvial wells, which are very shallow – about 20 feet or so right about the surface.

"Below that there's the intermediate zone which can range from 100 feet to 500-600 feet. Below that is our regional aquifer. The RDX is mostly concentrated in that intermediate alluvial zone. We are definitely monitoring it to understand where it's going and any impacts it might have in the future. So that is very much on our radar," he said. "It's very transparent what we do out here and all the results are available for the public to see. Sometimes I think it gets lost that the data are available and we want to share that to show that we are being good stewards up here for the environment."

In addition to monitoring groundwater for contamination and controlling contaminated storm water linked to LANL, N3B is also treating a groundwater plume that contains elevated levels of hexavalent chromium and investigating a plume of Royal Demolition Explosives (RDX). Both plumes are in the regional aquifer beneath LANL.

To learn more about the chromium project, go to https://n3b-la.com/wp-content/uploads/2022/10/Chromium-Plume-Fact-Sheet_21.11.02.pdf

To learn about the RDX Program, go to https://n3b-la.com/wp-content/uploads/2022/10/RDX_Fact-Sheet_21.11.02.pdf

Looking towards the Buckman Diversion on the far site of the Rio Grande from the White Rock Overlook. Photo by Maire O'Neill/losalamosreporter.com

The N3B's groundwater monitoring trip down the Rio Grande from Otowi Bridge to Cochiti Reservoir to collect water samples is fun but lots of work. Photo Courtesy N3B

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- January 2019 (130)
- December 2018 (83)
- November 2018 (110)
- October 2018 (128)
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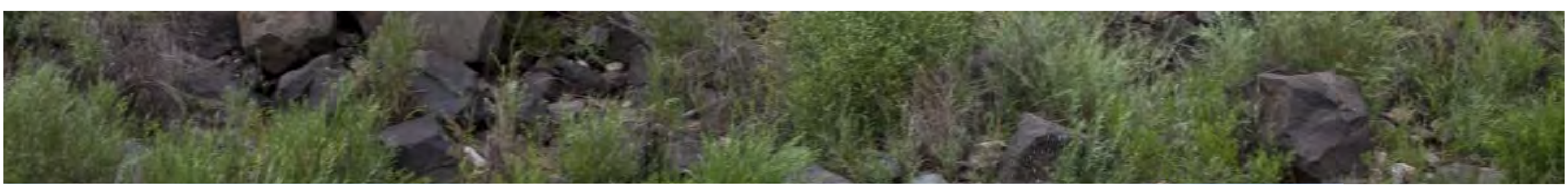
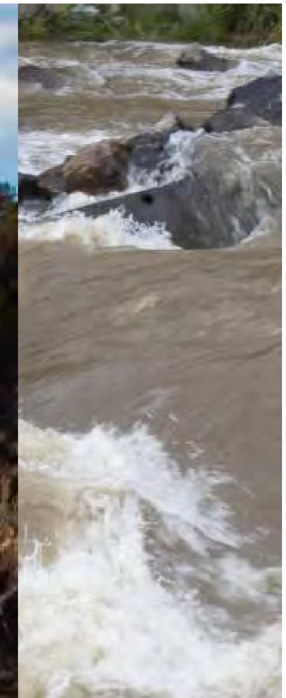
The state's premier whitewater run is 17 miles through the Rio Grande Gorge, a black basalt chasm that offers few easy exits from beginning to end.

Stunning cliffs and plentiful bird life are often missed because the fast-moving water that tumbles over a number of steep drops demands boaters' near-constant attention. This section, known as-the Taos Box, boasts rapids with names such as Dead Car, Pinball and Sunset. Eleven commercial outfitters offer day trips.



Rio Grande

Above the Taos Box, from just north of the state line to Lee Trail, the Ute Mountain Run takes boaters through a broad lava-rock plain. Rapids are gentle and birdlife is abundant. Deer, elk and the occasional antelope are also sighted in this section. The downside to this scenic 24-mile stretch is the takeout, which requires boaters to carry out their craft up a steep, unimproved trail. Therefore, canoes and kayaks are recommended for the overnight trip. This section is closed from April 1 through May 31 in deference to the mating season of golden eagles and prairie falcons.

A short, boulder-choked section that is not recommended for boating follows a challenging but navigable five-mile stretch from Lee Trail to the Chiflo Campground. Below this section, boaters can carry their craft down a well-maintained mile-long trail to the confluence of the Red River and the Rio Grande. For eight miles, ending at John Dunn Bridge and the starting point for the Taos Box run, the river kicks up some small whitewater but mostly features the silence of wilderness, sightings of merganser ducks or an occasional deer. Below the Taos Box, a 10-mile stretch begins in the Orilla Verde Recreation Area, gaining momentum after the village of Pilar. Below the village, a series of moderately challenging rapids run alongside N.M. 68, providing entertainment to motorists and an easy escape for boaters. This five-mile section is known as the Racecourse. Several outfitters offer guided trips through this section, either as a day or half-day outing.

From the end of the Racecourse at the Taos county line, the river remains tranquil until Otowi Bridge. This slow-moving 25-mile stretch passes alongside apple orchards. At Otowi Bridge, the Rio Grande begins a 24-mile journey to Cochiti Lake, where it backs up behind Cochiti Dam. This whitewater stretch takes boaters through beautiful White Rock Canyon and its many side hikes, waterfalls and Indian ruins. A trail leads from the river to Bandelier National Monument. Some commercial companies offer guided overnight trips.

Below Cochiti Dam, the Rio Grande cuts a wide swath through this region, which is dominated by the city of Albuquerque. Often so shallow it could be walked, the river still offers a number of enjoyable canoe day trips. From just north of Bernalillo to the southern reaches of Albuquerque, boaters can choose from a number of flat-water stretches, which in the winter are frequented by Canada geese, ducks and an occasional great blue heron.

The Rio Grande sustains farmland through this region, but a 20-mile stretch from Elephant Butte Dam to Caballo Lake is an enjoyable run for canoeists and beginning kayakers.

Rio Chama

The Rio Chama uses its unparalleled beauty to attract boaters. This major tributary of the Rio Grande enters the state atop Cumbres Pass north of Chama. The first six miles plummet through a narrow gorge and are recommended for expert kayakers only. By the time it reaches the town of Chama, the river mellows, but a profusion of fences across it prevent boating enjoyment until just west of Tierra Amarilla. The ensuing 15 miles take boaters through a deep canyon thick with Ponderosa pines and numerous rapids, the most challenging known as Big Mama Chama. The run ends at El Vado Lake.

The 33 miles that flow between El Vado and Abiquiu reservoirs make up the stretch of the Fro Chama that has become most popular and is in fact regulated by the Taos office of the BLM. Due to its popularity, a unique arrangement between the owners of Rio Chama water rights and the BLM provides for scheduled releases from El Vado Dam during seven summer weekends to provide enough water for rafters. Permits are required to ply its waters and can be obtained by contacting the Taos BLM office at (505) 758-8851.

This section was the first New Mexico river to receive the federal designation as a Wild and Scenic River. Ponderosa pines and firs line the banks at the launch site and the river gradually leaves them behind as it opens up to pastel-hued cliffs at the takeout. Hiking opportunities and rapids are plentiful but not intimidating, making this a wonderful canoe trip or family outing. Several outfitters offer guided trips, some overnight, through this stretch.

Below Abiquiu Dam, the Rio Chama flows alongside farms and ranches; often slowed by diversion dams. Cottonwoods line this 25-mile stretch of slow-moving water until it joins up with the Rio Grande.

In addition to these two main waterways, this region is peppered with a number of narrow creeks that brim with fast-moving snowmelt in the spring, offering experienced kayakers and canoeists an abundance of whitewater opportunities. For example, the Brazos River offers a nine-mile trip from the base of the sheer, granite Brazos Cliffs to the Chama River, taking boaters on a swift journey through pine-clad slopes. Whitewater marks a 15-mile stretch of the Rio Embudo that winds through a remote, heavily wooded gorge before it joins the Rio Grande. The Jemez River is obstructed by various manmade hazards such as fences and dams, which grow fewer as it approaches the Rio Grande at Zia Pueblo.

Area Resources

Santa Fe

Santa Fe sits 7,200 feet up in the southernmost end of the Rocky Mountains—the oldest and highest capital city in the U.S. The city is tucked into a valley of the Rio Grande surrounded by 1.5 million acres of unspoiled national forest. There's no desert. You'll find juniper and piñon-covered hills, aspen and cottonwood groves, pine forests, grassland, abundant fruit trees, lilacs, rose gardens and hollyhocks.

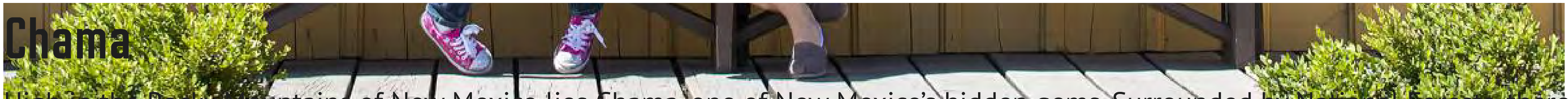
LEARN MORE

Taos

Rich culture, clean air, beautiful landscapes, plenty of outdoor adventure, and friendly hospitality have long attracted travelers to Taos. Known for its beauty, thriving arts scene, Native culture, rejuvenating spas, and delectable culinary scene, you'll soon find there's no shortage of fun and adventure to be had all year long. Looking to experience more of this beautiful region? Drive along the Enchanted Circle, an 85-mile US Forest Scenic Byway connecting Taos and Questa with the resort communities of Red River, Eagle Nest, and Angel Fire.

LEARN MORE


CHAMA



Chama

High in the Rocky Mountains of New Mexico lies Chama, one of New Mexico's hidden gems. Surrounded by National Forests, there's no shortage of opportunities to fish, hunt, raft, hike, and camp. Travelers can easily find themselves enchanted by Chama's clear waters, roaming wildlife, and beautiful skies. And while outdoor adventures in Chama are truly spectacular, the surrounding attractions and activities can't be missed! Hike a section of the Continental Divide Trail, take a ride on the Cumbres & Toltec Scenic Railroad, do some shopping, participate in local festivals, and more.

LEARN MORE

Cumbres & Toltec Scenic Railway

Climb aboard this National Historic Landmark for a 64-mile day trip you'll never forget. Our coal-fired steam engine carries you through steep mountain canyons, high desert, and lush meadows as you zig zag between the Colorado and New Mexico border. Open your eyes to spectacular and rare Western scenery which can only be viewed from this train's unique route.

LEARN MORE

For those lacking such skills and experience, outfitters offer trips on the Rio Grande in northern New Mexico and take boaters down the Rio Chama. Excursions range in length from half day to multiple days. For a list of outfitters, along with maps and other general information on these two rivers, contact the Bureau of Land Management

Visit These Websites!

RIO GRANDE BLM

RIO CHAMA BLM

Important for you to know:

- How are we doing? We want to hear from you. Take our quick survey to tell us what you think.

IMPORTANT Legacy real-time page

7 days 30 days 1 year

- using custom time span -

Rio Grande at Otowi Bridge, NM - 08313000

September 1, 2017 - September 1, 2023

Gage height, feet

IMPORTANT Data may be provisional

Show legend

	Value	Status
Latest Sep 07, 2023 08:00:00 AM MDT	3.99	Provisional
Selected	2.96	Approved

Sep 22, 2022 12:45:00 PM MDT

Compare

Not available with custom time spans

Median

No median data for this data type

Hide graph details

Statistics are not available at this monitoring location for the data type: Gage height, ft

Hide statistics

Change time span | Subscribe to WaterAlert | View related graphs | Download data | View data records

Questions or Comments

Select data to graph

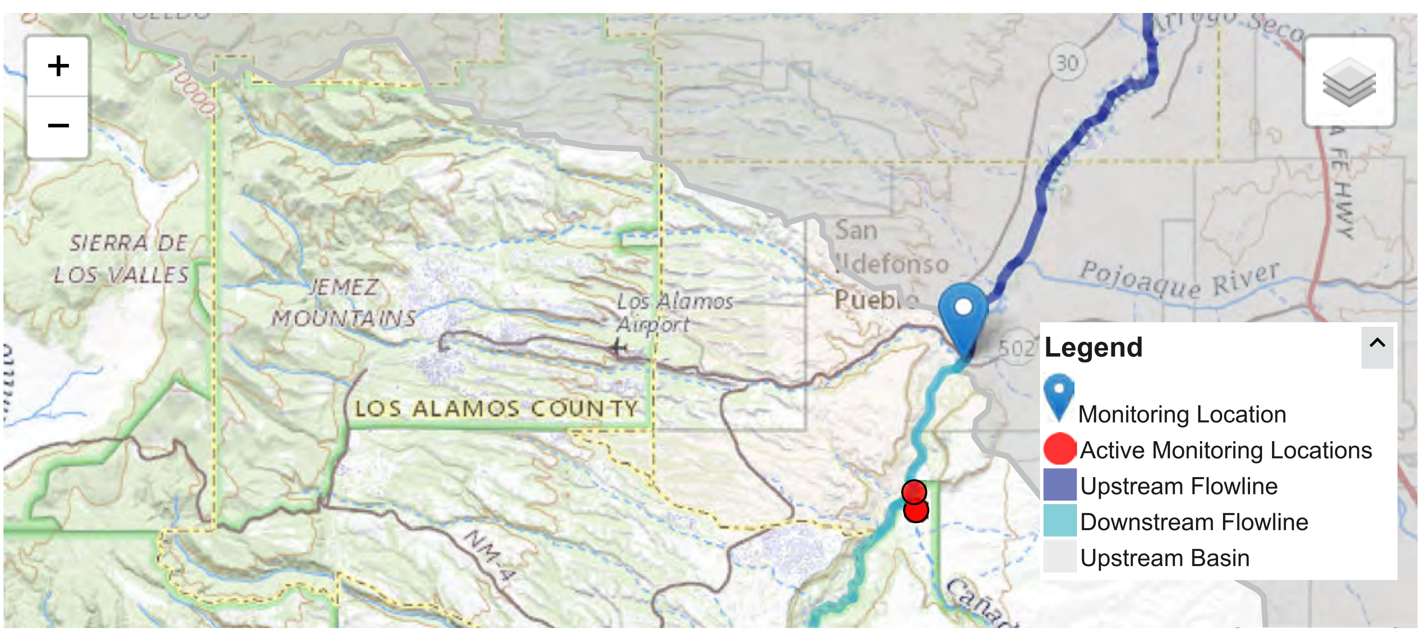
2007-10-03 to 2023-09-07
Gage height, feet

Select data to graph on second y-axis

1990-10-01 to 2023-09-07
Discharge, cubic feet per second

Monitoring camera

There are no cameras currently available at this monitoring location.



Interested in understanding how to access the upstream/downstream data? Learn about the Network-Linked Data Index (NLDI)

Summary of available field and laboratory sample data

Summary of all available data

Location metadata

Operated in cooperation with:

New Mexico Interstate Stream Commission

US Bureau of Reclamation (USBR)

USGS - Cooperative Matching Funds

Important for you to know:

- How are we doing? We want to hear from you. Take our quick survey to tell us what you think.

