

LA-UR-01-4122

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Title: CERRO GRANDE FIRE: ONE YEAR AFTER  
AN UPDATE ON ER ACTIVITIES TO REDUCE THE  
POTENTIAL MOVEMENT OF CONTAMINATION AT  
POTENTIAL RELEASE SITES

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Submitted to: Water Quality & Hydrology Group (ESH-18)  
Environmental Restoration Project

Received by ER-RPF  
JAN 25 2002

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**CERRO GRANDE FIRE: ONE YEAR AFTER**  
**AN UPDATE ON ER ACTIVITIES TO REDUCE THE POTENTIAL MOVEMENT OF CONTAMINATION**  
**AT POTENTIAL RELEASE SITES**

**Introduction**

One year has passed since the Cerro Grande Fire impacted the Los Alamos town-site and the Los Alamos National Laboratory (LANL or the "Laboratory"). Massive fire rehabilitation and flood mitigation efforts have been ongoing, and will continue for several years until areas prone to erosion are stabilized. This report summarizes the progress made during the past year to reduce the movement of contamination from potentially contaminated sites at LANL.

Over the past decade, the Laboratory has identified approximately 2,100 historical sites with a potential for the release of contamination. The majority of the sites have been evaluated, and a large portion have been found to contain no contamination or insignificant quantities of chemical or radioactive contamination. The sites are called "potential release sites," or PRSs, because they may or may not contain contamination.

There has been much discussion by the public and in the media regarding the possible movement of contamination off Laboratory property. Detailed analyses conducted by a number of federal and state agencies have not identified a threat to public health from the possible movement of contamination off-site. Nonetheless, the Laboratory is very aware of the public's concerns and wants to be a good neighbor. The Laboratory is working very hard to prevent (if possible) and/or minimize any movement of contamination off Laboratory property.

After the Cerro Grande fire, New Mexico Environment Department, the Department of Energy (DOE) and Laboratory crews evaluated all PRSs located in the burned area to see which ones had been touched by flame. The crews determined that 315 PRSs had been touched by flame in the fire. They then evaluated the 315 sites to determine which ones needed erosion control measures, called Best Management Practices, or BMPs. Of the 315 PRSs touched by flame, BMPs were recommended for 91 sites.

**Environmental Restoration Project**

Established in 1989 as part of a Department of Energy nation-wide program, the LANL Environmental Restoration (ER) Project is designed to determine whether there has been a release from a SWMU of hazardous chemical and/or radioactive wastes as a result of past LANL operations. Those sites where releases are found and that require remediation are being remediated to protect public health and the environment, in accordance with the requirements of LANL's Hazardous Waste Facility Permit.

Historical contamination at LANL originated from septic tanks and their drain lines, chemical storage areas, wastewater outfalls (the area below a pipe where wastewater drains into the environment), landfills, incinerators, machine shops, firing ranges and their impact areas, surface spills, and electric transformers.

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Potential release sites are found mostly on the mesa tops at most Technical Areas and include the 26 material disposal areas at LANL. There are also potential release sites in the Los Alamos townsite where the original Manhattan Project laboratories were located. The majority of these sites have been cleaned up such that they require no further action. Others are still being evaluated. A few PRSs are located in the canyons; however, the contaminants dispersed within the canyon bottoms are mostly found at low concentrations in the sediments. The potential release sites range in surface area from the size of a table top to several acres, to nearly the entire length of some canyons.

Contaminants found in material disposal areas include residues from high explosive manufacturing and use, low-level radioactive solid wastes, chemical wastes, and hazardous wastes. Contaminants found in potential release sites located in canyons include radioactive wastes such as plutonium, cesium, americium, tritium, and uranium, as well as non-radioactive materials including metals, polychlorinated biphenyls (PCBs), and volatile organic compounds used in research and operations. The contaminants vary from one potential release site to the next, both in types and amounts.

In general, the contaminants found in potential release sites were deposited during the 1940s and 1950s. Over the course of the last 50 years, soil and other materials have been deposited on top of the contaminants, burying them at least 12 -18 inches below the surface at many of the sites. Initial reports indicate that the fire burned only the top 3 inches of the ground in most places. Thus, it may be unlikely that contaminants would have been released from most sites that were burned.

