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Refer To: ADESH-15-171
LAUR: 15-29147
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John Kieling, Bureau Chief
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New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: 2015 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area

Dear Mr. Kieling:

Enclosed please find two hard copies with electronic files of the 2015 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area.

The New Mexico Environment Department's (NMED's) approval with direction for the Guaje/Barrancas/Rendija Canyons Aggregate Area investigation report, Revision 1, requires Los Alamos National Laboratory (the Laboratory) to monitor storm water runoff associated with four storm events. In accordance with the subsequent storm water sampling work plan for Guaje/Rendija/Barrancas Canyons Aggregate Area, this monitoring requirement was met through storm water monitoring and reporting under the Laboratory's Federal Facility Compliance Agreement (FFCA). These results were also reported in the 2009 Asphalt Monitoring and Removal Report for Area of Concern (AOC) C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area asphalt monitoring and removal report.

Because the storm water monitoring requirements in NMED's approval with direction were met under the FFCA, storm water monitoring is not discussed or reported in this biennial report. Since 2011, storm water monitoring at AOC C-00-041 has been performed under the Laboratory's National Pollutant Discharge Elimination System Individual Permit for storm water discharges from solid waste management units and AOCs, which replaced the FFCA. The results of this monitoring are reported in the annual report submitted to the U.S. Environmental Protection Agency and the NMED Surface Water Quality Bureau every March.

If you have any questions, please contact Todd Haagenstad at (505) 665-2936 (hth@lanl.gov) or Cheryl Rodriguez at (505) 665-5330 (cheryl.rodriguez@em.doe.gov).

Sincerely,

for Bruce Robinson, Program Director
Environmental Remediation Program
Los Alamos National Laboratory

Sincerely,

David S. Rhodes, Supervisor
Environmental Management
Los Alamos Field Office

BR/DR/TH:sm

Enclosures: Two hard copies with electronic files: 2015 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area (EP2015-0199)

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LA-UR-15-29147
December 2015
EP2015-0199

2015 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area

Los Alamos
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Prepared by the Environmental Programs Directorate

Los Alamos National Laboratory, operated by Los Alamos National Security, LLC, for the U.S. Department of Energy under Contract No. DE-EM0003528, has prepared this document pursuant to the Compliance Order on Consent, signed March 1, 2005. The Compliance Order on Consent contains requirements for the investigation and cleanup, including corrective action, of contamination at Los Alamos National Laboratory. The U.S. government has rights to use, reproduce, and distribute this document. The public may copy and use this document without charge, provided that this notice and any statement of authorship are reproduced on all copies.

EP2015-0199

2015 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area

December 2015

Responsible project manager:

Printed Name	Signature	Title	Organization	Date
Todd Haagenstad	Todd Haagenstad	Project Manager	Environmental Remediation Program	12/1/15

Responsible LANS representative:

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for Randall Erickson		Associate Director	Environmental Programs	12/1/15

Responsible DOE representative:

Printed Name	Signature	Title	Organization	Date
David S. Rhodes		Supervisor	DOE-EM-LA	12-4-2015

EXECUTIVE SUMMARY

Area of Concern (AOC) C-00-041 is the site of a former asphalt batch plant located in the Rendija Canyon watershed within the Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00. Asphalt was released during plant operations from the late 1940s to 1958 and could be found exposed in the ephemeral stream downgradient of the plant location. The plant was removed and the land transferred in 1969 to the U.S. Forest Service. In 2007, investigation sampling was completed, and visible asphalt and tar were removed from the surface of the main drainage channel that crosses AOC C-00-041. Because of the potential for continued exposure of additional asphalt or tar by erosion during storms or other runoff events, the New Mexico Environment Department requires biennial surveys for, and removal of, exposed asphalt and tar within the main drainage channel. The first biennial survey was conducted in October 2009, the second in November 2011, the third in November 2013, and the fourth in October 2015.