IMPORTANT Legacy real-time page

7 days 30 days 1 year

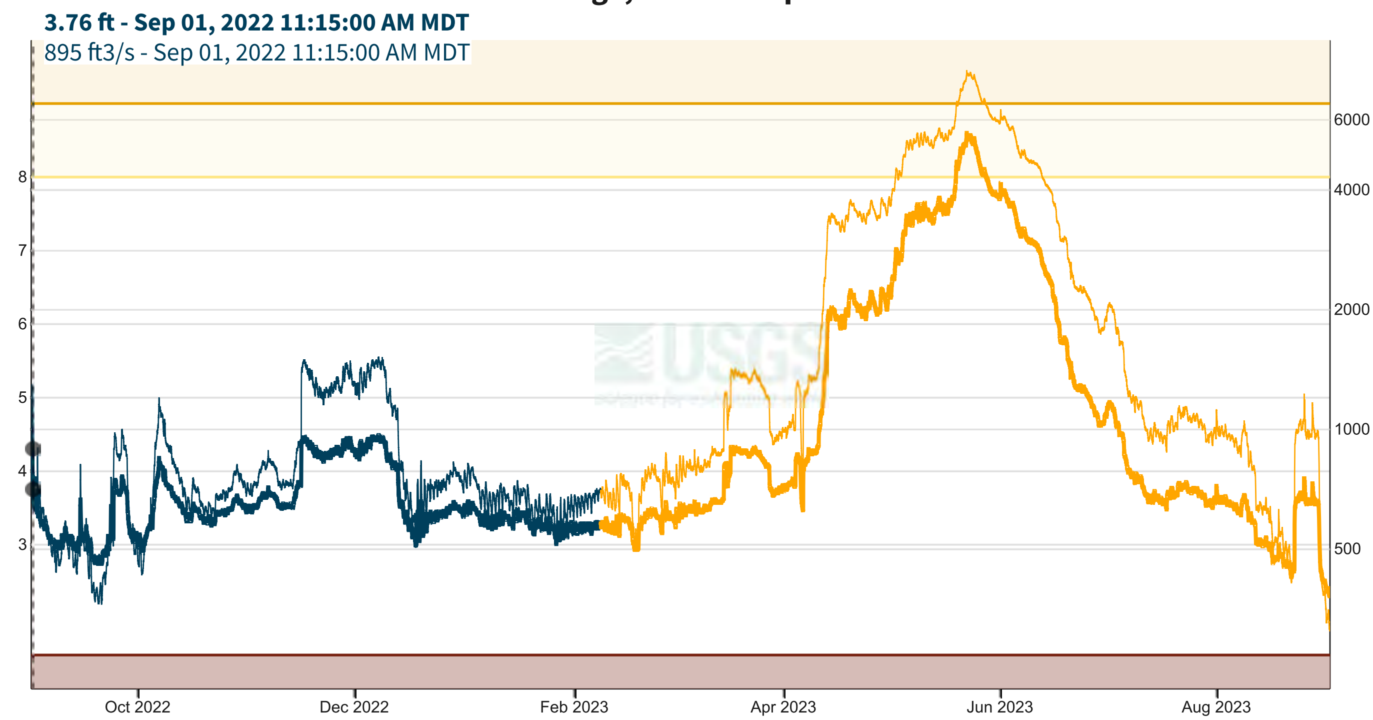
- using custom time span -

Rio Grande at Otowi Bridge, NM - 08313000

September 1, 2022 - September 1, 2023

Gage height, feet

Discharge, cubic feet per second



IMPORTANT Data may be provisional

Show legend

	Value	Status
Latest Sep 07, 2023 08:00:00 AM MDT	3.99	Provisional

● Selected Gage height, ft Sep 01, 2022 11:15:00 AM MDT	3.76	Approved
● Selected Streamflow, ft^3/s Sep 01, 2022 11:15:00 AM MDT	895	Approved
● Compare Not available with custom time spans		
● Median No median data for this data type		

Hide graph details

Statistics are not available at this monitoring location for the data type: Gage height, ft
Note - currently, statistics, if available, are only supported for the primary data type

Hide statistics

Change time span | Subscribe to WaterAlert | View related graphs | Download data | View data records

Select a date range:

Questions or Comments

09/01/2022

mm/dd/yyyy

09/01/2023

Or

Enter days before today:

Change time span

Hide change time span

Select data to graph

2007-10-03 to 2023-09-07
Gage height, feet

☑ Select data to graph on second y-axis

Available secondary data types

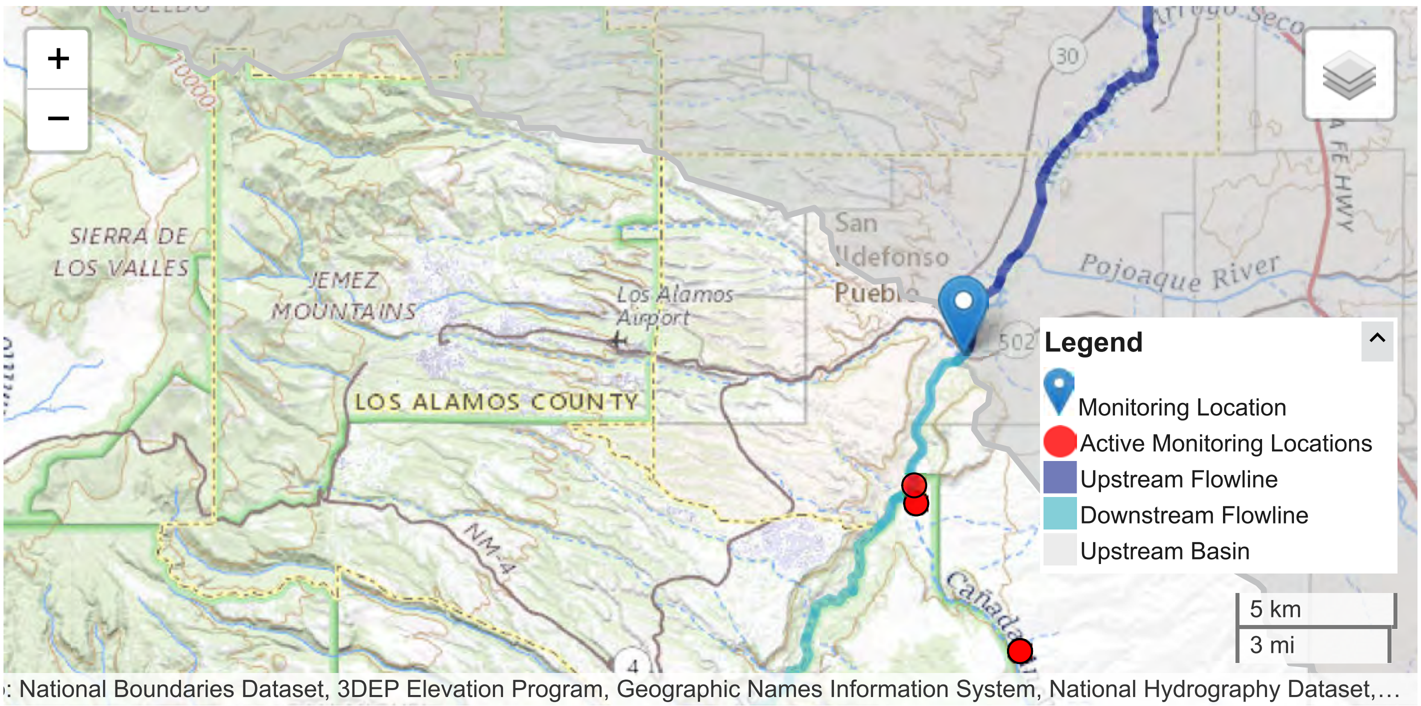
◉ Discharge, cubic feet per second

1990-10-01 to 2023-09-07

○ **Discharge, cubic feet per second**

Monitoring camera

There are no cameras currently available at this monitoring location.



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Summary of available field and laboratory sample data

Summary of all available data

Location metadata

Operated in cooperation with:

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USGS 08313000 RIO GRANDE AT OTOWI BRIDGE, NM

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Time-series: Daily data GO

Click to hidestation-specific text

Station operated in cooperation with the **Bureau of Reclamation**.
This station managed by the Albuquerque Field Office.

Available Parameters	Period of Record	
☐ All 3 Available Parameters for this site		
☑ 00060 Discharge(Mean)	1895-02-01	2023-09-06
☐ 80154 Suspnd sedmnt conc(Mean)	1955-10-01	2021-09-30
☐ 80155 Suspnd sedmnt disch(Mean)	1955-10-01	2021-09-30

Output format
- (●) Graph
- ( ) Graph w/ stats
- ( ) Graph w/ meas
- ( ) Graph w/ (up to 3) parms
- ( ) Table
- ( ) Tab-separated

Days (2191)

-- or --

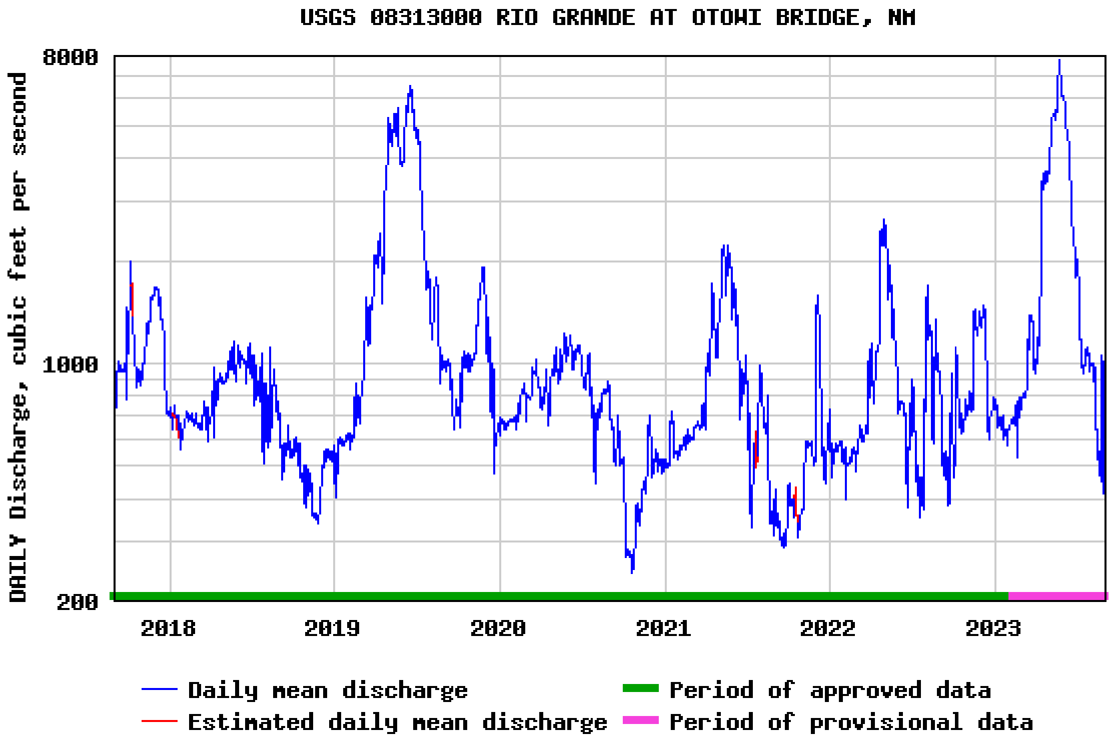
Begin date
2017-09-01

End date
2023-09-01

GO

Summary of all available data for this site
Instantaneous-data availability statement

Discharge, cubic feet per second



Add up to 2 more sites and replot for "Discharge, cubic feet per second"

?
Add site numbers
Note

Enter up to 2 site numbers separated by a comma. A site number consists of 8 to 15 digits

GO

Create presentation-quality graph.

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2.51 2.33 vaww02

USGS 08313000 RIO GRANDE AT OTOWI BRIDGE, NM

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site Time-series: Daily data GO

Click to hidestation-specific text

Station operated in cooperation with the **Bureau of Reclamation**.
This station managed by the Albuquerque Field Office.

Available Parameters	Period of Record	
☐ All 3 Available Parameters for this site		
☑ 00060 Discharge(Mean)	1895-02-01	2023-09-06
☐ 80154 Suspnd sedmnt conc(Mean)	1955-10-01	2021-09-30
☐ 80155 Suspnd sedmnt disch(Mean)	1955-10-01	2021-09-30

Output format
- ◉ Graph
- ○ Graph w/ stats
- ○ Graph w/ meas
- ○ Graph w/ (up to 3) parms
- ○ Table
- ○ Tab-separated

Days (365)

-- or --

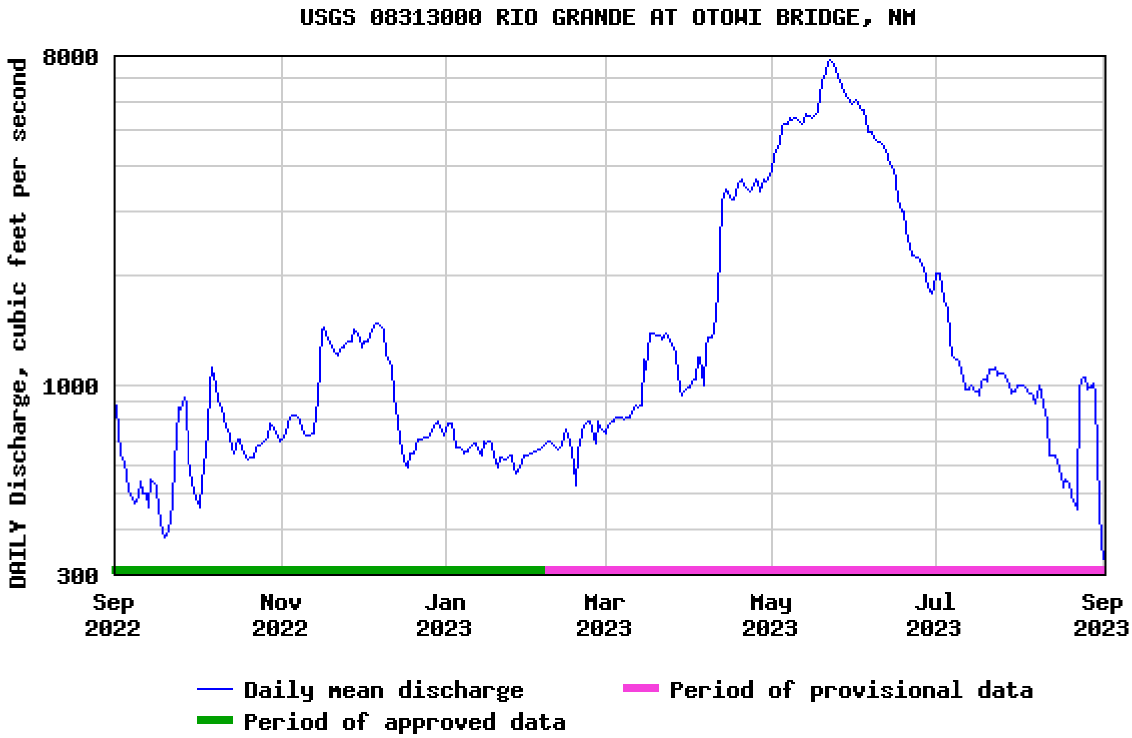
Begin date
2022-09-01

End date
2023-09-01

GO

Summary of all available data for this site
Instantaneous-data availability statement

Discharge, cubic feet per second



Add up to 2 more sites and replot for "Discharge, cubic feet per second"

?
Add site numbers
Note

Enter up to 2 site numbers separated by a comma. A site number consists of 8 to 15 digits

GO

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1.15 1.01 caww02

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USGS 08313000 RIO GRANDE AT OTOWI BRIDGE, NM

Available data for this site Time-series: Daily statistics GO

Santa Fe County, New Mexico Hydrologic Unit Code 13020101 Latitude 35°52'28.2", Longitude 106°08'32.8" NAD83 Drainage area 14,300 square miles Contributing drainage area 11,360 square miles Gage datum 5,491.66 feet above NAVD88	**Output formats** HTML table of all data Tab-separated data Reselect output format

