

Statement of Facts in Support of Amigos Bravos' Petition¹

1. Los Alamos County is 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

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, *Table 2. 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.

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 known 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, caulking, 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.*

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

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

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).