The 2015 activities included visual inspections of the entire site and removal and dispositioning of visible asphalt or tar. The inspections consisted of dividing the AOC into small manageable areas, performing numerous walkovers within the areas to identify and remove any visible asphalt or tar, and disposing of the waste. Inspections focused primarily on the main drainage channel at AOC C-00-041, but the entire site was inspected.

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1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the U.S. Department of Energy (DOE) and managed by Los Alamos National Security, LLC. The Laboratory is located in north-central New Mexico approximately 60 mi northeast of Albuquerque and 20 mi northwest of Santa Fe. The Laboratory site covers approximately 39 mi^2 of the Pajarito Plateau, which consists of a series of finger-like mesas separated by deep canyons containing perennial and intermittent streams running from west to east. Mesa tops range in elevation from approximately 6200 to 7800 ft above sea level (asl).

Corrective actions for solid waste management units (SWMUs) and areas of concern (AOCs) at the Laboratory are subject a Compliance Order on Consent (the Consent Order). This report describes the work activities executed and completed at AOC C-00-041 in accordance with the Consent Order.

1.1 General Site Information

The Guaje/Barrancas/Rendija Canyons Aggregate Area encompasses the Guaje, Barrancas, and Rendija Canyon watersheds within Technical Area 00 (TA-00). Figure 1.1-1 shows the Guaje/Barrancas/Rendija Canyons Aggregate Area SWMUs and AOCs with respect to the Laboratory boundary and surrounding land holdings. AOC C-00-041, the site of a former asphalt batch plant, is located in the Rendija Canyon watershed (Figure 1.1-2).

1.2 Objectives

The objective of this report is to provide the results of the 2015 biennial asphalt monitoring and removal activities at AOC C-00-041, as required under the approved asphalt monitoring and removal plan (LANL 2008, 102726). Characterization sampling and hand-removal of surface asphalt were conducted at AOC C-00-041 in 2007 as part of the Guaje/Barrancas/Rendija Canyons Aggregate Area investigation. The investigation report concluded that the nature and extent of contamination have been defined and the site poses no unacceptable human-health risk for the residential scenario and no unacceptable ecological risk (LANL 2007, 099954). However, additional asphalt and tar may be unearthed by erosion during storms or other runoff events (e.g., snowmelt) within the active drainage channel at AOC C-00-041. The New Mexico Environment Department's (NMED's) approval with direction for the aggregate area investigation report requires biennial inspection and removal of asphalt exposed by storm events or erosion (LANL 2007, 099954; NMED 2007, 099632).

2.0 SITE DESCRIPTION AND OPERATIONAL HISTORY

AOC C-00-041 is located on U.S. Forest Service (USFS) land in a portion of a side slope and ephemeral stream drainage channel that flows into Rendija Canyon. Aerial photographs indicate the asphalt plant operated from the late 1940s to 1958, and the site history suggests the plant was removed sometime between 1958 and 1965 (LANL 1996, 054925, p. 1). In 1969, after the plant had been removed, the land was transferred from the Atomic Energy Commission to USFS to manage as public land (LANL 1996, 054925, p. 1).

The Laboratory conducted a voluntary corrective action (VCA) at AOC C-00-041 in 1995 to remove asphalt from the stream channel, the area to which the asphalt was confined, and to break up and remove concrete blocks. Six samples, including two water samples, were collected from locations upstream, beneath the asphalt, at the upstream and downstream ends of the deposit, and from

downstream of the deposit. The 300 yd^3 of excavated material was disposed of at the Los Alamos County landfill. A USFS representative inspected the site, and the VCA was declared complete to USFS's satisfaction. The VCA report requested completion concurrence from DOE (LANL 1996, 054925, p. 2).

Figure 2.0-1 is a site map of AOC C-00-041. Currently, the site is undeveloped and is located in a grassy open meadow bisected south to north by an ephemeral stream. A hiking trail, the Dot Grant Trail, is located to the east of AOC C-00-041, and another trail and the Guaje Pines Cemetery are located to the west.