00060, Discharge, cubic feet per second,											
Day of month	Mean of daily mean values for each day for water year of record in, ft3/s (Calculation Period 2001-10-01 -> 2023 Period-of-record for statistical calculation restricted by user										
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1	623	626	814	1,470	2,050	2,370	1,440	1,020	775	617	550
2	611	624	823	1,470	2,060	2,380	1,400	988	767	622	554
3	608	619	826	1,480	2,100	2,350	1,360	937	735	633	561
4	616	621	830	1,420	2,140	2,350	1,260	883	719	655	587
5	615	624	824	1,390	2,160	2,330	1,260	882	732	681	649
6	618	627	822	1,380	2,220	2,340	1,220	941	726	646	709
7	623	625	817	1,380	2,270	2,310	1,190	899	739	639	734
8	623	632	806	1,380	2,340	2,260	1,170	890	733	647	731
9	633	636	815	1,410	2,380	2,220	1,140	902	729	662	720
10	640	638	836	1,410	2,460	2,230	1,080	915	794	665	735
11	643	647	879	1,420	2,530	2,190	1,090	972	735	693	748
12	636	654	890	1,450	2,550	2,140	1,090	992	691	707	755
13	640	665	930	1,490	2,500	2,080	1,070	964	839	637	754
14	643	681	961	1,530	2,460	2,050	1,040	956	731	618	763
15	638	721	1,000	1,580	2,420	1,970	1,080	967	743	606	768
16	641	721	1,020	1,610	2,420	1,880	1,100	947	703	590	804
17	640	717	1,050	1,670	2,380	1,850	1,050	913	711	579	812
18	634	722	1,080	1,750	2,440	1,810	1,040	839	712	581	814
19	628	726	1,130	1,790	2,520	1,770	1,040	808	695	584	818
20	630	742	1,170	1,840	2,610	1,730	1,040	838	678	575	819
21	635	746	1,190	1,880	2,630	1,690	1,030	891	671	596	843
22	629	741	1,180	1,900	2,630	1,670	1,030	906	712	573	852
23	620	749	1,220	1,940	2,650	1,640	999	902	684	557	857
24	614	751	1,290	1,990	2,680	1,560	936	864	652	559	858
25	624	764	1,340	2,010	2,700	1,540	918	815	620	554	863
26	624	780	1,360	2,050	2,680	1,560	935	818	618	551	861
27	620	783	1,400	2,090	2,580	1,540	933	813	618	572	858

28	620	800	1,410	2,080	2,500	1,500	894	779	635	576	857
29	624	981	1,430	2,060	2,440	1,490	887	780	667	579	858
30	616		1,440	2,040	2,420	1,470	904	796	633	563	847
31	623		1,460		2,370		951	776		560	

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USGS 08313000 RIO GRANDE AT OTOWI BRIDGE, NM

Available data for this site Time-series: Monthly statistics GO

	Output formats
Santa Fe County, New Mexico Hydrologic Unit Code 13020101 Latitude 35°52'28.2", Longitude 106°08'32.8" NAD83 Drainage area 14,300 square miles Contributing drainage area 11,360 square miles Gage datum 5,491.66 feet above NAVD88	HTML table of all data Tab-separated data Reselect output format

00060, Discharge, cubic feet per second,												
YEAR	Monthly mean in ft3/s (Calculation Period: 2002-01-01 -> 2022-12-31) Period-of-record for statistical calculation restricted by user											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	567.2	550.6	702.7	991.6	1,232	1,249	956.3	913.4	603.5	377	367.6	425.7
2003	473	498.1	610.1	936.6	1,127	1,039	1,004	784.2	495.8	387.8	453	592.8
2004	500.8	526.8	1,170	1,443	2,343	1,102	830.8	699.5	640	413.3	714.2	821.4
2005	711	898.6	910.7	3,215	6,065	4,430	1,236	905.3	822.7	622.1	818.7	717.6
2006	652.3	584.6	673.7	979.5	1,080	1,299	854.8	959.2	747.8	943.2	1,222	902.2
2007	699	761.6	1,528	1,463	2,852	1,511	1,064	973.8	761.9	559	593.8	880.8
2008	686.7	951.9	2,313	3,742	4,401	3,954	1,207	975.3	903.1	668.9	466.4	659.3

2009	752.2	790.6	1,335	1,969	4,509	2,276	1,204	1,044	825	716.2	616.1	675.9
2010	699.7	686.8	1,039	3,146	3,550	2,043	1,172	975.2	910	596.8	628.6	840
2011	646.1	686.7	831.1	976.3	1,258	1,561	1,140	866.4	582.7	533.5	949.2	817.6
2012	635.5	695.6	1,105	1,476	1,214	1,382	1,023	830.5	485.9	427.1	537	818.3
2013	482.9	533.9	660.4	921.9	1,117	1,111	453.3	480.1	968.5	795.1	844.7	696.1
2014	619	681.1	786.5	965.5	1,488	1,356	1,098	902	754.1	644.5	771.7	780.9
2015	627.1	745.9	1,251	1,198	1,909	2,119	1,468	1,110	755.5	594.3	1,162	1,333
2016	679.5	862	1,108	1,132	2,269	2,557	1,203	904.5	725.7	488.9	707.5	791.1
2017	729.9	900.8	2,155	3,760	4,535	2,582	1,106	878.5	950	1,160	1,333	1,201
2018	667.6	687.1	676.9	822.6	965.6	1,024	852	792.1	566.1	497.2	388.3	516.2
2019	560.5	667.9	1,317	2,620	4,687	5,362	2,839	1,271	846.3	956.3	1,430	847.2
2020	668.6	754.9	865.3	837	1,027	1,078	831.6	771.7	587.5	311.9	468.5	513.5
2021	557.3	584.3	661.2	1,186	1,830	1,097	613.7	559.4	329	372.6	537.7	817.2
2022	547.7	525.4	686	1,457	1,557	655.8	588.4	1,095	577.1	721.1	1,047	955.7
Mean of monthly Discharge	627	694	1,070	1,680	2,430	1,940	1,080	890	707	609	765	791

** Incomplete data have been used for statistical calculation

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USGS 08313000 RIO GRANDE AT OTOWI BRIDGE, NM

Available data for this site Time-series: Annual statistics GO

Santa Fe County, New Mexico Hydrologic Unit Code 13020101 Latitude 35°52'28.2", Longitude 106°08'32.8" NAD83 Drainage area 14,300 square miles Contributing drainage area 11,360 square miles Gage datum 5,491.66 feet above NAVD88	**Output formats** HTML table of all data Tab-separated data Reselect output format

Calendar Year	00060, Discharge, cubic feet per second
Period-of-record for statistical calculation restricted by user	
2002	745.7
2003	701.4
2004	935.5

Calendar Year	00060, Discharge, cubic feet per second
2005	1,781
2006	909.1
2007	1,141
2008	1,743
2009	1,397
2010	1,359
2011	904.6
2012	885.9
2013	755
2014	905.2
2015	1,192
2016	1,119
2017	1,777
2018	704.8
2019	1,954
2020	726
2021	763.3
2022	869.9
** Incomplete data have been used for statistical calculation	

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Attachment 3. Los Alamos Canyon and Pueblo Canyon Watershed WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Los Alamos Canyon and Pueblo Canyon
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation
Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S.

☒ There are Waters of the U.S. receiving discharges from the facility/project site.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Los Alamos/Pueblo Canyon watershed encompasses approximately 57 square miles and includes Los Alamos, Pueblo, and DP Canyons. Bayo, Acid, Walnut, Graduation, Guaje, Rendija, and Barrancas Canyons also contain streams that are tributaries in the watershed. The highest point in the Los Alamos/Pueblo Canyon watershed is the summit of Pajarito Mountain at an elevation of 3,182 m (10,441 ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 30.4 km (18.9 mi) to its confluence with the Rio Grande at an elevation of 1,678 m (5,504 ft). Pueblo Canyon is located on the north side of the Los Alamos townsite and extends from the Jemez Mountains to its confluence with Los Alamos Canyon, approximately 4.5 mi east of the Los Alamos townsite at the intersection of NM 502 and NM 4. Los Alamos Canyon is the southernmost canyon in the watershed. The Los Alamos Canyon/Pueblo Canyon watershed contains numerous springs, streams, and alluvial groundwater.[17]

<u>The identified Los Alamos Canyon and Pueblo Canyon surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.</u>

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Los Alamos Canyon watershed under the relatively permanent standard for determining whether a water is jurisdictional

[17] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. The stream reaches of DP Canyon, Acid Canyon, Pueblo Canyon, and Los Alamos Canyon identified in the Waters of Los Alamos County WOTUS Findings Map in Attachment 1 of this report, and below, have flowing or standing water year-round or continuously during certain times of the year and therefore are relatively permanent waters. Stream gage data and the evaluation of indicators of streamflow permanence support these flow regime determinations. These discrete stream reaches are direct tributaries of the Rio Grande, a traditional navigable water, through downstream tributary reaches that only flow in direct response to precipitation but that connect the upstream reaches to the Rio Grande. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Los Alamos Canyon/Pueblo Canyon watershed stream gages E0391.1, E059.5, E056, E059.5, E059.8 showed year round, or during certain times of the year, continuous presence of surface water and gages E099, E110.7, E060.1, E055.5, E055, E050.1, E042.1, E040, E030 only appeared to have water present at the gage for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in the Los Alamos Canyon/Pueblo Canyon watershed along with the smaller canyons and canyon streams within their watershed. Attachment 11, The Field Observations Notes, includes documentation of streamflow present and indicators of streamflow duration that EPA observed during the 2022 site visit. EPA also considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. Where flow permanence assessment results of stream segments within the 303(d)/(305(b) List conflicted with stream gage data, EPA deferred to the stream gage data only. Where stream gage data was not available, EPA relied on monitoring data associated with the 303(d)/(305(b) List and firsthand observations of stream flow permanence indicators.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was inconsistent with the Clean Water Act. 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Los Alamos Canyon and Pueblo Canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The streams within the Los Alamos Canyon, Pueblo Canyon, along with the smaller canyons and canyon streams within their watershed, receive discharges of stormwater and treated water from the Los Alamos Urban Area and LANL through culverts, pipes, and ditches. These stream channels identified in the Waters of Los Alamos County Point Source Findings Map in Attachment 1 of this report and below serve as discrete conveyances of these discharges to the Rio Grande. Attachment 11 includes EPA's September 2022 site visit observations of culverts and ditches that convey stormwater runoff to the streams of the Los Alamos Canyon/Pueblo Canyon watershed. Site Map 4.1, 4.1a, and 4.1b in this report's attachment demonstrate the hydrologic connection from the representative points of discharges identified by EPA during the September 2022 site visit to the stream channels that convey flow to the Rio Grande during precipitation events.

Summary of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive wastewater and stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest traditional navigable water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Los Alamos Canyon/Pueblo Canyon watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List.

Jurisdiction under 2023 WOTUS Rule, as amended		
NMED Water body name or description	**Flow Duration Findings**	**WOTUS Findings**
Upper Rio Grande (USGS NHD Reach Code 13020201001098)	Continuously flowing water year-round.	Paragraph (a)(1) water, traditional navigable water.
DP Canyon (100m dwnstm grade ctrl to 400m upstm grade ctrl)	Tributaries have continuously flowing or standing water year-round.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Los Alamos Canyon (Los Alamos Rsvr to headwaters)		
Acid Canyon (Pueblo Canyon to headwaters)	Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.	
Pueblo Canyon (Los Alamos WWTP to Acid Canyon)		
Pueblo Canyon (Los Alamos Canyon to Los Alamos WWTP)		
DP Canyon (Los Alamos Canyon to 100m dwnstm of grade ctrl)		
Los Alamos Canyon (San Ildefonso bnd to NM-4)		
Guaje Canyon (San Ildefonso bnd to headwaters)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Rendija Canyon (Guaje Canyon to headwaters)		
Bayo Canyon (San Ildefonso bnd to headwaters)		
Kwage Canyon (Pueblo Canyon to headwaters)		
Walnut Canyon (Pueblo Canyon to headwaters)		
Pueblo Canyon (Acid Canyon to headwaters)		
South Fork Acid Canyon (Acid Canyon to headwaters)		
Graduation Canyon (Pueblo Canyon to headwaters)		
DP Canyon (400m upstream of grade control to upper LANL bnd)		
Los Alamos Canyon (upper LANL bnd to Los Alamos Rsvr)		
Los Alamos Canyon (DP Canyon to upper LANL bnd)		
Los Alamos Canyon (NM-4 to DP Canyon)		
Los Alamos Canyon (Rio Grande to San Ildefonso bnd USGS NHD Reach Codes 13020101000278, 13020101001749, 13020101001863, 13020101001788)		

Attachment 4. Sandia Canyon WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Sandia Canyon
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation
Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S. within Clean Water Act jurisdiction.

☒ There are Waters of the U.S. within Clean Water Act jurisdiction receiving discharges from the facility/project site.

☐ There are water features exempt from Clean Water Act jurisdiction receiving discharges from the facility/project site that do not appear to have a connection to downstream jurisdictional waters.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Sandia Canyon watershed encompasses approximately 5.5 square miles. The highest point in Sandia Canyon watershed is at an elevation of 2,225 m (7,300 ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 19.7 km (12.2 mi) to its confluence with the Rio Grande at an elevation of 1,661 m (5,450 ft). Sandia Canyon is located on the south side of the Los Alamos townsite and extends from the LANL Technical Area 03 property within Los Alamos County to its confluence with the Rio Grande. The Sandia Canyon watershed contains outfalls and a perennial spring.

The identified Sandia Canyon surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Sandia Canyon watershed under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. The stream reaches of Sandia Canyon identified below with flowing or standing water year-round or continuously during certain times of the year are relatively permanent. Stream gage data and the use of indicators of streamflow permanence support these flow regime determinations. These discrete stream reaches are direct tributaries of the Rio Grande, a traditional navigable water, through downstream non-relatively permanent tributary reaches that only flow in direct response to precipitation but that connect the upstream reaches to the Rio Grande. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Sandia Canyon at gages E121, E122, and E123 showed year-round or, during certain times of the year, continuous presence of surface water. Gages E124 and E125 further downstream exhibited surface water presence for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in Sandia Canyon watershed along with the smaller canyons and canyon streams within its watershed. Attachment 11, Field Observations Notes, includes documentation of streamflow present and indicators of streamflow duration that EPA observed during the September 2022 site visit. EPA considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. Where flow permanence assessment results of stream segments within the 303(d)/(305(b) List conflicted with stream gage data, EPA deferred to the stream gage data only. Where stream gage data was not available, EPA relied on monitoring data associated with the 303(d)/(305(b) List and first hand observations of stream flow permanence indicators.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was inconsistent with the Clean Water Act. 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Sandia Canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The stream segments within Sandia Canyon receive discharges of stormwater and treated water from the Los Alamos Urban Area and LANL through culverts, pipes, and ditches. These stream channels serve as discrete conveyances of these discharges to the Rio Grande. Attachment 11 includes EPA's September 2022 site visit observations of outfalls, as well as culverts and ditches that convey stormwater runoff to the streams of the Sandia Canyon watershed. Site Map 4.2, 4.2a, 4.2b in Attachment 1 of this report demonstrate the hydrologic connection from the representative points of discharges identified by EPA during the September 2022 site visit to the stream channels that convey flow to the Rio Grande during precipitation events.

Summary of Downstream Connectivity of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive wastewater and stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest traditional navigable water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Sandia Canyon watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. To ensure the appropriate Clean Water Act jurisdictional policies are applied based on the timing of the associated residual designation decision for the Los Alamos County MS4s, EPA analyzed the jurisdictional status of the waters draining the Los Alamos County canyons under both the pre-2015 regulatory regime ensuring consistency with the Supreme Court's decision in *Sackett*, and under the 2023 Rule, as amended.

<table>
<tr><th colspan="3">Jurisdiction under 2023 WOTUS Rule, as amended</th></tr>
<tr><th>NMED Water body name or description</th><th>Flow Duration Findings</th><th>WOTUS Findings</th></tr>
<tr><td>Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130)</td><td>Continuously flowing water year-round.</td><td>Paragraph (a)(1) water, traditional navigable water.</td></tr>
<tr><td>Sandia Canyon (Sigma Canyon to NPDES outfall 001)</td><td>Tributaries have continuously flowing or standing water year-round.</td><td>Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Sandia Canyon (within LANL below Sigma Canyon)</td><td rowspan="2">Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.</td><td rowspan="2">Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Sandia Canyon (below LANL boundary USGS NHD Reach Codes 13020201000598 and 13020201000596)</td></tr>
</table>

Attachment 5. Mortandad Canyon and Canada de Buey Canyon WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Mortandad Canyon and Canada de Buey
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation
Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S. within Clean Water Act jurisdiction.

☒ There are Waters of the U.S. within Clean Water Act jurisdiction receiving discharges from the facility/project site.