### Surface Water Site Assessments

A procedure was developed in 1997 as a tool to assess the erosion potential at PRSs. Surface Water Site Assessments involve assessing the erosion/sediment transport potential at each PRS using a rating matrix. Erosion potential factors are broken into three categories, 1) Site Setting, 2) Runoff Factors, and 3) Run-On Factors. The weight of each category is intended to reflect its relative importance for erosion potential. Accordingly, Runoff Factors have the greatest weight, 46 percent. In other words, the absence of visible erosion indicates minimal potential for sediment transport and correspondingly minimal impact on surface waters. Similarly, a defined gully clearly indicates an erosion concern. Site Setting represents a similar weight, 43 percent, reflecting well-defined site characteristics, such as ground cover, slope, and proximity to a watercourse. These characteristics have a clear relationship to erosion potential. Run-On factors have a relatively low weight, 11 percent, since run-on is of little concern unless it increases runoff. The range of weighting each site is 0 to 100. Site assessment scores are calculated automatically in a database using Microsoft Access 2.0 during the process of data entry. This creates a more objective scale by separating the act of field data collection from the process of numerical calculation.

These assessments provide a basis for prioritizing and scheduling site actions needed to control undesirable surface water runoff, and the potential for constituent-laden sediments to erode from PRSs. A multi-agency group called the Surface Water Assessment Team (SWAT) was formed to evaluate the completed assessments. The SWAT includes members from LANL, DOE/OB and the NMED/SWQB. Since this procedure was in place well before the Cerro Grande Fire, baseline information was already available for most of the areas touched by the

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fire. The previously gathered information was invaluable in helping to assess the impact caused by the fire.

### **BMP Inspection and Program**

LANL is obligated, under its Hazardous Waste Facility permit and its Multi-sector Storm Water permit, to minimize the potential for contaminant release and transport from its Solid Waste Management Units (SWMUs) and other PRSs according to a schedule described in the Storm Water Pollution Prevention Plan.

The ER Project has an ongoing program to install, inspect and maintain storm water best management practices at those PRSs deemed vulnerable to contaminant release and/or transport. The Storm Water Pollution Prevention Plan for SWMUs (SWMUs are a subset of PRSs regulated by the RCRA Permit) describes many of these sites. Actions are being taken at sites identified by Surface Water Site Assessments and through recommendations made by the SWAT. This program has been ongoing since 1997.

The purpose of the BMPs is to prevent erosion of the slopes, mitigate storm water impacts on the sites and to prevent contaminant migration. Construction of BMPs follows the intent of the Storm/Surface Water Pollution Prevention Best Management Practices Guidance Document developed by the Laboratory's Water Quality & Hydrology Group. Inspection and maintenance of BMP installations is required at both pre-fire and post-fire PRSs at a frequency described in the Storm Water Pollution Prevention Plan for Solid Waste Management Units (quarterly and/or after .5" rain events).

The Cerro Grande fire put nearly 100 of the ER Project's PRSs, at increased risk of contaminant release and/or transport, by virtue of either being directly burned, or vulnerable to increased surface water runoff or erosion. Since the fire, these sites have had controls installed and are being inspected and maintained as part of the overall program. The following pages provide an update for each of the PRSs impacted by the fire.

### **Integrated Safety Management**

This effort was completed implementing the guiding principles of the Laboratory's Integrated Safety Management (ISM) process. The goal of ISM is the systematic integration of Environmental, Safety & Health into work practices at all levels. ISM uses a 5-step process to ensure that expectations are 1) established, 2) implemented, and 3) are measured and reinforced in every work activity. A 5-step process defines the systematic approach.

- Define the Scope of the Work
- Analyze the Hazards and Environmental Aspects
- Develop and Implement the Controls
- Perform the Work
- Ensure Performance

Since the fire, approximately two-dozen people have been involved in this activity without any lost time accidents.

The map shown below reflects the geographic impact of the fire as well as the fire progression by time sequence. A majority of the damage to the Laboratory occurred from May 10<sup>th</sup> through May 13<sup>th</sup> shown on the lower portion of the map.