3.0 SITE CONDITIONS

3.1 Surface Conditions

Rendija Canyon is located immediately north of the Los Alamos townsite and has a drainage area of 9.5 mi^2. The canyon heads on the flanks of the Sierra de los Valles just west of the townsite at an elevation of 9826 ft asl. The channel extends approximately 9 mi east to its confluence with Guaje Canyon. The lowest elevation of the watershed is approximately 6300 ft asl (LANL 1997, 055622, p. 3-2). Rendija Canyon crosses USFS land and DOE land. Four tributaries are present in the Rendija Canyon watershed. Rendija Canyon and its tributaries contain ephemeral streams, arising from storm water runoff and snowmelt. The watershed drains portions of Los Alamos townsite, DOE land, and USFS land. As the surface water flows downstream, it infiltrates the alluvium and the underlying formations or is lost to evapotranspiration.

3.2 Subsurface Conditions

The stratigraphy in the Guaje/Barrancas/Rendija Canyons Aggregate Area consists of the Quaternary Cerro Toledo interval and the Tshirege Member of the Bandelier Tuff overlain by a thin layer of alluvium and soil. The 2007 sampling at the site did not exceed 3.0 ft below ground surface, and the only stratigraphic unit encountered at the site was surface soil. Saturated conditions were not encountered, and no subsurface structures are known to exist at the site (LANL 2007, 098670).

4.0 SCOPE OF ACTIVITIES

Most 2015 activities at AOC C-00-041 took place on USFS land, with access through Los Alamos County land. All the work was subject to approval by the applicable land owner(s) through access agreements and/or special-use permits.

4.1 Site Inspection

AOC C-00-041 was inspected on October 28, 2015, per the approved asphalt monitoring and removal plan (LANL 2008, 102726; NMED 2008, 102289). The inspection was conducted to identify remnants of asphalt and tar that have been exposed at the surface by runoff or erosion since the 2013 monitoring and removal activities. The inspection was performed by traversing the site on foot and visually inspecting the ground surface. The site was divided into smaller areas, and multiple sweeps (or sweeps by multiple people) were performed in each area to ensure all newly exposed asphalt and tar were identified and removed.

4.2 Asphalt and Tar Collection

On October 28, 2015, exposed asphalt and tar fragments were found and removed during the site inspection of AOC C-00-41. Asphalt or tar was removed only if it was visible at the surface and involved

no excavation or significant soil disturbance. The asphalt and tar pieces ranged in size from less than an inch to up to 18 in. in length and width. Asphalt and tar pieces were collected in buckets and transferred to the back of a pickup truck. A total of 1160 lb of asphalt and tar was removed from AOC C-00-041 and transferred to, and recycled at, the Los Alamos County Eco-Station. Figure 2.0-1 shows the location where visible asphalt and tar were removed from AOC C-00-041. Figures 4.2-1 through 4.2-6 are photographs of asphalt and tar collection activities.

5.0 CONCLUSIONS

Between 2007 and 2013, the quantity of asphalt debris and tar removed decreased. In 2007, approximately 10 yd^3 of asphalt and tar was removed from AOC C-00-041. In 2009, seven 55-gal. drums filled with asphalt and tar were removed from AOC C-00-041. In 2011, four 55-gal. drums filled with asphalt and tar were removed from AOC C-00-041. In 2013, one-half 55-gal. drum filled with asphalt and tar was removed from AOC C-00-041. In 2015, two to three 55-gal. drums filled with asphalt and tar were removed from AOC C-00-041. The next biennial survey and report will be completed in October 2017 and the report submitted to NMED by December 31, 2017.