☐ There are water features exempt from Clean Water Act jurisdiction receiving discharges from the facility/project site that do not appear to have a connection to downstream jurisdictional waters.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Mortandad Canyon and Canada de Buey watershed encompasses approximately 10 square miles and includes Effluent Canyon and Ten Site Canyon streams as tributaries within this watershed. The highest point in Mortandad Canyon and Canada de Buey watershed is at an elevation of 22,499 m (7,380 ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 19 km (12 mi) to its confluence with the Rio Grande at an elevation of 1,646 m (5,400 ft). The Canada Del Buey watershed begins on LANL Property in Technical Area 52 and Technical Area 36 at an elevation of 2,195 m (7,200 ft) and flows for 9.7 km (6 miles) to its confluence with the Mortandad Canyon stream at 1,719 m (5,640 ft) elevation. Mortandad Canyon and Canada de Buey are located on the south side of the Los Alamos townsite and extends from LANL Technical Area 03 property to its confluence with Canada del Buey approximately 0.5 miles upstream from the Mortandad Confluence with the Rio Grande.[18] Canada del Buey, above its confluence with Mortandad Canyon, receives discharges from Los Alamos County White Rock Wastewater Treatment Plant Outfall 001.

[18] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

The identified Mortandad Canyon and Canada del Buey surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Mortandad Canyon and Canada del Buey watershed under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. The stream reaches of Effluent Canyon and Canada del Buey identified below with flowing or standing water year-round or continuously during certain times of the year are relatively permanent. Use of indicators of streamflow permanence, aerial imagery, and effluent data support these flow regime determinations. These discrete stream reaches are direct tributaries of the Rio Grande, a traditional navigable water, through downstream non-relatively permanent tributary reaches that only flow in direct response to precipitation but that connect the upstream reaches to the Rio Grande. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Gages E201, E201.5, E204, E229.3 in Canada del Buey, Ten Site, and Mortandad canyons exhibited surface water presence for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in Mortandad Canyon and Cana de Buey Canyon watershed along with the smaller canyons and canyon streams within their watershed. Attachment 11, Field Observations Notes, includes documentation of streamflow present and indicators of streamflow duration that EPA observed during the September 2022 site visit. EPA considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. This monitoring data and assessment results indicates that Effluent Canyon is an intermittent stream according to field indicators interpreted using the New Mexico Hydrology Protocol. Based on a review of aerial imagery and Los Alamos County White Rock Wastewater Treatment Plant (NPDES

Permit No. NM0020133) effluent data, as well as direct observations from the field, Canada del Buy from its confluence with Mortandad Canyon to the Rio Grande also has flow continuously during certain times of the year. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. Where flow permanence assessment results of stream segments within the 303(d)/(305(b) List conflicted with stream gage data, EPA deferred to the stream gage data only. Where stream gage data was not available, EPA relied on monitoring data associated with the 303(d)/(305(b) List and first hand observations of stream flow permanence indicators.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was inconsistent with the Clean Water Act. 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Mortandad Canyon and Canada de Buey surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The streams within Mortandad Canyon, Canada de Buey, along with the smaller canyons and canyon streams within their watershed, receive discharges of stormwater and treated water from an urban area and LANL through culverts, pipes, and ditches. These stream channels serve as discrete conveyances of these discharges to the Rio Grande. Attachment 11 includes EPA's September 2022 site visit observations of outfalls, as well as culverts and ditches that convey stormwater runoff to the streams of the Mortandad and Canada Del Buey watershed. Site Map 4.3, 4.3a, 4.3b in Attachment 1 demonstrate the hydrologic connection from the representative points of discharges identified by EPA during the September 2022 site visit to the stream channels that convey flow to the Rio Grande during precipitation events.

Summary of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive wastewater and stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest traditional navigable water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Mortandad Canyon and Canada de Buey watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. To ensure the appropriate Clean Water Act jurisdictional policies are applied based on the timing of the associated residual designation decision for the Los Alamos County MS4s, EPA analyzed the jurisdictional status of the waters draining the Los Alamos County canyons under both the pre-2015 regulatory regime ensuring consistency with the Supreme Court's decision in *Sackett*, and under the 2023 Rule, as amended.

<table>
<tr><th colspan="3">Jurisdiction under 2023 WOTUS Rule, as amended</th></tr>
<tr><th>NMED Water body name or description</th><th>Flow Duration Findings</th><th>WOTUS Findings</th></tr>
<tr><td>Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130)</td><td>Continuously flowing water year-round.</td><td>Paragraph (a)(1) water, traditional navigable water.</td></tr>
<tr><td>Effluent Canyon (Mortandad Canyon to headwaters)</td><td rowspan="2">Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.</td><td rowspan="2">Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Canada del Buey (Rio Grande to Mortandad Confluence USGS NHD Reach Code 13020201000196)</td></tr>
<tr><td>Ten Site Canyon</td><td rowspan="4">Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.</td><td rowspan="4">Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Mortandad Canyon (within LANL)</td></tr>
<tr><td>Canada del Buey (within LANL)</td></tr>
<tr><td>Canada del Buey (San Ildefonso Pueblo to LANL boundary)</td></tr>
</table>

Attachment 6. Pajarito Canyon WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Pajarito Canyon
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation

Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S. within Clean Water Act jurisdiction.

☒ There are Waters of the U.S. within Clean Water Act jurisdiction receiving discharges from the facility/project site.

☐ There are water features exempt from Clean Water Act jurisdiction receiving discharges from the facility/project site that do not appear to have a connection to downstream jurisdictional waters.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Pajarito Canyon watershed encompasses approximately 13.6 square miles and includes Twomile and Threemile Canyons and Arroyo de la Delfe as tributaries in the watershed. The highest point in Pajarito Canyon watershed is at an elevation of 3,182 m (10,441 ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 27 km (17 mi) to its confluence with the Rio Grande at an elevation of 1,649 m (5,410 ft). Pajarito Canyon is located on the south side of the Los Alamos townsite and extends from Pajarito Mountain in the Sierra de los Valles to its confluence with the Rio Grande. The Pajarito Canyon watershed contains seasonal and perennial springs, streams, and alluvial groundwater.[19]

<u>The identified Pajarito Canyon surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.</u>

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Pajarito Canyon watershed under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard.

[19] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

The stream reaches of Pajarito Canyon and Arroyo de la Delfe identified below with flowing or standing water year-round or continuously during certain times of the year relatively permanent. Stream gage data and the use of indicators of streamflow permanence support these flow regime determinations. These discrete stream reaches are direct of the Rio Grande, a traditional navigable water, through downstream non-relatively permanent tributary reaches that only flow in direct response to precipitation but that connect the upstream reaches to the Rio Grande. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Gages E240, E243, E244, E245.5, E246, and E250 in Pajarito Canyon, Two Mile Canyon, and Three Mile Canyon generally exhibited surface water presence for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in the Pajarito Canyon watershed along with the smaller canyons and canyon streams within its watershed. Attachment 11, Field Observations Notes, includes documentation of streamflow present and indicators of streamflow duration that EPA observed during the September 2022 site visit. EPA considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. This monitoring data and assessment results indicate that the Pajarito Canyon stream have intermittent and perennial flow permanence in its headwaters, and near its confluences with Arroyo de la Delfe and Starmers Gulch according to field indicators interpreted using the New Mexico Hydrology Protocol. The 303(d)/305(b) List also indicates that Arroyo de la Delfe has a perennial flow regime prior to its confluence with the Pajarito Canyon stream. These areas do not have active stream gage data coverage and therefore EPA relied on these monitoring data and indicator assessments to conclude these canyon stream reaches flow continuously during certain times of the year. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. Where flow permanence assessment results of stream segments within the 303(d)/(305(b) List conflicted with stream gage data, EPA deferred to the stream gage data only.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was inconsistent with the Clean Water Act. 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Pajarito Canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The streams within Pajarito Canyon and Arroyo de la Delfe receive discharges of stormwater from an urban area and LANL through culverts, pipes, and ditches. These stream channels serve as discrete conveyances of these discharges to the Rio Grande. Attachment 11 includes EPA's September 2022 site visit observations of culverts and ditches that convey stormwater runoff to the streams of the Pajarito Canyon watershed. Site Map 4.4, 4.4a, and 4.4b in Attachment 1 demonstrate the hydrologic connection from the representative points of discharges identified by EPA during the September 2022 site visit to the stream channels that convey flow to the Rio Grande during precipitation events.

Summary of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest traditional navigable water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Pajarito Canyon watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. To ensure the appropriate Clean Water Act jurisdictional policies are applied based on the timing of the associated residual designation decision for the Los Alamos County MS4s, EPA analyzed the jurisdictional status of the waters draining the Los Alamos County canyons under both the pre-2015 regulatory regime ensuring consistency with the Supreme Court's decision in *Sackett*, and under the 2023 Rule, as amended.

Jurisdiction under 2023 WOTUS Rule, as amended		
NMED Water body name or description	**Flow Duration Findings**	**WOTUS Findings**
Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130)	Continuously flowing water year-round.	Paragraph (a)(1) water, traditional navigable water.
Pajarito Canyon (500m ds of and to Arroyo de la Delfe)	Tributaries have continuously flowing or standing water year-round.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Arroyo de la Delfe (Pajarito Canyon to Kieling Spring)		
Pajarito Canyon (upper LANL bnd to headwaters)	Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.	
Pajarito Canyon (Starmers Gulch to Homestead Spring)		
Pajarito Canyon (Arroyo de La Delfe to Starmers Gulch)		
Two-Mile Canyon (Pajarito to headwaters)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Pajarito Canyon (Above Homestead Spring to LANL boundary)		
Pajarito Canyon (Twomile Cyn to 500m ds of A. de La Delfe)		
Arroyo de la Delfe (Above Kieling Spring to headwaters)		
Three Mile Canyon Canyon (Pajarito Canyon to headwaters)		
Pajarito Canyon (Lower LANL bnd to Twomile Canyon)		
Pajarito Canyon (Rio Grande to LANL bnd)		

Attachment 7. Water Canyon WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Water Canyon
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation

Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S. within Clean Water Act jurisdiction.

☒ There are Waters of the U.S. within Clean Water Act jurisdiction receiving discharges from the facility/project site.

☐ There are water features exempt from Clean Water Act jurisdiction receiving discharges from the facility/project site that do not appear to have a connection to downstream jurisdictional waters.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Water Canyon watershed encompasses approximately 13 square miles and includes Canon de Valle, Indio Canyon, Fish Ladder Canyon, Potrillo Canyon, Fence Canyon, and S-Site Canyon streams within its watershed. The highest point in Water Canyon watershed is at an elevation of 3,164 m (10,380ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 27 km (17 mi) to its confluence with the Rio Grande. Water Canyon is located on the south side of the Los Alamos townsite and extends from the eastern slopes of the Sierra de los Valles to its confluence with the Rio Grande. The Water Canyon watershed contains perennial springs, streams, and alluvial groundwater.[20]

The identified Water Canyon surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Water Canyon watershed under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. The stream reaches of Water Canyon, Canon de Valle, and S-Site Canyon identified below with flowing

[20] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

or standing water year-round or continuously during certain times of the year are relatively permanent. Stream gage data and the use of indicators of streamflow permanence support these flow regime determinations. These discrete stream reaches are direct tributaries of the Rio Grande, a traditional navigable water, through downstream non-relatively permanent tributary reaches that only flow in direct response to precipitation but that connect the upstream reaches to the Rio Grande. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

During EPA's 2022 site visit, EPA documented streams with ordinary high water marks in Water Canyon watershed along with the smaller canyons and canyon streams within its watershed. Attachment 11, Field Observations Notes, includes documentation of streamflow present and indicators of streamflow duration that EPA observed during the September 2022 site visit. EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Gages E252, E253, E256, E265, E267 in Water Canyon, Canon de Valle, and Potrillo Canyon generally exhibited surface water presence for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

EPA considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. This monitoring data and assessment results indicate that the Canon de Valle, Water Canyon, and S-Site Canyon have perennial and/or intermittent streamflow regimes according to field indicators interpreted using the New Mexico Hydrology Protocol. These areas do not have active stream gage data coverage and therefore EPA relied on these monitoring data and indicator assessments to conclude these canyon stream reaches flow continuously during certain times of the year. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages. Where flow permanence assessment results of stream segments within the 303(d)/(305(b) List conflicted with stream gage data, EPA deferred to the stream gage data only.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was inconsistent with the Clean Water Act. 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Water Canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The streams within Water Canyon, along with the smaller canyons and canyon streams within their watershed, receive discharges of stormwater from LANL through culverts, pipes, and ditches. Attachment 11 includes EPA's September 2022 site visit observations of culverts and ditches that convey stormwater runoff to the streams of the Water Canyon watershed. These stream channels serve as discrete conveyances of these discharges to the Rio Grande. Site Map 4.5, 4.5a, and 4.5b in Attachment 1 demonstrate the hydrologic connection from the representative points of discharges identified by EPA during the September 2022 site visit to the stream channels that convey flow to the Rio Grande during precipitation events.

Summary of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive and stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest traditional navigable water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Water Canyon watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. To ensure the appropriate Clean Water Act jurisdictional policies are applied based on the timing of the associated residual designation decision for the Los Alamos County MS4s, EPA analyzed the jurisdictional status of the waters draining the Los Alamos County canyons under both the pre-2015 regulatory regime ensuring consistency with the Supreme Court's decision in *Sackett*, and under the 2023 Rule, as amended.

Jurisdiction under 2023 WOTUS Rule, as amended		
NMED Water body name or description	**Flow Duration Findings**	**WOTUS Findings**
Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130)	Continuously flowing water year-round.	Paragraph (a)(1) water, traditional navigable water.
Canon de Valle (LANL gage E256 to Burning Ground Spur)	Tributaries have continuously flowing or standing water year-round.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Water Canyon (within LANL above NM 501)	Tributaries have continuously flowing or standing water year-round.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Water Canyon (Area-A Cyn to NM 501)	Tributaries have continuously flowing or standing water year-round.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Canon de Valle (LANL bnd to headwaters)	Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
S-Site Canyon (Water Canyon to headwaters)	Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Water Canyon (upper LANL bnd to headwaters)	Tributaries have continuously flowing or standing water during certain times of the year for more than a short duration in direct response to precipitation.	Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.
Fish Ladder Canyon (Canon del Valle to headwaters)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Canon de Valle (within LANL above Burning Ground Spur)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Canon de Valle (below LANL gage E256)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Fence Canyon (above Potrillo Canyon)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Potrillo Canyon (above Water Canyon)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Indio Canyon (above Water Canyon)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Water Canyon (within LANL below Area-A Cyn)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.
Water Canyon (Rio Grande to lower LANL bnd)	Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.	Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Attachment 8. Ancho Canyon WOTUS Analysis Memorandum

Section 1. Site or Facility Information

Name of Waters under evaluation:	Waters of Ancho Canyon
Name of Facility or Project Site:	Los Alamos County MS4 Residual Designation

Name of nearest downstream (a)(1) water:	Rio Grande

Section 2. Summary of Jurisdictional Findings

☒ There are waters or features serving as a direct conveyance of discharges from the facility/project site to downstream Waters of the U.S. within Clean Water Act jurisdiction.

☒ There are Waters of the U.S. within Clean Water Act jurisdiction receiving discharges from the facility/project site.

☐ There are water features exempt from Clean Water Act jurisdiction receiving discharges from the facility/project site that do not appear to have a connection to downstream jurisdictional waters.

☐ There are no discharges from the facility/project site reaching potential Waters of the U.S.

Section 3. Detailed Findings

The Ancho Canyon watershed encompasses approximately 6.8 square miles, and the North Ancho Canyon stream is a tributary in the watershed. The highest point in Ancho Canyon watershed is at an elevation of 2,220 m (7285ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 24 km (15 mi) to its confluence with the Rio Grande at an elevation of 1,649 m (5,410 ft). Ancho Canyon is located on the south side of the Los Alamos townsite and extends from the Frijoles Mesa to its confluence with the Rio Grande. The Ancho Canyon watershed contains a perennial spring and streams.[21]

The identified Ancho Canyon surface waters are waters of the United States because they are relatively permanent tributaries of a traditional navigable water, the Rio Grande.