### Cerro Grande fire progression 5 May 2000–18 May 2000

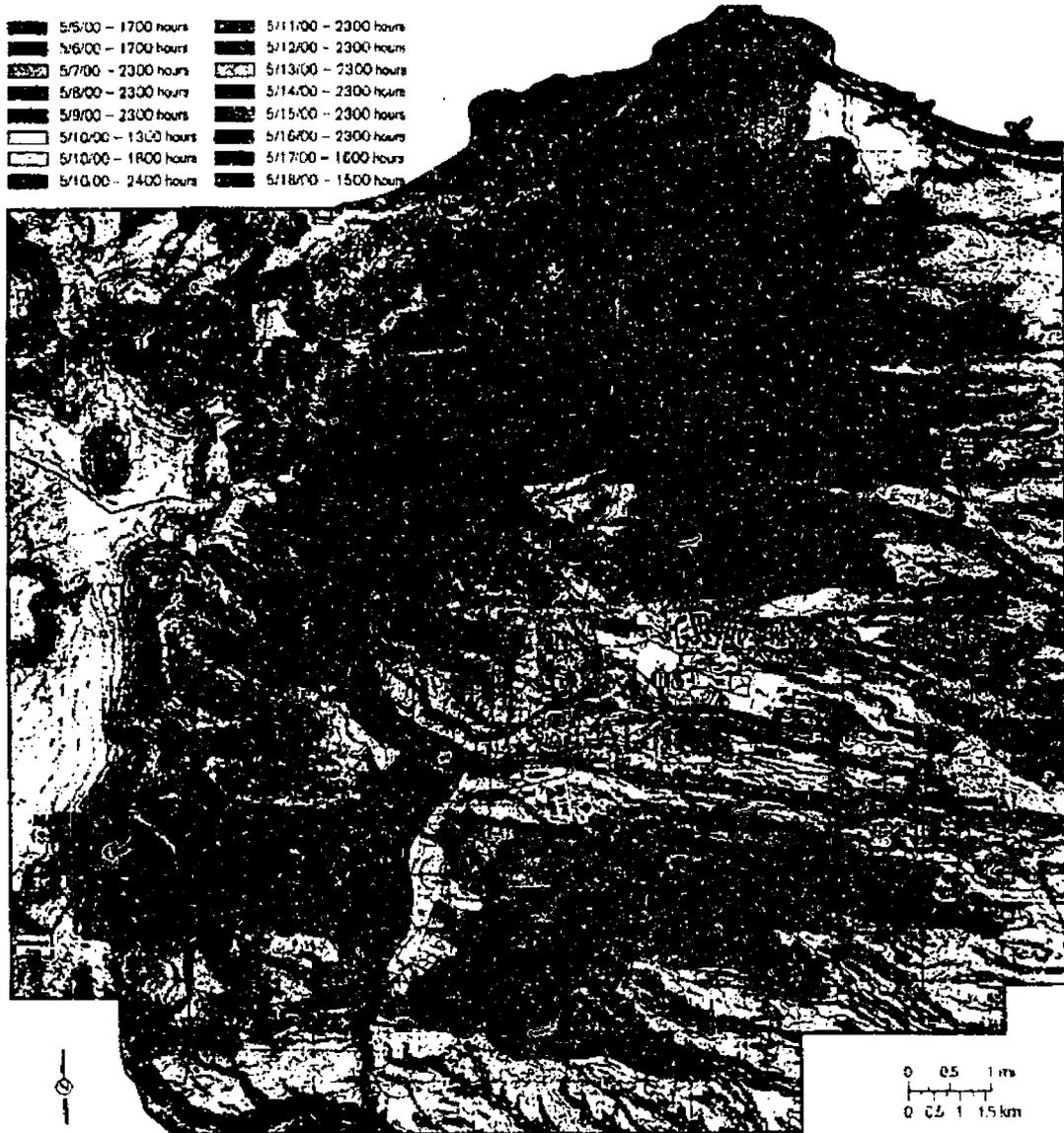


FIGURE 1--Fire progression by time of Cerro Grande fire, May 2000

## TECHNICAL AREA-4 SITES BEFORE AND AFTER THE CERRO GRANDE FIRE

**4-001 - Erosion Matrix Score 45.0.** Firing site or pit 10' x 10' with conduit and firing lines constructed in 1945 and abandoned in 1946. Located 2,000 ft. east of TA-52-1. High explosives used in shots ranging from .5 lb. to 200 lb. created high explosive, natural and depleted uranium, lead and beryllium. Potentially contaminated debris was periodically bulldozed to north edge of mesa bordering Mortandad Canyon. In August of 1985 the pit was cleaned of all debris and backfilled.