6.0 REFERENCES AND MAP DATA SOURCES

6.1 References

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID or ESH ID. This information is also included in text citations. ER IDs were assigned by the Environmental Programs Directorate's Records Processing Facility (IDs through 599999), and ESH IDs are assigned by the Environment, Safety, and Health (ESH) Directorate (IDs 600000 and above). IDs are used to locate documents in the Laboratory's Electronic Document Management System and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the ESH Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), March 1996. "Voluntary Corrective Action Completion Report for Potential Release Site C-0-041, Former Asphalt Batch Plant Site," Los Alamos National Laboratory document LA-UR-96-434, Los Alamos, New Mexico. (LANL 1996, 054925)

LANL (Los Alamos National Laboratory), April 1997. "Core Document for Canyons Investigations," Los Alamos National Laboratory document LA-UR-96-2083, Los Alamos, New Mexico. (LANL 1997, 055622)

LANL (Los Alamos National Laboratory), August 2007. "Investigation Report for Guaje/Barrancas/ Rendija Canyons Aggregate Area at Technical Area 00," Los Alamos National Laboratory document LA-UR-07-5326, Los Alamos, New Mexico. (LANL 2007, 098670)

LANL (Los Alamos National Laboratory), November 2007. "Investigation Report for Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00, Revision 1," Los Alamos National Laboratory document LA-UR-07-7820, Los Alamos, New Mexico. (LANL 2007, 099954)

LANL (Los Alamos National Laboratory), April 2008. "Asphalt Monitoring and Removal Plan for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate," Los Alamos National Laboratory document LA-UR-08-2666, Los Alamos, New Mexico. (LANL 2008, 102726)

NMED (New Mexico Environment Department), December 20, 2007. "Approval with Direction, Investigation Report for Guaje/Barrancas/Rendija Canyons, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2007, 099632)

NMED (New Mexico Environment Department), July 2, 2008. "Notice of Approval, Asphalt Monitoring and Removal Plan for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2008, 102289)

6.2 Map Data Sources

Drainage. Modeled Surface Drainage, 1991; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, ER2002-0591; 1:24,000 Scale Data; Unknown publication date. NHD Route Drainage; National Hydrography Dataset Program, United States Geological Survey; Quadrangle 13020101; 08 October 2004.

Hypsography. Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

Los Alamos National Laboratory Boundaries. LANL Areas Used and Occupied; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 19 September 2007. Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 19 September 2007.

Point Feature Locations of the Environmental Restoration Project Database. Los Alamos National Laboratory, Waste and Environmental Services Division, EP2008-0189; 11 April 2008.

Potential Release Sites. Los Alamos National Laboratory, Waste and Environmental Services Division, Geotechnical Services Group, EP2008-0095; 1:2,500 Scale Data; 04 April 2008.

Roads and Trails. Forest Roads; County of Los Alamos, Information Services; as published 16 May 2006. Los Alamos County Land Parcels; County of Los Alamos, Information Services, as published 17 January 2008. Road Centerlines for the County of Los Alamos; County of Los Alamos, Information Services; as published 03 December 2007. Streets; County of Los Alamos, Information Services; as published 16 May 2006. Trails; County of Los Alamos, Information Services; as published 16 May 2006.

Structures. Approximate Location of Former Batch Plant; Investigation Work Plan for Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00; Los Alamos National Laboratory Report LA-UR-05-3869; Figure 2.1-14 AOC C-00-041 site map; Map m201440; July 2005. Structures; County of Los Alamos, Information Services; as published 29 October 2007.

Watersheds. Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; EP2006-0942; 1:2,500 Scale Data; 27 October 2006.