EPA evaluated the flow permanence of stream reaches in the canyons that drain the Ancho Canyon watershed under the relatively permanent standard for determining whether a water is jurisdictional under the Clean Water Act. EPA used multiple indicators, data points, and sources of information to determine whether waters in the canyons are tributaries that meet the relatively permanent standard. The stream reach of Ancho Canyon identified below with flowing or standing water year-round or

[21] N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

continuously during certain times of the year is relatively permanent. Stream gage data and the use of indicators of streamflow permanence support this flow regime determinations. This discrete stream reach is a direct tributary of the Rio Grande, a traditional navigable water. Therefore, the waters identified as relatively permanent tributaries of the Rio Grande in this report are jurisdictional under the agencies' regulations (the 2023 Rule, as amended), and the assertion of jurisdiction is consistent with *Sackett*.

Due to LANL security protocols, EPA was unable to visit Ancho Canyon stream sites to conduct direct observations. However, EPA evaluated stream monitoring station flow data published in the yearly LANL Surface Water Data at Los Alamos National Laboratory reports for Water Years 2018-2022 to verify presence and/or absence of surface water in the canyon streams to support evaluation of flow permanence in the canyon streams. Gage E275 in Ancho Canyon generally exhibited surface water presence for a short period of time in direct response to precipitation events. Attachment 9 of this report includes stream gage and precipitation station gage monitoring results from LANL monitoring efforts for Water Years 2018-2022. Relatively permanent flow can result from upstream contributions of flow, effluent flow, or snowpack that melts slowly over time. Relatively permanent flow may also occur because of multiple back-to-back storm events throughout a watershed, during which the combination of stormwater and upstream contributions of flow is high enough to exceed rates of transmission loss for an extended period. This is particularly common during New Mexico's monsoon seasons which generally occur from early July to early September. Relatively permanent flow may also follow one or more larger storm events, when floodwaters locally recharge the riparian aquifer through bank infiltration, which supplies sustained baseflow throughout the monsoon season. EPA notes that the relatively permanent standard for tributaries does not require that relatively permanent waters originate from any particular source because the source of a tributary's flow does not influence its connection to downstream waters.

EPA also considered flow permanence indicators and monitoring data for stream segments in the canyons collected in association with the 2020 - 2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated List. The specific assessment units EPA evaluated are provided in Attachment 10 of this report. This monitoring data and assessment results indicate that Ancho Canyon from Ancho Springs to its confluence with the Rio Grande has a perennial streamflow regime according to field indicators interpreted using the New Mexico Hydrology Protocol. This area does not have active stream gage data coverage and therefore EPA relied on these monitoring data and indicator assessments to conclude these canyon stream reaches flow continuously during certain times of the year. EPA utilized a weight of evidence approach for stream flow permanence evaluation and prioritized direct and continuous monitoring result data from stream gages.

Note that prior to the *Sackett* decision, a number of non-relatively permanent tributaries of the Rio Grande evaluated by EPA would have been jurisdictional on a case-specific basis under the significant nexus standard, as implemented under both the pre-2015 regulatory regime and the 2023 Rule. However, the Supreme Court in *Sackett* concluded that the significant nexus standard was "inconsistent with the text and structure of the [Clean Water Act]." 143 S. Ct. at 1341. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. Therefore, these non-relatively permanent tributaries are no longer jurisdictional.

The Ancho Canyon surface waters are conveyances that receive stormwater from the MS4s and discharge that stormwater directly to a traditional navigable water, the Rio Grande.

The streams within Ancho Canyon receive discharges of stormwater from LANL property through culverts and ditches. These stream channels serve as discrete conveyances of these discharges to the Rio Grande.

Summary of Waters Subject to Clean Water Act

The waters evaluated by EPA that receive wastewater and stormwater discharges from residential and industrial areas in Los Alamos County are described below from the review area through the flow path to the nearest Traditional Navigable Water. The review area is the area in which waters are being analyzed for jurisdiction and for this project entails the Ancho Canyon watershed in Los Alamos County. The table below does not reflect all waters present in the review area watershed, but rather only those that EPA was able to observe during the field investigation or has accessible data to evaluate from outside sources including NMED and LANL. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. EPA has utilized the nomenclature for specific stream reaches that has been established in the New Mexico Clean Water Act §303(d)/§305(b) Integrated List. To ensure the appropriate Clean Water Act jurisdictional policies are applied based on the timing of the associated residual designation decision for the Los Alamos County MS4s, EPA analyzed the jurisdictional status of the waters draining the Los Alamos County canyons under both the pre-2015 regulatory regime ensuring consistency with the Supreme Court's decision in *Sackett*, and under the 2023 Rule, as amended.

<table>
<tr><th colspan="3">Jurisdiction under 2023 WOTUS Rule, as amended</th></tr>
<tr><th>NMED Water body name or description</th><th>Flow Duration Findings</th><th>WOTUS Findings</th></tr>
<tr><td>Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130)</td><td>Continuously flowing water year-round.</td><td>Paragraph (a)(1) water, traditional navigable water.</td></tr>
<tr><td>Ancho Canyon (Rio Grande to Ancho Springs)</td><td>Tributaries have continuously flowing or standing water year-round.</td><td>Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>North Fork Ancho Canyon (Ancho Canyon to headwaters)</td><td rowspan="3">Tributaries have continuously flowing or standing water for a short duration in direct response to precipitation.</td><td rowspan="3">Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.</td></tr>
<tr><td>Ancho Canyon (North Fork to headwaters)</td></tr>
<tr><td>Ancho Canyon (Above Ancho Springs to North Fork Ancho)</td></tr>
</table>

Attachment 9. Canyon Stream Gage and Precipitation Data

Summary of LANL Surface Water Data compiled by EPA for analysis for Water Years 2018 to 2022

Canyon Site Gage Names	Days with Flow per water year				
	WY18	WY19	WY20	WY21	WY22
E026 Los Alamos Canyon below Ice Rink	115	211	130	74	7
E030 Los Alamos Canyon above DP Canyon	6	54	1	7	5
E038 DP Canyon above TA-21	53	130	68	76	69
E039.1 DP Canyon below Grade Control Structure	128	217	271	244	207
E040 DP Canyon above Los Alamos Canyon	36	81	70	20	48
E042.1 Los Alamos above Low Head Weir	54	124	41	15	28
E050.1 Los Alamos Canyon below Low Head Weir	8	103	5	2	114
E055 Pueblo Canyon above Acid Canyon	26	46	51	6	55
E055.5 South Fork of Acid Canyon	N/A	228	95	90	56
E056 Acid Canyon above Pueblo Canyon	69	173	148	153	139
E059.5 Pueblo Canyon below WWTF	121	300	281	335	362
E059.8 Pueblo Canyon below Wetlands	156	221	181	169	229
E060.1 Pueblo Canyon below Grade Control Structure	2	19	14	48	11
E121 Sandia Canyon Right Fork at Power Plant	365	365	366	365	314
E122 Sandia Canyon Left Fork at Asphalt Plant	365	365	360	365	362
E123 Sandia Canyon below Wetlands	363	356	355	354	358
E124 Sandia above Firing Range	8	10	24	7	20
E125 Sandia Canyon above SR 4	2	4	67	13	30
E201 Mortandad Canyon above Ten Site Canyon	22	40	88	59	45
E201.5 Ten Site Canyon above Mortandad Canyon	2	76	3	5	3
E204 Mortandad Canyon at LANL Boundary	18	3	28	27	23
E229.3 Cañada del Buey at SR 4	10	16	4	7	6
E240 Pajarito Canyon below SR 501	2	111	36	23	1
E243 Pajarito Canyon above Two Mile Canyon	0	0	0	0	6
E244 Two Mile Canyon above Pajarito Canyon	2	154	54	7	28
E245.5 Pajarito Canyon above Three Mile Canyon	79	62	3	10	35
E246 Three Mile Canyon above Pajarito Canyon	4	132	15	0	137
E250 Pajarito Canyon above SR 4	0	16	28	45	4
E252 Water Canyon above SR 501	147	210	210	3	45
E253 Cañon de Valle above SR 501	0	0	88	246	4
E256 Cañon de Valle below MDA	154	175	147	204	70
E265 Water Canyon below SR 4	10	112	59	62	3
E267 Potrillo Canyon above SR 4	1	0	0	2	28
E275 Ancho Canyon below SR 4	16	5	21	5	25
E338 Chaquehui at TA-33	5	3	2	5	13
E340 Chaquehui Tributary at TA-33	3	2	5	17	72
E099 Guaje Canyon at SR	N/A	N/A	N/A	N/A	38
E110.7 Lower Los Alamos Canyon at Rio Grande	N/A	N/A	N/A	N/A	6

Summary of LANL Monsoon Season Precipitation Data compiled by EPA for analysis for Water Years 2018 to 2022

Rain Gage Names	Monsoon Season Number of days with precipitation				
	WY18	WY19	WY20	WY21	WY22
E038	43	41	35	44	48
E042.1	43	35	28	39	41
R055.5	50	43	42	51	50
E121.9	54	44	39	50	46
E200.5	46	41	30	43	40
E203	45	37	34	49	46
E240	49	51	38	50	48
E245.5	43	51	33	47	48
E253	53	41	37	54	48
E257	50	47	39	50	40
E262.4	42	42	35	42	45
E265	42	33	31	40	51
E267.4	37	44	30	41	35
E340	42	42	29	40	52
TA-06	40	43	36	44	44
TA-49	39	38	37	40	39
TA-53	39	39	29	43	42
TA-54	32	31	28	36	39

LANL Data Sources for EPA analysis compilation for Water Years 2018 to 2022

N3B Report, June 2023, EM2023-0260 Surface Water Data at Los Alamos National Laboratory, Water Year 2022.

N3B Report, May 2022, EM2022-0166 Surface Water Data at Los Alamos National Laboratory, Water Year 2021.

N3B Report, June 2021, EM2021-0220 Surface Water Data at Los Alamos National Laboratory, Water Year 2020.

N3B Report, June 2020, EM2020-0220 Surface Water Data at Los Alamos National Laboratory, Water Years 2018-2019.

Attachment 10. §303(d)/§305(b) Integrated List Assessment Units Analyzed

Assessment Units within the Canyons Draining Los Alamos County from 2020-2022 State of New Mexico Clean Water Act §303(d)/§305(b) Integrated Report

Assessment Unit Name	Waterbody Report Link
Los Alamos Canyon (Los Alamos Rsvr to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-127.A_00/2022
Pajarito Canyon (Arroyo de La Delfe to Starmers Gulch)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-126.A_01/2022
Pajarito Canyon (Rio Grande to LANL bnd)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_040/2022
Guaje Canyon (San Ildefonso bnd to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_005/2022
Water Canyon (Area-A Canyon to NM 501)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-126.A_03/2022
Water Canyon (within LANL above NM 501)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_12/2022
Starmers Gulch (Pajarito Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_21/2022
Kwage Canyon (Pueblo Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_003/2022
Los Alamos Canyon (San Ildefonso bnd to NM-4)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_000/2022
Canada del Buey (San Ildefonso Pueblo to LANL bnd)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_053/2022
Fence Canyon (above Potrillo Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_04/2022
Bayo Canyon (San Ildefonso bnd to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_007/2022
Canon de Valle (within LANL above Burning Ground Spr)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_02/2022
Effluent Canyon (Mortandad Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_18/2022
Fish Ladder Canyon (Canon del Valle to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_19/2022
Los Alamos Canyon (upper LANL bnd to Los Alamos Rsvr)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_049/2022
Water Canyon (Rio Grande to lower LANL bnd)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_044/2022
Rendija Canyon (Guaje Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_045/2022
S-Site Canyon (Water Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_20/2022
Indio Canyon (above Water Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_05/2022
Pajarito Canyon (Twomile Cyn to 500m ds of A. de La Delfe)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_06/2022
Ancho Canyon (North Fork to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_046/2022

Los Alamos Canyon (NM-4 to DP Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_006/2022
North Fork Ancho Canyon (Ancho Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_055/2022
Los Alamos Canyon (DP Canyon to upper LANL bnd)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_063/2022
Pajarito Canyon (500m ds of and to Arroyo de la Delfe)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_036/2022
DP Canyon (Los Alamos Canyon to 100m dwnstm of grade ctrl)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_10/2022
Pueblo Canyon (Los Alamos WWTP to Acid Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_006/2022
Canon de Valle (below LANL gage E256)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_01/2022
Ten Site Canyon (Mortandad Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_17/2022
Pajarito Canyon (Starmers Gulch to Homestead Spring)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_37/2022
Pueblo Canyon (Los Alamos Canyon to Los Alamos WWTP)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-99.A_001/2022
Sandia Canyon (within LANL below Sigma Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_11/2022
Canon de Valle (upper LANL bnd to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_051/2022
Three Mile Canyon (Pajarito Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_091/2022
Water Canyon (upper LANL bnd to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_052/2022
Arroyo de la Delfe (Above Kieling Spring to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_16/2022
DP Canyon (100m dwnstm grade ctrl to 400m upstm grade ctrl)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_24/2022
South Fork Acid Canyon (Acid Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_029/2022
Pajarito Canyon (upper LANL bnd to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_048/2022
Ancho Canyon (Rio Grande to Ancho Springs)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_154/2022
Mortandad Canyon (within LANL)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_042/2022
Pueblo Canyon (Acid Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_043/2022
Canon de Valle (LANL gage E256 to Burning Ground Spr)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-126.A_00/2022
Chaquehui Canyon (within LANL)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_03/2022
Water Canyon (within LANL below Area-A Cyn)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_13/2022
DP Canyon (400m upstream of grade control to upper LANL bnd)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_14/2022

Acid Canyon (Pueblo Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_002/2022
Twomile Canyon (Pajarito to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_15/2022
Pajarito Canyon (Lower LANL bnd to Twomile Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_08/2022
Arroyo de la Delfe (Pajarito Canyon to Kieling Spring)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_36/2022
Sandia Canyon (Sigma Canyon to NPDES outfall 001)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_047/2022
Canada del Buey (within LANL)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_00/2022
Pajarito Canyon (Above Homestead Spring to LANL boundary)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_07/2022
Potrillo Canyon (above Water Canyon)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-128.A_09/2022
Graduation Canyon (Pueblo Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_005/2022
Walnut Canyon (Pueblo Canyon to headwaters)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-97.A_004/2022
Ancho Canyon (Above Ancho Springs to North Fork Ancho)	https://mywaterway.epa.gov/waterbody-report/21NMEX/NM-9000.A_054/2022

Attachment 11. Field Observation Notes

Section 1. Los Alamos Canyon/Pueblo Canyon Watershed Field Observations

Location: DP E039.1	
Field Observations	I observed the channel characteristics upstream and downstream at the grade control structure. I noted that there was a short break in ordinary high water mark at the grade control structure, but downstream of the influence of the structure, the channel began to incise and exhibit well-defined bed and banks, wrack lines, and strong riparian vegetation signatures. I noted the presence of *Typha* species visible in the channel downstream of the grade control structure. 30 meters downstream of the EO39.1 gage and grade control structure I noted the presence of surface water as well as *Salix exigua* (narrowleaf willow) seedlings and saplings along the channel banks. The strong riparian vegetation communities composed of plants with hydrophytic wetland indicator status was consistent throughout the area. I observed the EO39.1 gage which measures the presence of streamflow and observed surface flow present within the flume of the gage. LANL staff noted they had observed a recent transition to intermittent[22] flow regime at this segment in gage data and field monitoring. I also noted that some of the willows on the streambanks had been lain over in the direction of high flows with the accumulation of large woody debris.
Interpretation of Observations	Grade control structures often slow surface water movement and trap sediments that would otherwise influence channel morphology, so upstream of grade control structures a channel may lose indicators of ordinary high water mark though would have such indicators both further upstream and downstream. All *Typha* (cattail) species have been assigned a National Wetland Plant List wetland indicator status of "Obligate" for the Western Mountains, Valleys, Coast, and the Arid West, meaning the plant is a hydrophyte and almost always occurs in wetlands.[23] Streams with long streamflow durations tend to support riparian vegetation with a distinct set of plant species not found in surrounding uplands. Many of these plants will include hydrophytes that require saturated soil for some of their lifespan. In some cases, upland species will grow more

[22] LANL staff use the New Mexico Hydrology Protocol as part of their monitoring and assessment efforts. The Hydrology Protocol defines intermittent as, ""Intermittent" when used to describe a surface water of the state means the water body contains water for extended periods only at certain times of the year, such as when it receives seasonal flow from springs or melting snow.