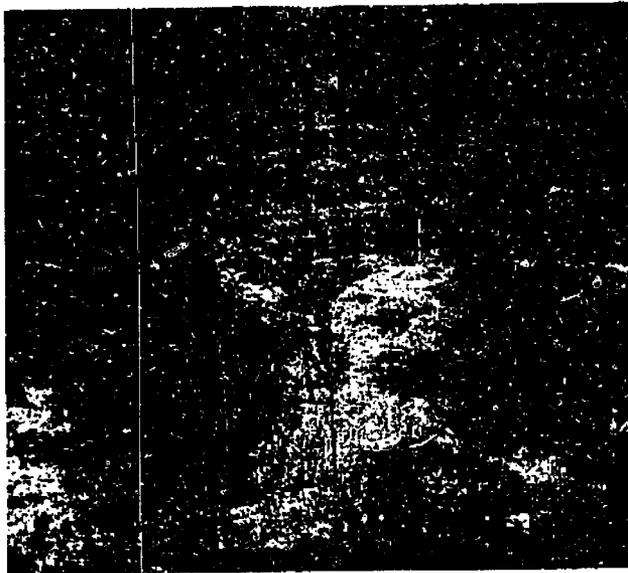
**4-002 - Erosion Matrix Score 51.5.** Shot debris from SWMU 4-001 was periodically bulldozed to the north edge of the mesa bordering Mortandad Canyon. The site consists of an area 20 ft. wide, with cables, wire, and possibly small amounts of uranium, beryllium, lead, aluminum and HE. This is a HSWA permitted site.

**4-003(b) - Erosion Matrix Score 51.5.** Drain outfall connected to the laboratory control building (former TA-4-3). A 6-inch diameter vitrified clay pipe discharged through a waste outfall 20 feet north. The outfall was inactive when TA-4-3 was abandoned in 1946, and partially removed in 1956. This is a HSWA permitted site.



### CERRO GRANDE FIRE:

These sites are located on the south rim of Ten Site Canyon within the Upper Canada del Buey Watershed Aggregate. The fire damage was minor to moderate with a majority of the damage to the ground cover and undergrowth.



### BMP's:

Straw wattles were installed above the site for run-on diversion at the mesa's edge, within the north facing drainage and on the lower bench for sediment retention. Spot hand raking, reseeding and straw mulch were also applied.

**TECHNICAL AREA-4 SITES ONE YEAR AFTER THE CERRO GRANDE FIRE**



**SUMMARY OF INSPECTION & MAINTENANCE**

Site inspected on:

6/6/2001  
5/08/2001  
3/26/2001  
10/27/2000  
10/12/2000

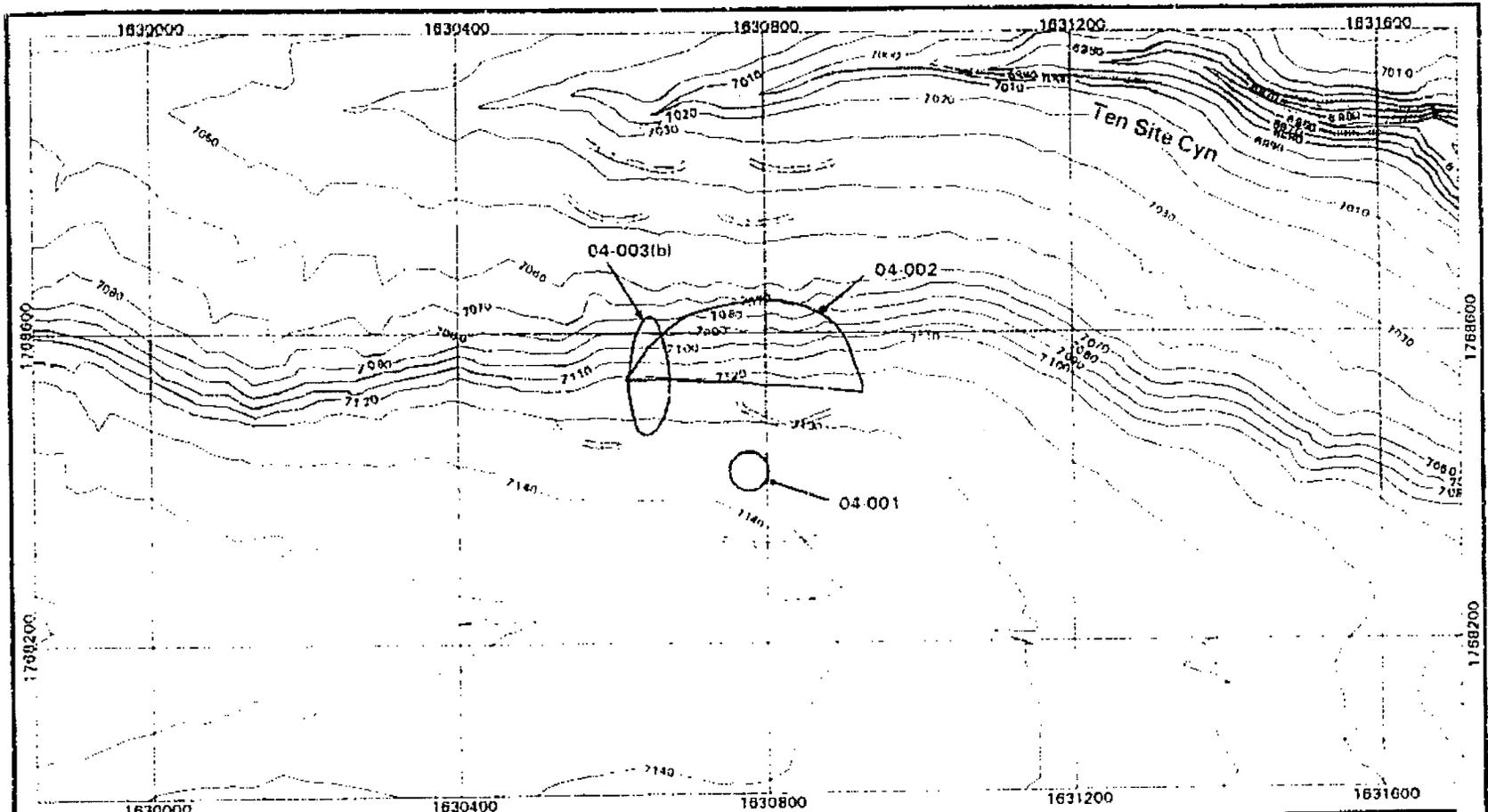
Maintenance performed:

Maintenance consisted of installation of an additional 15 wattles throughout the site. Several trees were trimmed and used as sediment retention in adjacent drainage swales.



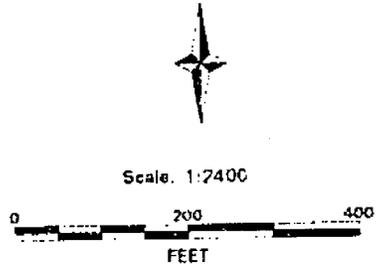
**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 50%. The area appears stable with evidence of sediment migration being minimal.



**Best Management Practices at PRSs 04-001, 04-002, 04-003(b)**

	10-ft Contour		Diversion Channel		Rock Check Dam
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dam		Straw Wattles



EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico  
 1983 North American Datum  
 Projection and Grid Ticks  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)  
 Notice: Information on this map is professional  
 and has not been checked for accuracy.  
 Produced by Marcia Jones  
 FIMAD G108923 08 Aug 00

## TECHNICAL AREA-5 SITES BEFORE AND AFTER THE CERRO GRANDE FIRE

**5-001(a) - Erosion Matrix Score 45.0.** A steel barricade, Firing Pit No. 1, at Beta Site was used for high explosive experimental shots from 1944 to 1947. The structure was removed in 1985. No radioactive contamination was detected on steel barricade Firing Pit No. 1 or beneath it.

**5-001(b) - Erosion Matrix Score 45.0.** Steel barricade Firing Pit No. 2 (TA-5-15) was used for high explosive experimental shots. Accumulated debris was periodically bulldozed northward to edge of Mortandad Canyon. A zone of shrapnel includes canyon sides, the canyon bottom and 200 feet around firing pit. The pit was removed in 1985. No radioactive contamination was detected, however the steel barricade itself was uranium contaminated.

**5-005(a) - Erosion Matrix Score 45.0.** A French drain that was constructed in 1945 and abandoned in 1959 at the control building (TA-5-4) at Beta Site. The drain and the affected soil was removed in 1985.