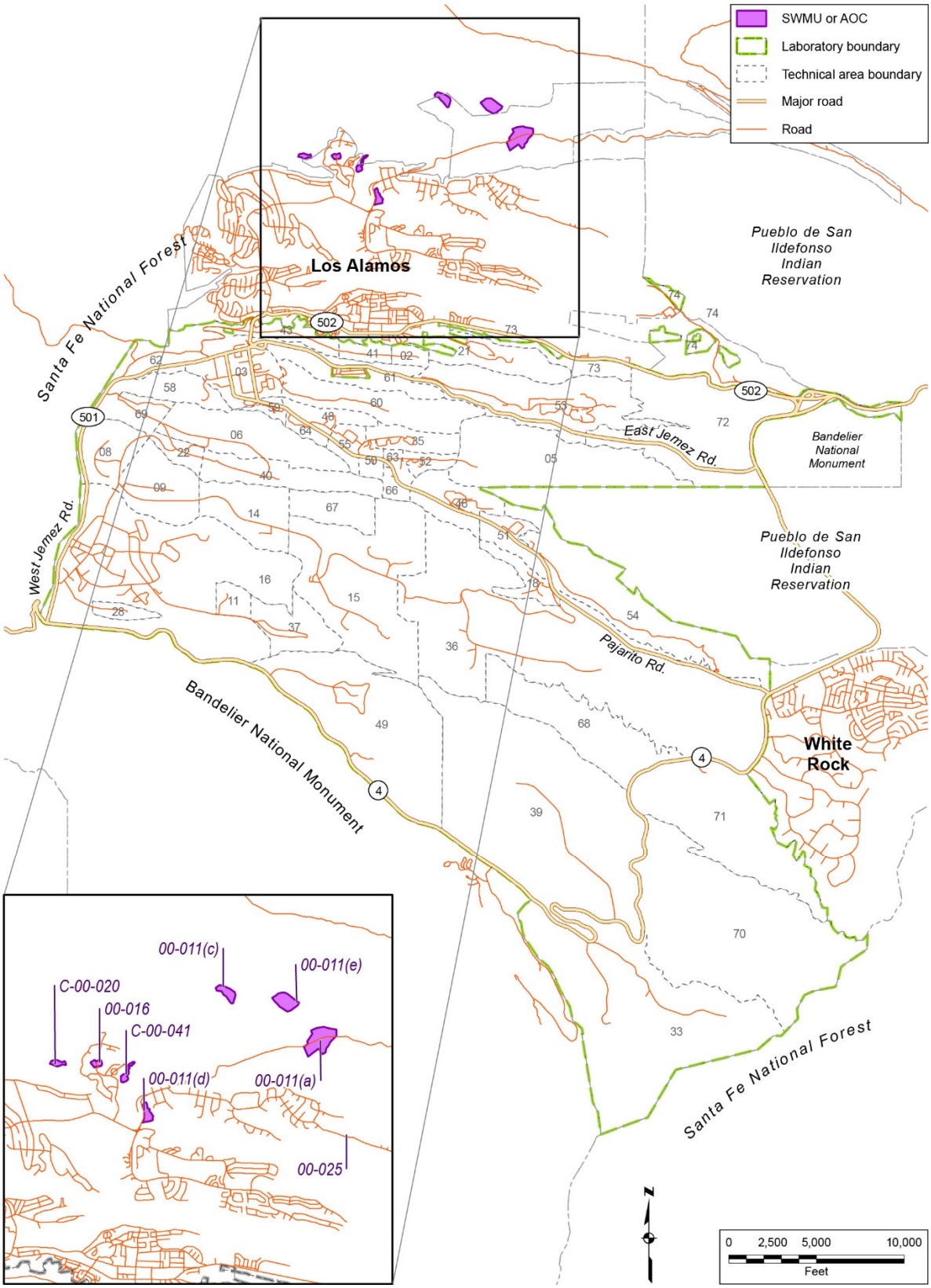

Figure 1.1-1 Location of Guaje/Barrancas/Rendija Canyons Aggregate Area SWMUs and AOC with respect to laboratory boundary and surrounding land holdings