[23] USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 12/08/2022). National Plant Data Team, Greensboro, NC USA. Note: *This list is used for all wetland determinations and delineations performed for Section 404 of the Clean Water Act, the Swampbuster provisions of the Food Security Act, and the National Wetland Inventory.*

	vigorously in and or near the channel than in surrounding uplands.[24] *Salix exigua (narrowleaf willow)* has a wetland indicator status of "facultative wetland," meaning they usually occur in wetlands but may occur in non-wetlands.[25] The presence of hydrophytes with "obligate" and "facultative wetland" indicator status like *Salix exigua* in streams and riparian areas is a strong indicator of flow permanence in Mountain West and Arid West streams. The visible presence of surface water flow through the flume as well as in the upstream and downstream channel indicates that gage data is representing typical conditions within the channel. Studies of indicators of flow permanence in streams have found that plants with facultative wetland and obligate indicator status are equally important for determining streamflow duration.[26] The ordinary high water mark (OHWM) defines the lateral extent of nontidal aquatic features in the absence of adjacent wetlands in the United States. The federal regulatory definition of the OHWM, 33 CFR 328.3(c)(7), states, "The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." The OHWM has been used to delineate the jurisdictional limits of certain aquatic features since the Rivers and Harbors Act of 1899. The OHWM defines the jurisdictional limits for both non-tidal streams and lakes, but the U.S. Army Corps of Engineers OHWM manual focuses solely on a methodology for identifying and delineating the OHWM in streams. In this context, identification refers to recognizing evidence at places along the stream, and delineation refers to connecting the evidence to arrive at an OHWM determination. The OHWM is identified through physical characteristics that correspond to a break in bank slope, a transition in vegetation type and coverage, and changes in sediment characteristics. The physical characteristics corresponding to the

[24] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

[25] USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 12/08/2022). National Plant Data Team, Greensboro, NC USA. Note: *This list is used for all wetland determinations and delineations performed for Section 404 of the Clean Water Act, the Swampbuster provisions of the Food Security Act, and the National Wetland Inventory.*

[26] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.
Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Lowman, H., Allen, A., Leidy, R., Robb, J.T., and David, G.C.L. 2021. User Manuel for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0. Document No. EPA800-5-21001

	location of the OHWM can be divided into four indicator categories: geomorphic, vegetation, sediment, and ancillary. Geomorphic refers to that part of the landscape shaped by stream processes and, therefore, shaped by a range of flows. Vegetation and sediment are described separately to increase understanding of how stream processes influence vegetation growth and sediment erosion and deposition. Ancillary indicators are a separate category because they are common fluvial characteristics, such as the deposition of large wood (LW), that do not necessarily fit into the three previous categories but can assist in determining the location of the OHWM in some circumstances. [27] The strong indicators of ordinary high water mark at this site included the well-defined channel bed and banks, wrack lines, and strong riparian vegetation signatures. For example, accumulation of organic litter like wrack lines on streambanks or outside of a stream can be used to provide evidence of high flows. These indicators highlighted the difference in the hydrologic regime between the channel and the upland areas in the canyon. It is typical to see channels become more strongly defined as they move downstream from grade control structures and regain velocity and the ability to transport flows with sediments. Based on the site observations, this area appears to have at least seasonal flow that support riparian species that tolerate extended periods of soil saturation.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	DP Canyon (100m dwnstm grade ctrl to 400m upstm grade ctrl), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

[27] November 2022, ERDC/CRREL Technical Report 22-16. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams. Interim version. https://hdl.handle.net/11681/46102.

Location: LA E026	
Location Observations	I noted the presence of undercut banks and accumulation of organic matter (primarily pine needles) in the dry channel upstream and downstream of the stream gage EO26. I also observed that there were differences in sediment sizes in the channel versus on the floodplain.
Interpretation of Observations	This channel appears to have historically conducted flows frequently given the channel morphology and sediment sorting. However, it appears to have recently only conducted flows occasionally, but not frequently enough to wash away the accumulated pine needles, which appeared at the same thickness as organic matter accumulating on the banks of the channel. Thus, there appears to be no evidence of recent surface flows in this reach of the canyon. The interpretation of field evidence is corroborated with LA EO26 stream gage data that shows the presence of surface water at the gage for 7 days in Water Year 2022, whereas previous years exhibited flows through the monsoon season. LANL staff indicated that this is due to operational changes of the upstream reservoir. Please refer to Attachment 9 of this report.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Los Alamos Canyon (upper LANL bnd to Los Alamos Rsvr), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: EO70 at Bayo Canyon	
Location Observations	I observed the presence of a small defined streambed composed of coarse sands that was more sparsely vegetated than the surrounding uplands. However, the vegetation community on the edges of the channel were not distinct from upland areas in the canyon.
Interpretation of Observations	This channel may conduct occasional downstream flows, but it does not appear to flow regularly. A distinct riparian vegetation corridor that is different from the surrounding upland areas could indicate greater flow permanence.[28] Therefore, the lack of differentiation at this site between vegetation communities could contribute to the weight of evidence that the stream channel through this canyon only flows in direct response to precipitation and surface water likely quickly infiltrates through the coarse alluvial sediments to the vadose zone.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Bayo Canyon (San Ildefonso bnd to headwaters), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[28] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

Location: O59.5 at Pueblo Canyon	
Location Observations:	I observed flowing water present in the channel. I was able to walk through the area and observe a defined channel with mucky/silty channel sediments within the lower floodplain by observing the depth of the channel cross section. I also observed wrack lines outside the low flow channel. I noted the presence of hydrophytic vegetation such as *Persicaria pensylvanicum* (Pennsylvania smartweed) in the defined low flow channel and large, wide floodplain. LANL staff mentioned the area was effluent dominated.
Interpretation of Observations:	The hydrophytic vegetation appears to colonize the floodplain terrace within this channel but obscures the view of the open water flowing through the defined channel that sits at a lower elevation on the river right bank. *Persicaria pensylvanicum* has a wetland indicator status of “facultative wetland” and usually grows in wetlands or areas with saturated or standing water conditions.[29] Silty or mucky channel sediments indicates normal, low velocity flow conditions. Wrack accumulation indicates occasional high flows that transport and collect organic materials on the stream bank outside of the low flow channel and floodplain. This segment appears to have at least seasonal flow that supports a strongly defined riparian vegetation community with species that almost always exist in saturated soil conditions.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Pueblo Canyon (Los Alamos WWTP to Acid Canyon), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

[29] USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 12/08/2022). National Plant Data Team, Greensboro, NC USA.

Location: Approx. 50 yards upstream of E059.8 at Pueblo Canyon	
Field Observations	I noted the presence of filamentous algae, emergent wetland vegetation, submerged aquatic vegetation, and surface water throughout the stream at this site visit location. I also observed the presence of strong riparian vegetation signatures that is significantly different from the upland vegetation in the area. I noted that the stream meanders with moderate sinuosity through a large, wide floodplain supporting the riparian vegetation. I also observed that the channel sediments were a coarse sand with some organic muck overlying the channel sediments.
Interpretation of Observations	The surface water is present long enough to support the sustained growth of filamentous algae which is an indicator of intermittent and perennial streamflow[30] in both the Arid West and Mountain West.[31] Sinuosity is a measure of the curviness of a stream channel and is measured as the ratio of the stream length to valley length. Sinuosity is caused by hydraulic processes that deposit sediment on one side of a reach while eroding it from another. It is typically highest in sand- and gravel-bed stream-reaches, and lowest in confined stream-reaches within canyons. Although it has no direct relationship with streamflow duration (that is, it is neither a driver of, nor a response to, streamflow duration), perennial reaches more frequently exhibit the conditions necessary to produce meanders than ephemeral streams.[32] As such, it is an effective indicator of streamflow duration in the Western Mountains.[33] The vegetative community I observed within the channel indicates constant or nearly permanent inundation by surface water.[34]

[30] As defined by the Beta Stream Duration Assessment Methods:
"Intermittent reaches are channels that contain sustained flowing water for only part of the year, typically during the wet season, where the streambed may be below the water table and/or where the snowmelt from surrounding uplands provides sustained flow. The flow may vary greatly with stormwater runoff."
"Perennial reaches are channels that contain flowing water continuously during a year of normal rainfall, often with the streambed located below the water table for most of the year. Groundwater typically supplies the baseflow for perennial reaches, but the baseflow may also be supplemented by stormwater runoff and/or snowmelt."

[31] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

[32] As defined by the Beta Stream Duration Assessment Methods:
"Ephemeral reaches are channels that flow only in direct response to precipitation. Water typically flows only during and/or shortly after large precipitation events, the streambed is always above the water table, and stormwater runoff is the primary water source."

[33] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

[34] Muldavin, E., Durkin, P., Bradley, M., Stuever, M., & Mehlhop, P. (2000). Handbook of wetland vegetation communities of New Mexico. New Mexico Heritage Program. Albuquerque, NM.

Jurisdictional Analysis Cross Reference for Associated Stream Reach	Pueblo Canyon (Los Alamos Canyon to Los Alamos WWTP), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: EO60.1 at Pueblo Canyon	
Field Observations	I noted the presence of a large, in-channel grade control structure and the stream channel upstream from gage EO60.1 I observed a temporary break in ordinary high water mark and change in channel bottom materials, and riparian vegetation community associated with the grade control structure. I noted that the grade control structure was partially constructed with concrete, gabion baskets, and an instream culvert. The culvert was almost completely burried in sediment. I obsered scouring of vegetation and materials with the channel reforming below the culvert. LANL staff reported that an in-channel grade control structure was installed after wildfires to reduce the amount of sediments being transported downstream to the Rio Grande. Downstream of the stream gage, I observed that the channel began to exhibit indicators of ordinary high water mark again. I noted the presence of a small, sandy bottom, low flow channel with similar vegetation community within and along channel margin.
Interpretation of Observations	This portion of the channel has the ability to conduct flows, but it is likely not a frequent occurrence since the grade control structure is retaining flows and sediments. The amount of sediment that has collected in the culvert of the in-channel grade control structure likely restricts and reduces flows from upstream in the canyon. However, the scouring of sediments and vegetation below the culvert and grade control structure indicates that some surface flow is still passing through this structure. Grade control structures often slow surface water movement and trap sediments that would otherwise influence channel morphology; therefore, upstream of grade control structures a channel may lose indicators of ordinary high water mark though would have such indicators both further upstream and downstream. Due to the presence of the grade control structure, this short portion of the stream under its influence is not representative of the flow characteristics of the stream reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Pueblo Canyon (Los Alamos Canyon to Los Alamos WWTP), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: E0110 at Pueblo Canyon	
Field Observations	I viewed this stream channel and stream flow gage from the nearby road at a river left position. I was able to observe a well defined, large stream channel with sandy sediments as well as evidence of channel sediment sorting. I noted large sediment deposition on terraces outside of the low flow channel and wrack lines. I also observed the presence of *Populus spp.* (cottonwood) in riparian area.
Interpretation of Observations	This channel appears to be transporting flows with enough volume and frequency to prevent establishment of vegetation in the channel. Note that the names of Los Alamos Canyon and Pueblo Canyon downstream of their confluence are often used interchangeably. *Populus spp.* (cottonwood) commonly grows in riparian areas where flooding disturbance allows for establishment of seedlings. While this channel appears to occasionally carry very large flows in direct response to precipitation, however monitoring data associated with the §303(d)/§305(b) Integrated Report that includes collection and evaluation of flow permanence indicators indicates that this stream demonstrates an ephemeral stream flow regime with non-relatively permanent flows.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Los Alamos Canyon (NM-4 to DP Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Bayo Canyon at HYW 151 Road Crossing	
Field Observations	I observed a well-defined, sandy bottom channel from the nearby roadway. I noted that the riparian vegetation was not distinct from upland vegetation. However, I also observed the size of the box culverts with nested floodplain culverts that allow the Bayo Canyon stream to flow under HWY 151 and observed sediments and water staining within the culvert that are evidence of past flows.
Interpretation of Observations	This area appears to be transporting flows frequently enough to transport away organic materials like leaf litter.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Bayo Canyon (San Ildefonso bnd to headwaters), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: EO50.1 at Los Alamos Canyon	
Field Observations	Upstream from gage EO50.1, I observed the in-channel grade control structure with evidence of pooling, ponding and retention of water on the upstream side as demonstrated by finer sediments deposited in an unvegetated channel. I noted the presence of a temporary break in ordinary high water mark downstream of the grade control structure but observed that the channel reformed downstream before the gage station. Near the decomissioned EO50 stream gage which is immediately upstream of gage EO50.1, I observed riparian vegetation distinct from upland plant communities, wrack lines and the presence of an unvegetated channel with indicators of ordinary high water mark. I observed the Los Alamos Canyon stream channel at gage EO50.1 and noted the presence of dry pools visible in-channel. I noted that the sediments in the pools were moist with some silty clays deposited on the sandy channel bed. I also noted the presence of *Typha* species and *Salix* species on the channel margins and in riparian area. I also noted the presence of *Salix exigua* growing within the stream channel downstream from the gage and wrack deposits collected within the channel and on the floodplain. This area is located at a boundary station. Further downstream from the gage I noted that the streambed was composed of boulders and cobbles with some sand and gravels in pools. I observed undercut banks with very little instream vegetation or deposition of leaf litter in channel. I also noted that riparian area outside channel contained significant leaf litter deposition.
Interpretation of Observations	The stream channel near gage EO50.1 and decommissioned gage EO50 appears to be experiencing flows frequently enough to maintain soil moisture and hydrophytic vegetation. The *Typha* (cattail) species and *Salix* (willow) species have an indicator status of obligate and facultative wetland. *Salix exigua* (narrowleaf willow) has a wetland indicator status of "facultative wetland," meaning the plant usually occurs in wetlands but may occur in non-wetlands.[35] The presence of hydrophytes with "obligate" and "facultative wetland" indicator status like *Salix exigua* in streams and riparian areas is a strong indicator of flow permanence in Mountain West and Arid West streams. Studies of indicators of flow permanence in streams have found that plants with facultative wetland and obligate indicator

[35] USDA, NRCS. 2022. The PLANTS Database (http://plants.usda.gov, 12/08/2022). National Plant Data Team, Greensboro, NC USA. Note: *This list is used for all wetland determinations and delineations performed for Section 404 of the Clean Water Act, the Swampbuster provisions of the Food Security Act, and the National Wetland Inventory.*

	status are equally important for determining streamflow duration.[36] Instream wrack collection indicates flows transporting materials from upstream. This channel showed evidence of past transport of significant flow with a frequency and magnitude that maintained the type of channel morphology with riffles forming in the rocky areas of the channels and lower velocity pools where finer sediments settle out and were deposited. Upstream the grade control structure appears to be collecting and partially retaining large flows. This process allows sediments to settle out of the surface water and may increase vadose zone transportation of shallow subsurface streamflow for a short time below the grade control structure. However, the downstream channel indicates the continuation of downstream hydrologic connectivity. The stream appears to be conducting flows regularly enough to maintain a vegetative community on the margins that prefer saturated soil conditions for growth. The lower channel gradient and fine materials in the streambed indicate that the grade control structure is slowing the rate of flow when present, but water is still being transported through this portion of the channel. Gage data indicate that in some years there is very little flow through the reach and others the stream appears to flow frequently. However, the indicators of flow permanence in this short length of the stream do not appear to be representative of the entire stream reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Los Alamos Canyon (NM-4 to DP Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[36] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.
Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Lowman, H., Allen, A., Leidy, R., Robb, J.T., and David, G.C.L. 2021. User Manuel for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0. Document No. EPA800-5-21001

Location: LA E030 Above confluence with DP	
Field Observations	At the stream gage, I noted deposits of organic leaf litter materials and scouring. I also observed plunge pools downstream of the gage station. Above the stream gage I noted that the channel exhibited moderately sorted cobbles and gravels with evidence of scouring of the organic leaf litter. I also observed flow deposits in channel of the leaf litter with the presence of riffles composed of larger cobbles.
Interpretation of Observations	This channel segment appears to be transporting some flows with enough frequency to scour and concentrate deposits of organic materials within the channel. The channel regains indicators of stronger and more frequent flows downstream before confluencing with DP Canyon.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Los Alamos Canyon (DP Canyon to upper LANL bnd), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: DP Above Confluence with LA at E040	
Field Observations	I observed that the DP Canyon stream above the confluence with Los Alamos Canyon cascaded down over a series of boulders into sandy and gravel-dominated channel. I observed a fining of sediments below boulder plunge pools and noted wrack deposition on the banks of the stream.
Interpretation of Observations	The stream appears to be flowing with enough frequency and velocity to transport sediments and organic materials and maintain a riparian vegetation community that is distinct from upland areas. Gage data and NMED data indicate that relatively permanent flows occur in this stream reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	DP Canyon (Los Alamos Canyon to 100m dwnstm of grade ctrl), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: LA at Confluence with DP	
Field Observations	I observed the presence of surface water in pools of the Los Alamos Canyon stream channel at its confluence with the DP Canyon stream channel. In areas without surface water, I noticed the presence of saturated soils and sediments within the channel banks and on the floodplain. Upstream from the confluence with DP Canyon, I noted that the Los Alamos Canyon stream exhibited multiple indicators of ordinary high water mark, saturated channel sediments, and wrack lines deposited approximately 2 feet above the primary channel within the riparian vegetation. As we drove east out of LA canyon after this site visit, we crossed over the stream approximately 5 times downstream from the confluence with the DP Canyon stream and I observed a strong ordinary high water mark in the sandy-bottomed channel at each crossing.
Interpretation of Observations	The presence of surface water and soil moisture indicate that this confluence is receiving flows frequently and may have a connection to shallow upstream subsurface flows where water infiltrates into the vadose zone and reappears downstream. While the stream appears to have relatively permanent flow at the confluence with DP Canyon and shortly downstream, this area is not indicative of the overall flow permanence of the entire stream reach which exhibits non-relatively permanent flows as these indicators of longer streamflow permanence became less prominent downstream of the confluence. The overall non-relatively permanent flow regime of the reach was also demonstrated in gage data and NMED data.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Los Alamos Canyon (NM-4 to DP Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Walnut Caynon at Walnut below Diamond[37]	
Field Observations	I observed a sequence of two culverts draining Diamond Drive which is a road that is part of the residential area of the Los Alamos township. The culverts flow through a small ditch near Walnut Canyon Rim Trail and into a bedrock channel downstream to Walnut Canyon. The Walnut Canyon stream receives drainage from the upstream neighborhoods in the Los Alamos township through culverts like these that I observed which flow into the canyon during rain events. I also observed two large culverts at the headwaters of Walnut Canyon stream that reportedly drain the areas near 33rd Street and 35th Street/Diamond Drive into the canyon. I noted saturated sediments below the 35th Street/Diamond Drive outfall. Downstream from the culverts in the Walnut Canyon stream, I observed that the steep gradient channel with a channel bed of large boulders and some rip-rap materials near the culverts transitioned to a lower gradient channel with evidence of ordinary high water mark indicators as well as moist, silty sandy sediments of stream channel bottom. Note: While conducting this site visit at the Diamond Drive culverts, a concerned citizen in the neighborhood stopped by to ask about the work that we were doing. They reported that more culverts had recently been added on the edges of the canyon because roads were causing increased runoff and the need for drainage in the neighborhood.
Interpretation of Observations	These culverts at the headwaters of the Walnut Canyon stream illustrate how surface runoff from the Los Alamos township and Los Alamos Urban Cluster is directly conveyed into the Walnut Canyon stream during precipitation events and thus to the Rio Grande.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	The culvert locations demonstrate discrete conveyances, not potentially jurisdictional water for analysis. Walnut Canyon (Pueblo Canyon to headwaters), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[37] In this instance, “Diamond” is referring to Diamond Drive.

Field Location: Head of DP Canyon	
Field Observations	I observed a large storm drain and detention basin at the headwaters of the DP Canyon stream. The drain appeared to be down gradient of mixed-use residential and industrial lands in the Los Alamos township. In the concrete detention basin which flows to DP Canyon, I noted the presence of multiple large culverts that appeared to be draining from nearby storm drains.
Interpretation of Observations	Flows from the Los Alamos township are directly conveyed to DP Canyon. This detention basin at the headwaters of DP Canyon illustrates how surface flows during precipitation events are directly conveyed through storm drains, culverts, and detention basins into the streams within the canyons below the Los Alamos Urban Cluster and into the Rio Grande.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	This storm drain and detention basin demonstrates a discrete conveyance, not a potentially jurisdictional water for analysis.

Section 2. Sandia Canyon Watershed Field Observations

Location: Sandia Canyon Below Outfall 099	
Field Observations	I observed a culvert with water staining within the culvert and the presence of flow that the LANL staff reported is associated with Outfall 099 Cooling Station discharge. Downstream of the culvert I noted the presence of a streambed composed of a bedrock welded tuff. Noted presence of *Carex* species and *Typha* species around outfall and on the floodplain of the stream. Around the stream I noted the presence of a strong riparian vegetation community and surface water flowing through the bedrock-confined channel. I also noticed that as the stream flowed away from the culvert, the streambed began to exhibit gravels on top of the bedrock.
Interpretation of Observations	This culvert conveys water from upstream, and the staining in the culvert indicates typical flow heights through the culvert. The bedrock channel conveys flows from the outfall on LANL property downstream.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (Sigma Canyon to NPDES outfall 001), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Sandia Canyon at E121	
Field Observations	At a location on the Sandia Canyon headwater stream that is near the confluence of the Power Plant. I observed surface water in both forks of the canyon streams. I noted boulder sized materials located in the upstream riffles and finer materials in the run and pools of the channel near the stream gage.
Interpretation of Observations	This channel is conveying flows from multiple outfalls to downstream waters. The channel's undercut banks and riparian vegetation are typical of the perennial stream segment of Sandia Canyon. The perennial flow in the Sandia Canyon stream supports a riparian vegetation in a large wide floodplain as the channel changes from a steeply sloped channel made of boulders to a lower gradient channel of finer alluvial materials.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (Sigma Canyon to NPDES outfall 001), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Sandia Canyon South of Power Plant	
Field Observations	Downstream from the Power Plant, I observed the streambed with moderately sorted bed materials with cobbles in riffles and sands in the pools. I noted the presence of undercut banks with a strong riparian vegetation on the floodplain. I noted that the culvert from the power plant discharges directly to the stream and appears to be the primary source of flows through this portion of the stream.
Interpretation of Observations	The perennial flow in the Sandia Canyon stream supports a riparian vegetation in a large wide floodplain as the channel changes from a steeply sloped channel made of boulders to a lower gradient channel of finer alluvial materials. Sediment sorting from flowing water can create distinct depositional features like riffles and pools in a stream channel. Larger materials like cobbles and gravels in riffles indicate that flowing water has enough strength to carry away the smaller, lighter sediments. Pools often have a deposition of finer materials because the water velocity is lower by the time it reaches the pool and does not have the ability to transport those sediments further downstream.[38]
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (Sigma Canyon to NPDES outfall 001), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

[38] https://hdl.handle.net/11681/46102

Location: Sandia Canyon Outfall 001	
Field Observations	I observed Outfall 001 discharging water into the stream canyon.
Interpretation of Observations	The outfall contributes to surface flow to the Sandia Canyon stream.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (Sigma Canyon to NPDES outfall 001), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Sandia E124	
Field Observations	I observed the stream channel with sediment sorting visible within the channel along with coarse sands and silty/clay stream banks. Some areas of the streambanks were scoured while some maintained vegetation, but channel appeared to have evidence of recent surface flows with moist channel sediments. I also noted the presence of strong riparian vegetation signature which is composed of a very different vegetation community than the upland areas.
Interpretation of Observations	This channel is likely at least transporting flows in direct response to precipitation. Gage data (See Attachment 9 of this report for summary gage data for E124 Sandia above Firing Range gage) confirms flow for only a short duration in direct response to precipitation. Strong directional flows is evident by laid over vegetation and drift deposits with leaf litter deposition and scouring.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (within LANL below Sigma Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Sandia West of SR 4	
Field Observations	I noted the presence of an unvegetated, small, sandy, shallow channel surrounded by upland vegetation. Near the two large box culverts under SR 4, the channel exhibited some sparse vegetation but maintained the shallow stream banks which were obscured by upland vegetation. I observed the accumulation of dead uprooted vegetation and debris in the culvert. However, I did observe the channel becoming more defined downstream of the box culverts as it flowed onto the Pueblo of San Ildefonso land.
Interpretation of Observations	This channel can discretely convey flows from upstream, maintain hydrologic connectivity of intermittent and perennial stream segments, and transport sediments and other materials downstream to the Rio Grande. This stream likely flows only in direct response to precipitation. The presence of the large culverts and debris inside them indicates the channel likely has the ability to transport high flows and large materials in those flows.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Sandia Canyon (within LANL below Sigma Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Section 3. Mortandad Canyon and Canada del Buey Watershed Field Observations

Location: Mortandad Below Upper Grade Control Structure	
Field Observations	I observed evidence of flows outside the low flow channel as exhibited by deposition of sediments and organic materials as well as extensive wrack lines. I also noted the constructed grade control structure upstream in the channel and the evidence of head cutting in the channel. I observed surface water present in the pools of the stream channels with undercut, unvegetated banks of a low flow channel set in a wider floodplain.
Interpretation of Observations	A head cut, which is a type of erosional process that occurs when there is a sudden increase in the erosive energy of water flowing through the channel, is forming within the channel below the grade control structures. Undercut banks occur when the lower bank is eroded by flows but the upper bank is held together by roots or cohesive sediment, creating a sheltering overhang.[39] These are indicators of ordinary high water mark. This portion of the channel is not indicative of the overall flow regime throughout the stream reach because the head cut and grade control structures are only influencing flow regime for a short reach and these features are not maintained throughout the majority of the stream reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Mortandad Canyon (within LANL), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[39] https://hdl.handle.net/11681/46102

Location: Head of Mortandad Canyon	
Field Observations	I noted the presence of a culvert perched above the low flow streambed discharging from the river right side of the canyon. I also noted the presence of a single culvert flowing under the road crossing connecting downstream.
Interpretation of Observations	The upper culvert discharges to the Mortandad Canyon stream channel, and the large channel under the road crossing transports flows downstream into the canyon.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Mortandad Canyon (within LANL), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Tensite Canyon above Pratt Canyon	
Field Observations	I observed the stream channel and noted the sandy stream bed with evidence of recent surface water transportation. This channel appeared to have recently experienced an influx of sands that appear to have been deposited in the stream channel and on the stream banks obscuring typical channel morphology. I also observed depositional deposits of wrack materials outside the channels as well as *Salix* species growing on the channel banks.
Interpretation of Observations	The presence of some indicators of scouring such as coarser, small gravel materials being concentrated towards the center of the channel and the absence of organic litter in the channel indicate that the stream is starting to transport some of these sediments away when flowing. The presence of large depositions of organic materials on the stream banks and scouring of organic materials within the channel indicates recent high velocity streamflow with the ability to transport large pieces of organic matter like downed tree limbs.[40]
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Tensite Canyon, Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[40] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

Location: Headwaters of Canada del Buey	
Field Observations	I observed surface water containing Dipteran larvae in pools. Sediment deposition and water staining was observed on welded tuff bedrock and boulders. I noted that the area lacked many of the indicators of ordinary high water mark that I observed in other streams in the area, however there was a vegetated swale which could convey water downstream. Further downstream, indicators of ordinary high water mark began to form within the channel such as wrack lines, undercut bedrock banks, water staining, and sediment deposition.
Interpretation of Observations	The vegetative swale does not have an ordinary high water mark, but it is trapezoidal shaped and collects and contributes precipitation downstream. Swales are common features in headwaters and can maintain hydrologic connectivity. Vegetated swales between pools indicate hydrologic connectivity during flow events, but flow is not frequent enough or does not have a high enough velocity to produce strong indicators of ordinary high water mark. This is a common occurrence in the headwaters of bedrock streams. The presence of indicators of OHWM with associated sediment deposition indicates that the stream picks up power and increases in flow frequency below the vegetated swale. [41] The pools appear to be holding water long enough after the monsoon season to foster the short life cycle of the larvae. However, the rapid lifecycles of some families of Diptera, such as Culicidae make them unsuitable for use as indicators of streamflow duration.[42]
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Canada del Buey (within LANL), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[41] https://hdl.handle.net/11681/46102

[42] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008.

Location: Canada del Buey at E218	
Field Observations	The stream channel at this location was only observable from steep banks, so I was unable to determine presence of surface water at the time of site visit. One of the LANL employees climbed down the bank and observed water in gage flume and sandy sediment in channel.
Interpretation of Observations	During a desktop review of site notes and other supplementary evidence, I was able to verify the presence of surface water in channel.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Canada del Buey (within LANL), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Mortandad and Canada de Buey Canyon at Rio Grande Confluence and Overlook	
Field Observations	I was able to observe the presence of a riparian corridor and scoured channel of Mortandad and Canada de Buey Canyon from the overlook at the confluence of the Rio Grande. I was unable to observe whether water was flowing in the channel at the time of the site visit; however, I did observe flow from the White Rock wastewater treatment plant into the canyon stream. I was also able to observe the Rio Grande from this overlook position and noted a defined riparian vegetation signature that is associated with the confluences of various canyon streams. I noted the predominant presence of a single channel with some vegetated sand bars in the river.
Interpretation of Observations	There is a discrete channel with distinct riparian vegetation that transports flows directly to the Rio Grande.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Canada del Buey (Rio Grande to Mortandad Confluence USGS NHD Reach Code 13020201000196), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters. Rio Grande (USGS NHD Reach Codes 13020201000112 - 13020201000130), Paragraph (a)(1) water, traditional navigable water.

Section 4. Pajarito Canyon Watershed Field Observations

Location: Pajarito Canyon below Confluence with Threemile	
Field Observations	In Pajarito Canyon, I noted a defined low flow channel visible within a wider floodplain with two terraces inside berm on river left. However, I observed the presence of vegetation that was indistinct from upland areas within the low flow channel. There is a detention structure upstream about half a mile. I observed moderate sorting of channel sediments within the stream channel and some wrack deposition on the stream banks.
Interpretation of Observations	The presence of vegetation indicates that there may be infrequent flows through the low flow channel. However, the well-defined floodplains with large gravels and cobbles deposited on the floodplains indicate that those flows may be very large with the ability to transport significant alluvial material. This pattern of infrequent but high flows is likely due to the influence of the upstream detention structure on canyon hydrology.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Pajarito Canyon (Lower LANL bnd to Twomile Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Pajarito Below TA-18	
Field Observations	I observed wrack lines on the banks of the channel at this location; however, the channel banks were obscured by vegetation. I noted the presence of fine sediments that appeared to have been recently deposited in the channel and on the floodplain of the channel. I also noted water staining in the culverts draining Pajarito Canyon under the road.
Interpretation of Observations	This channel likely conducts flows infrequently, but wrack collection indicates the presence of occasional high flows through the channel. The fine sediments that appear to have been recently deposited within the channel and on the floodplain may indicate a recent flow event that was no longer able to transport these size sediments when it flowed through this reach. This type of channel morphology with some vegetation in the channel and very little channel morphology, like pools or riffles, indicates infrequent flows through this stretch of the stream. While there is enough flow frequency to maintain a channel and scour vegetation, this area likely only flows in direct response to precipitation.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Pajarito Canyon (Lower LANL bnd to Twomile Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Pajarito Canyon near White Rock Canyon	
Field Observations	The Pajarito Canyon stream channel above the waterfall exhibited a discrete cobble channel in the basalt bedrock that was somewhat obscured by vegetation. As the stream approached the waterfall, the cobble channel transitioned to more strongly defined bedrock channel towards the waterfall. The discrete cobble channel was obscured by vegetation but was present along with water staining on the larger boulders. I observed the presence of a large waterfall on the Pajarito Canyon stream as it flows into White Rock Canyon and noted that the waterfall resulted in a temporary break in ordinary high water mark of the Pajarito Canyon stream. However, indicators of ordinary high water mark are present further upstream and downstream outside the influence of the waterfall. The basalt bedrock streambed above waterfall had standing water present in the lower reaches of the channel. I also noted the presence of water staining in the channel. I noted pools of standing water in the basalt adjacent to the stream channel as well as within the lower reaches of the stream channel with tadpoles and *Odonata* larvae.
Interpretation of Observations	The small, discrete vegetated channel indicates the presence of a direct hydrologic surface connection between the upstream channel and waterfall into the lower White Rock Canyon. Cerros del Rio basalts have a high infiltration rate to the vadose zone.[43] Surface flows through these channels can contribute to both a surface and shallow subsurface direct hydrologic connection from upstream discharges to the downstream channel in the canyon. The presence of these aquatic macroinvertebrates may indicate persistence of these pools because the presence of these taxa are indicative of perennial or longstanding intermittent streamflow in other areas of the country.[44]
Jurisdictional Analysis Cross Reference for Associated Stream Reach	White Rock Canyon, (NHD 13020201000602), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters. Pajarito Canyon (Lower LANL bnd to Twomile Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

[43] Robinson, B. A., Cole, G., Carey, J. W., Witkowski, M., Gable, C. W., Lu, Z., & Gray, R. (2005). A vadose zone flow and transport model for Los Alamos Canyon, Los Alamos, New Mexico. Vadose Zone Journal, 4(3), 729-743.