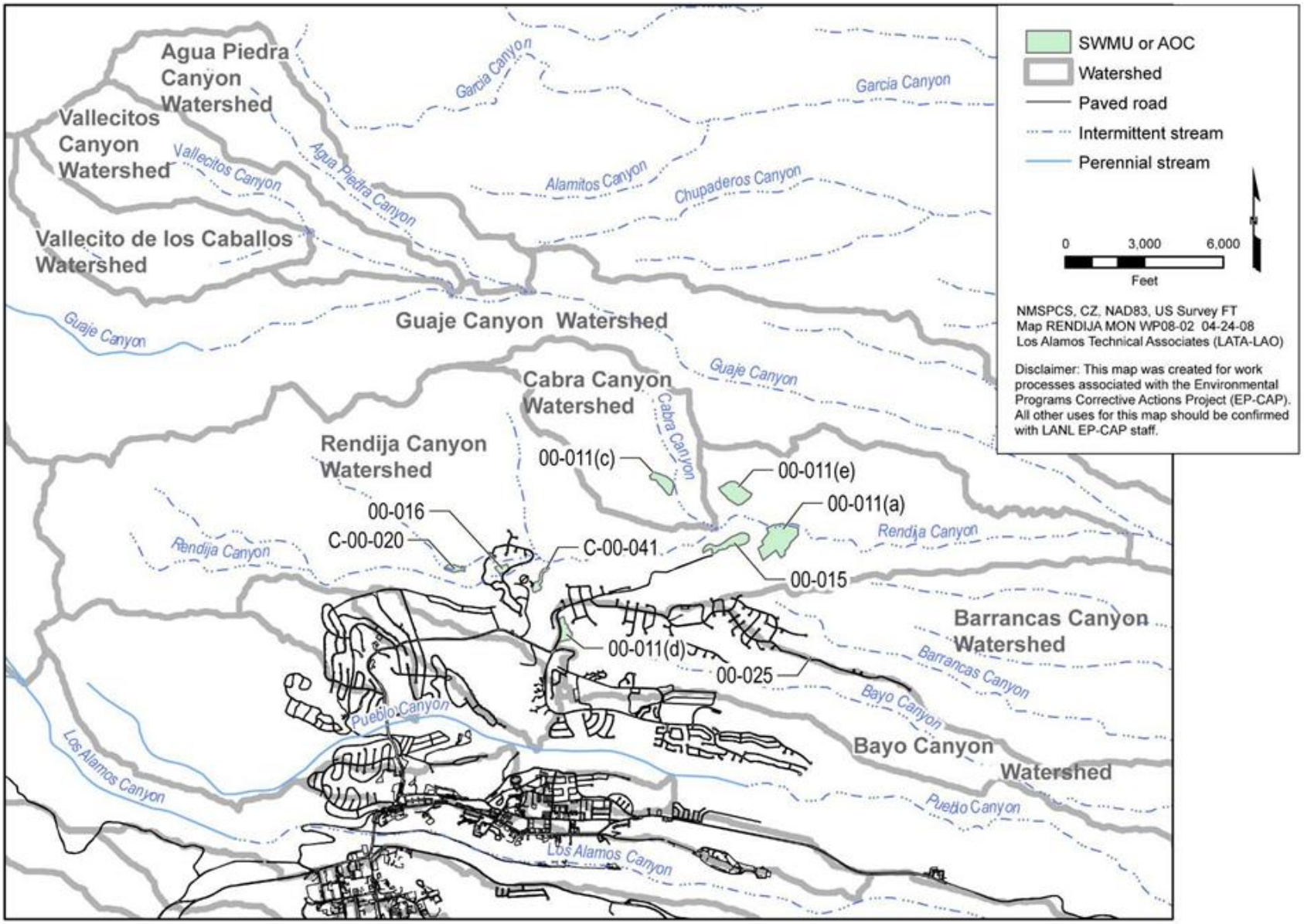

Figure 1.1-2 Location of AOC C-00-041 within the Rendija Canyon watershed

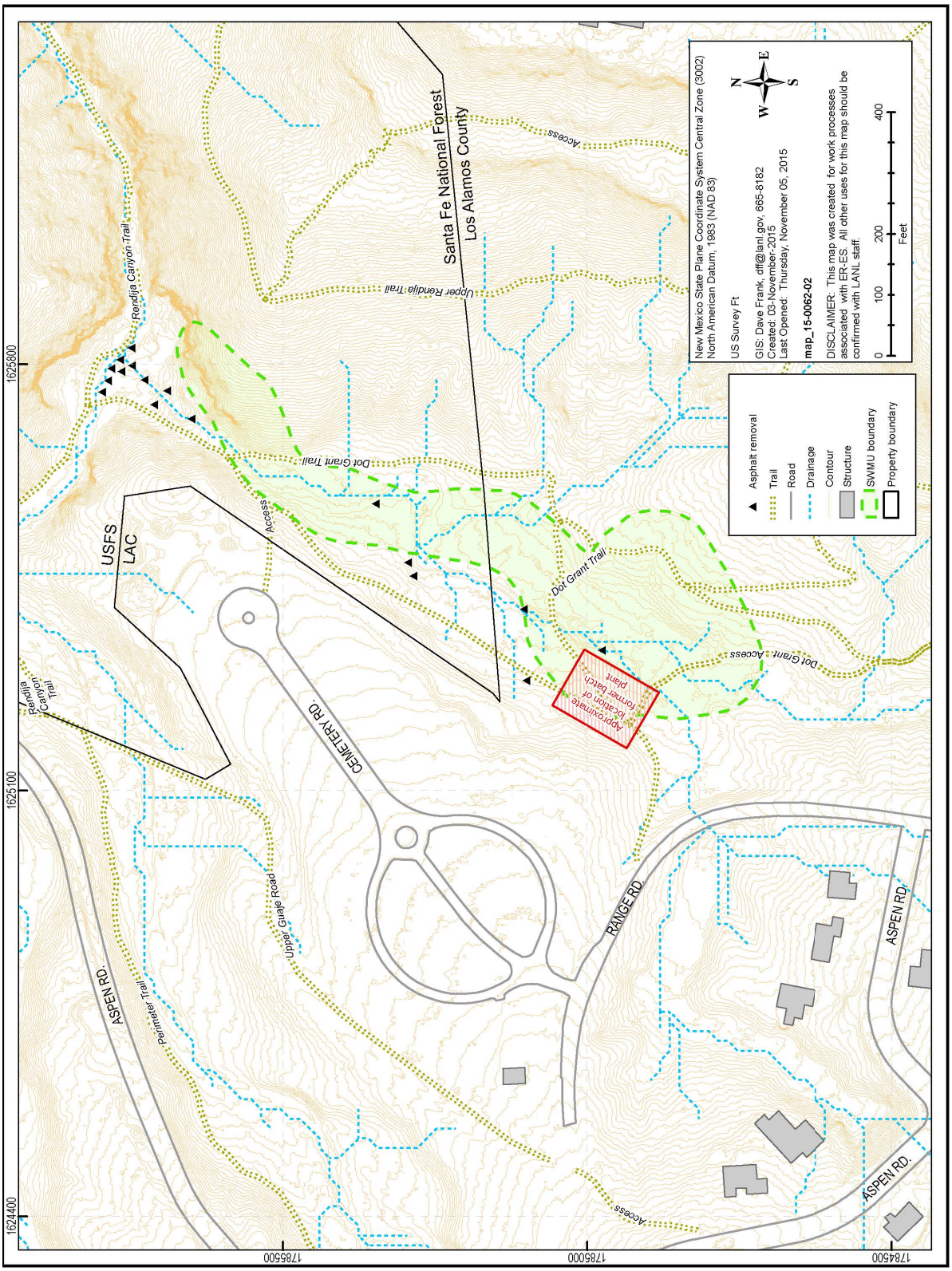

Figure 2.0-1 AOC C-00-041 site map and locations of asphalt and tar removal

Figure 4.2-1 AOC C-00-041 on USFS property

Figure 4.2-2 Asphalt debris in drainage within AOC C-00-041

Figure 4.2-3 Field crew collecting asphalt debris in drainage within AOC C-00-041

Figure 4.2-4 Asphalt debris collected in 5-gal. buckets

Figure 4.2-5 Example of typical asphalt debris collected by field crew

Figure 4.2-6 Asphalt debris removed from AOC C-00-041; 1160 lb removed