[44] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Lowman, H., Allen, A., Leidy, R., Robb, J.T., and David, G.C.L. 2021. User Manuel for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0. Document No. EPA800-5-21001

Location: Pajarito Canyon at HWY 4	
Field Observations	I observed drainage pathways, a linear ditch feature, connecting HWY 4 roadside ditches to the Pajarito Canyon stream. I noted that the ditch with culverts connected the roadside ditch of HWY 4 to Pajarito Canyon and would transport stormwater runoff from the ditch along the highway to the canyon stream during rain events. In the stream, I observed wrack deposits on large boulders and on the stream banks. Further downstream in Pajarito Canyon, I observed a side channel with rounded, weathered basalts and wrack deposits instream on large boulders as well as on the floodplain. Additionally, I observed plunge pools in bedrock basalts transitioning to cobble/boulder filled channels further downstream. Then, the streambed became predominantly sandy below the boulder, cobble, and gravel streambed.
Interpretation of Observations	Discrete channel connects roadside ditch to Pajarito Canyon stream. This area provided an example of how runoff is directly conveyed through culverts, ditches, and non-relatively permanent streams in the Los Alamos Cluster to waters of the United States such as the Rio Grande. In the stream channel there is evidence of historical large flows and the ability to discretely convey flows. However, the presence of fine streambed materials downstream from the road crossing indicates that streamflow loses power to transport heavy materials like boulders and cobbles, they drop out and are deposited in the channel. This progression of channel bed materials is very typical of the plateaus of New Mexico.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	The ditches and culverts represent a discrete conveyance, not a potentially jurisdictional water for analysis.

Section 5. Water Canyon Watershed Field Observations

Location: Water Canyon Above SR 501	
Field Observations	I noted the presence of surface water, and multiple obligate and facultative wetland plant species including *Salix exigua, Salix irrorata, Populus angustifolia, Typha* species*, and Carex* species in the stream channel. I also noted that the stream channel appeared to flow through areas that would likely be considered wetlands if delineated based on the plants and hydrology. In the stream channel, I observed Trichoptera larvae, Gerridae and Periphyton. I also noted the presence of a large box culvert on Water Canyon conveying flows downstream under the road.
Interpretation of Observations	The stream channel appears to flow through wetlands. Periphyton are a complex mixture of algae, including filamentous algae, that are common on submerged surfaces in aquatic ecosystems. The presence of Trichoptera larvae, also known as caddisfly larvae, are an indicator of flow permanence. Mayflies, stoneflies, and caddisflies are widespread insects in perennial and intermittent streams but are not typically found in ephemeral streams.[45]
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Water Canyon (upper LANL bnd to headwaters), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

[45] Mazor, R.D., Topping, B., Nadeau, T.-L., Fritz, K.M., Kelso, J., Harrington, R., Beck, W., McCune, K., Allen, A., Leidy, R., Robb, J.T., David, G.C.L., and Tanner, L. 2021. User Manual for a Beta Streamflow Duration Assessment Method for the Western Mountains of the United States. Version 1.0. Document No. EPA840-B-21008

Location: Water E264	
Field Observations	At this location, I observed a basalt bedrock canyon with sandy alluvial sediments in stream channel bottom. I also noted the presence of some moderately vegetated areas in the sandy bottomed channel.
Interpretation of Observations	This stream channel segment can discretely pass flows downstream to the Rio Grande. Looking upstream the channel bottom transitions from bedrock to sandy alluvial sediments and the flow permanence indicators decrease in strength in the alluvial sediments. However, the basalt bedrock stream bottom is representative of the conditions in most of the stream reach, so this short non-relatively permanent area is not indicative of the overall flow permanence of the reach. This segment of the Water Canyon stream can pass flows downstream to the Rio Grande. The sandy alluvial sediments and the flow permanence indicators decrease in strength and are not representative of most of the stream reach. The upstream basalt bedrock stream bottom is representative of the conditions in most of the stream reach, so this short non-relatively permanent area is not indicative of the overall flow permanence of the reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Water Canyon (within LANL below Area-A Cyn), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Location: Indio at Confluence with Water Canyon	
Field Observations	At the Indio Canyon confluence with Water Canyon stream, I observed the presence of a culvert with a weir connecting Indio Canyon under the road crossing to the Water Canyon stream.
Interpretation of Observations	The culvert can transmit upstream flows from Indio Canyon stream to Water Canyon stream.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Indio Canyon (above Water Canyon), Non-jurisdictional tributary does not meet the relatively permanent standard for paragraph (a)(3) tributary waters.

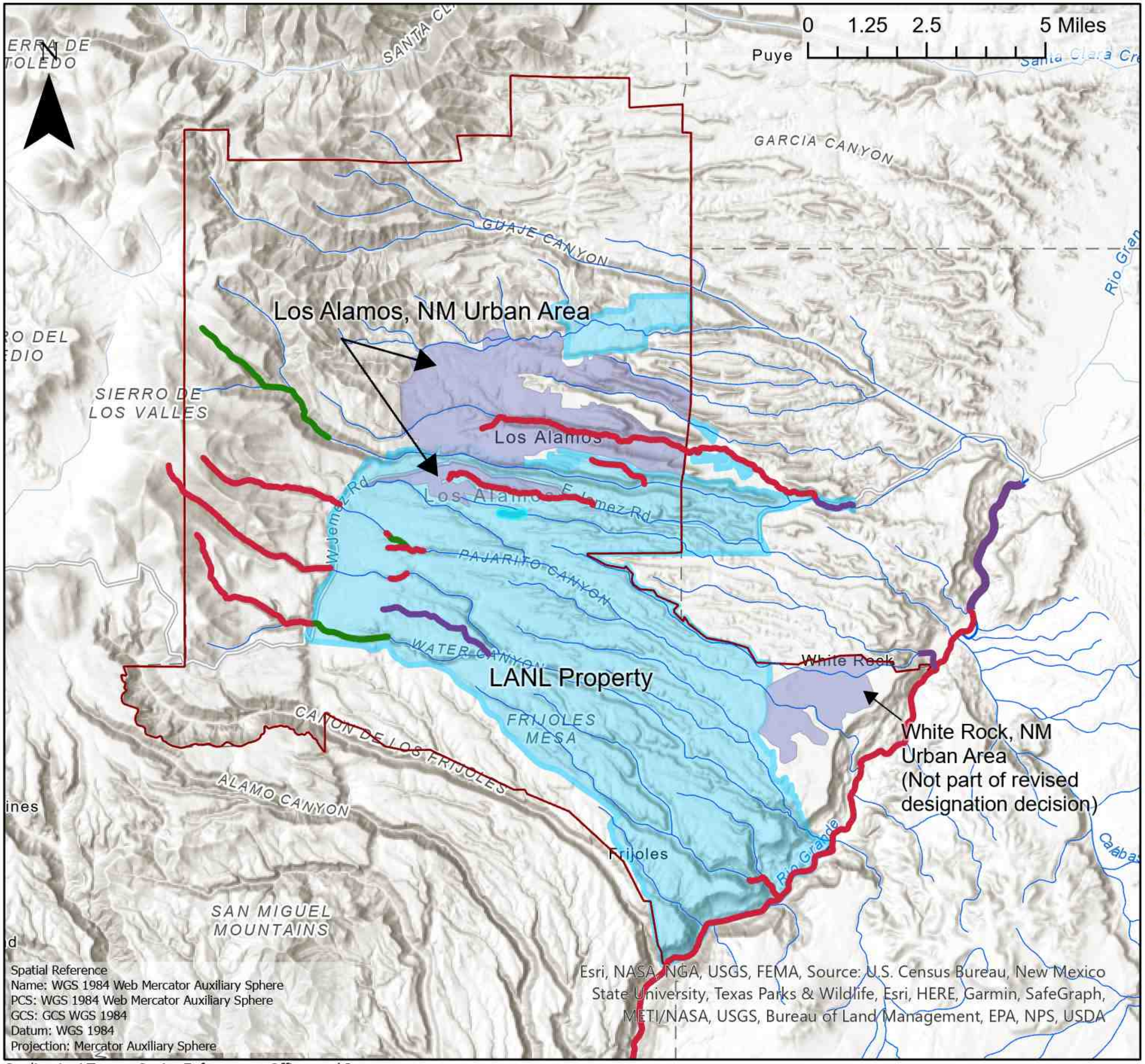
Location: Water E263 above Confluence with Indio	
Field Observations	I observed the Water Canyon stream upstream from the confluence from Indio Canyon where the basalt bedrock channel contained pools of surface water and tadpoles. I also noted *Salix* species and *Populus* species seedlings in channel, water staining on rocks, drift deposits on the channel bank.
Interpretation of Observations	Channel appears to support at least seasonal and likely year round flow permanence. The basalt bedrock stream with perennial pools appears to be representative of the conditions in most of the stream reach.
Jurisdictional Analysis Cross Reference for Associated Stream Reach	Water Canyon (within LANL below Area-A Cyn), Jurisdictional tributary that meets the relatively permanent standard for paragraph (a)(3) tributary waters.

Section 6. Ancho Canyon Watershed Field Observations

Due to LANL security protocols, EPA was unable to visit Ancho Canyon stream sites to conduct direct observations.

Appendix 6: Map of Jurisdictional Canyon Waters

Los Alamos Revised Residual Designation Decision



Decision Basis 1. Waters of Los Alamos County WOTUS findings

Map Description: This map shows canyon streams within and/or draining Los Alamos County found to be jurisdictional under the Clean Water Act and their current ATTAINS water quality ratings.

Legend

WOTUS with ATTAINS Assessment Ratings

- Unassessed
- Good
- Polluted

Surface water flowlines (NHD Plus V. 2.1)

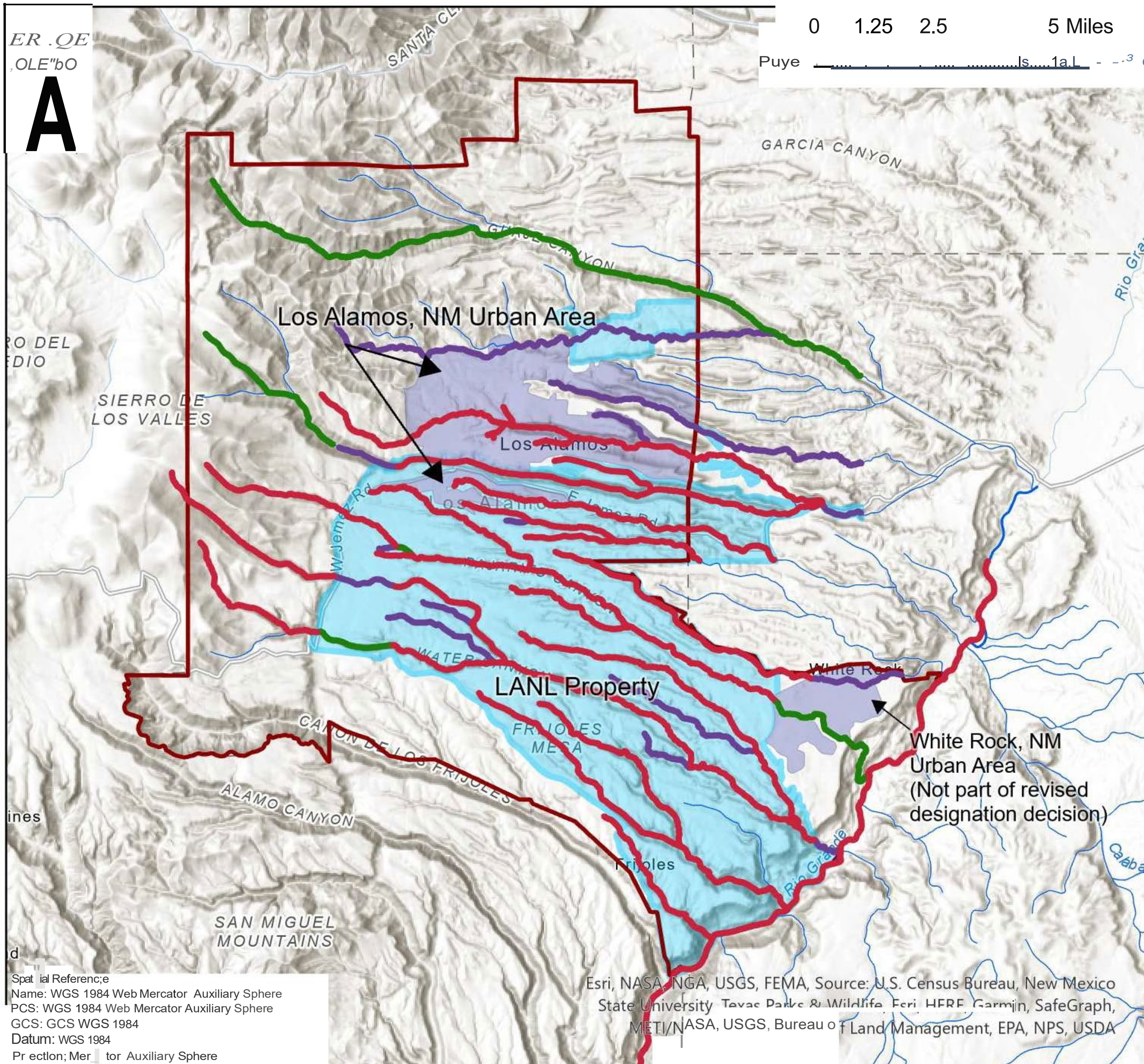
Geopolitical boundaries

- Los Alamos County
- 2020 Urban Areas
- LANL Property Boundary

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement

Appendix 7: Map of Canyons that Serve as Conveyances

Los Alamos Revised Residual Designation Decision



Decision Basis 2. Waters of Los Alamos County point sources findings

Map Description: This map shows canyon streams and features within and/or draining Los Alamos County found to be discrete conveyances, i.e., point sources, that carry these pollutants to the Rio Grande.

Legend

Point source waters with ATTAINS Assessment Ratings
- Unassessed
- Good
- Polluted

Surface water flowlines (NHD Plus V. 2.1)

Geopolitical boundaries
- Los Alamos County
- 2020 Urban Areas
- LANL Property Boundary

Credits: Lori Tanner, Senior Enforcement Officer and Inspector
US Environmental Protection Agency, Region 6, Water Enforcement