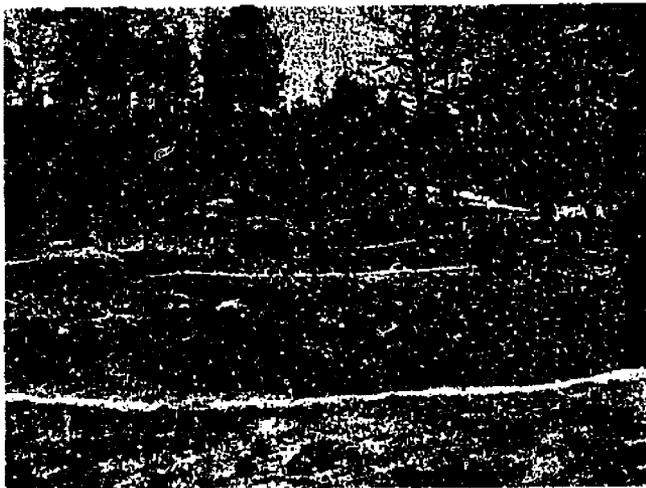
**5-006(b) - Erosion Matrix Score 45.0.** Soil contamination beneath former control building TA-5-4. Surface features of TA-5 have been removed. Building TA-5-4 was destroyed in 1960. **5-006(e) - Erosion Matrix Score 45.0.** Soil contamination beneath former building TA-5-19 that was used between 1953 and 1958. Building TA-5-19 was removed in 1985. Uranium was believed to have been used in the building.

**5-006(h) - Erosion Matrix Score 45.0.** Soil contamination beneath TA-5-9. Surface features of TA-5 were removed in 1985. This site was sampled with PRS No. 5-001(b).



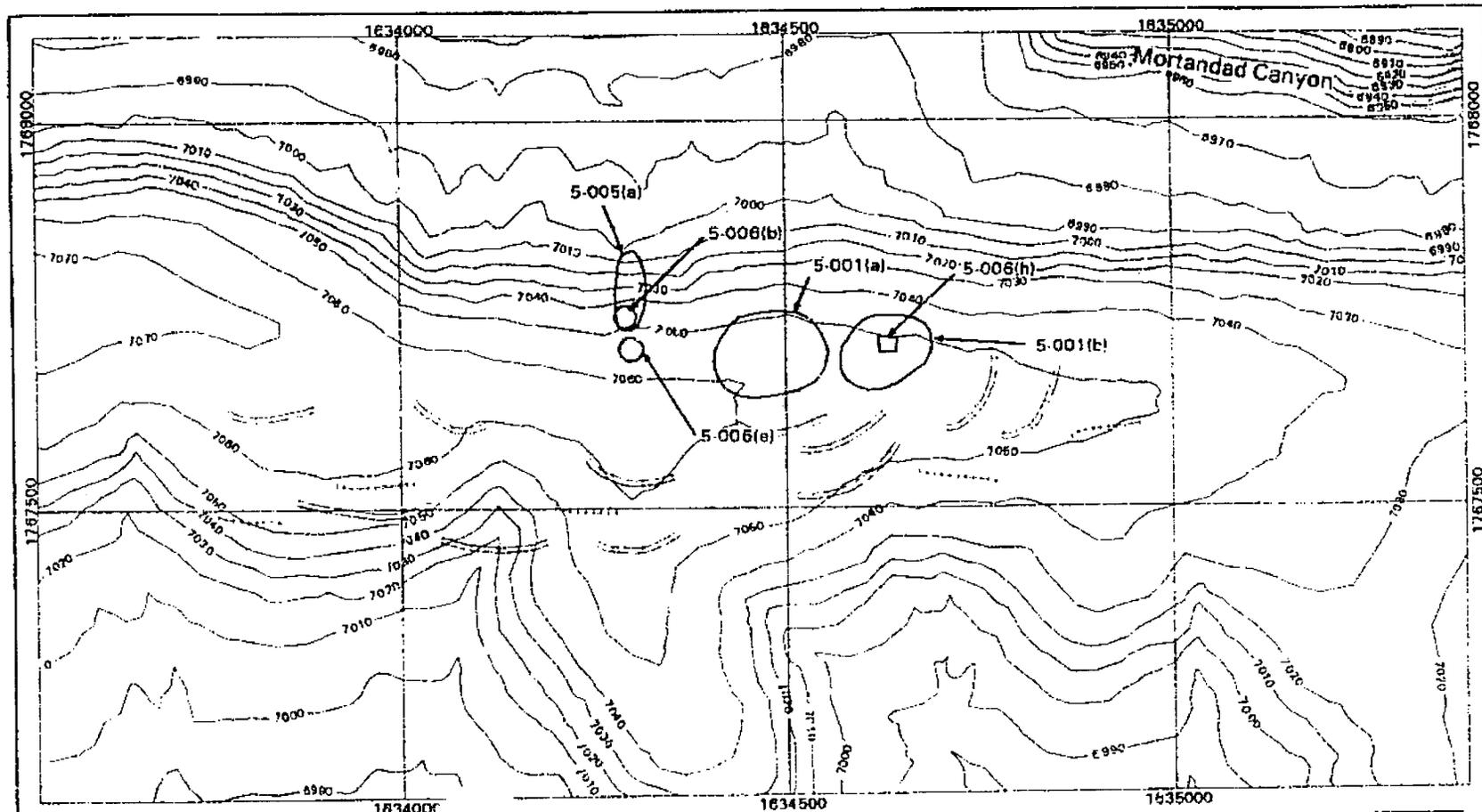
### CERRO GRANDE FIRE:

This site is located on the south rim of Mortandad Canyon within the Upper Canada del Buey Watershed Aggregate. The fire damage was moderate to severe with nearly complete damage to the ground cover and canopy.



### BMPs:

Contour tree felling was done to support erosion control on the largest slopes. Straw wattles were installed on the mesa for run-on diversion, within the north facing drainage channels and on the lower bench for sediment retention. Raking was completed by ATV implements and manually. Native seed mix and straw mulch were also applied.



**Best Management Practices at PRSs 05-001(a,b), 05-005(a), 05-008(b,c,h)**




Scale: 1:2400



EES 5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Note: Information on this map is provisional  
 and has not been checked for accuracy.

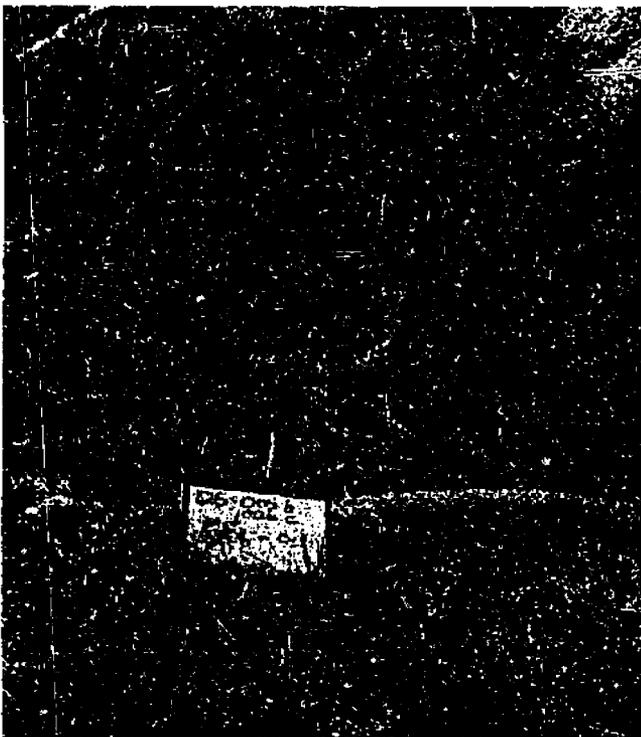
Produced by Marcie Jones  
 FIMAD G108926 08 Aug 00

5-005(b) - *Erosion Matrix Score 53.7*. An outfall associated with the Beta Site shop and darkroom (TA-5-5) was presumed to be operational from 1944 to 1959, the active life of TA-5-5. 5-006(c) - *Erosion Matrix Score 53.7*. Soil contamination beneath former building at TA-5-5. Activities were known to have used high explosives and photo processing chemicals. Building 5-5 was removed in 1960. These are HSWA permitted sites.



**BMPs:**

Contour tree felling was done to support erosion control throughout the drainage basin. Straw wattles were installed within the south facing drainage channels and within the drainage basin for sediment retention. Raking was completed manually and native seed mix and straw mulch were also applied.



**SUMMARY OF INSPECTION & MAINTENANCE**

Sites inspected on:

5/08/2001  
3/26/2001  
10/27/2000  
10/12/2000

Maintenance performed:

Maintenance consisted of installation of an additional 7 wattles placed directly down gradient from existing wattles. Spot reseeding and mulch were applied where needed.

**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.



#### SUMMARY OF INSPECTION & MAINTENANCE

Sites inspected on:

6/18/2001  
5/08/2001  
3/26/2001  
10/27/2000  
10/12/2000

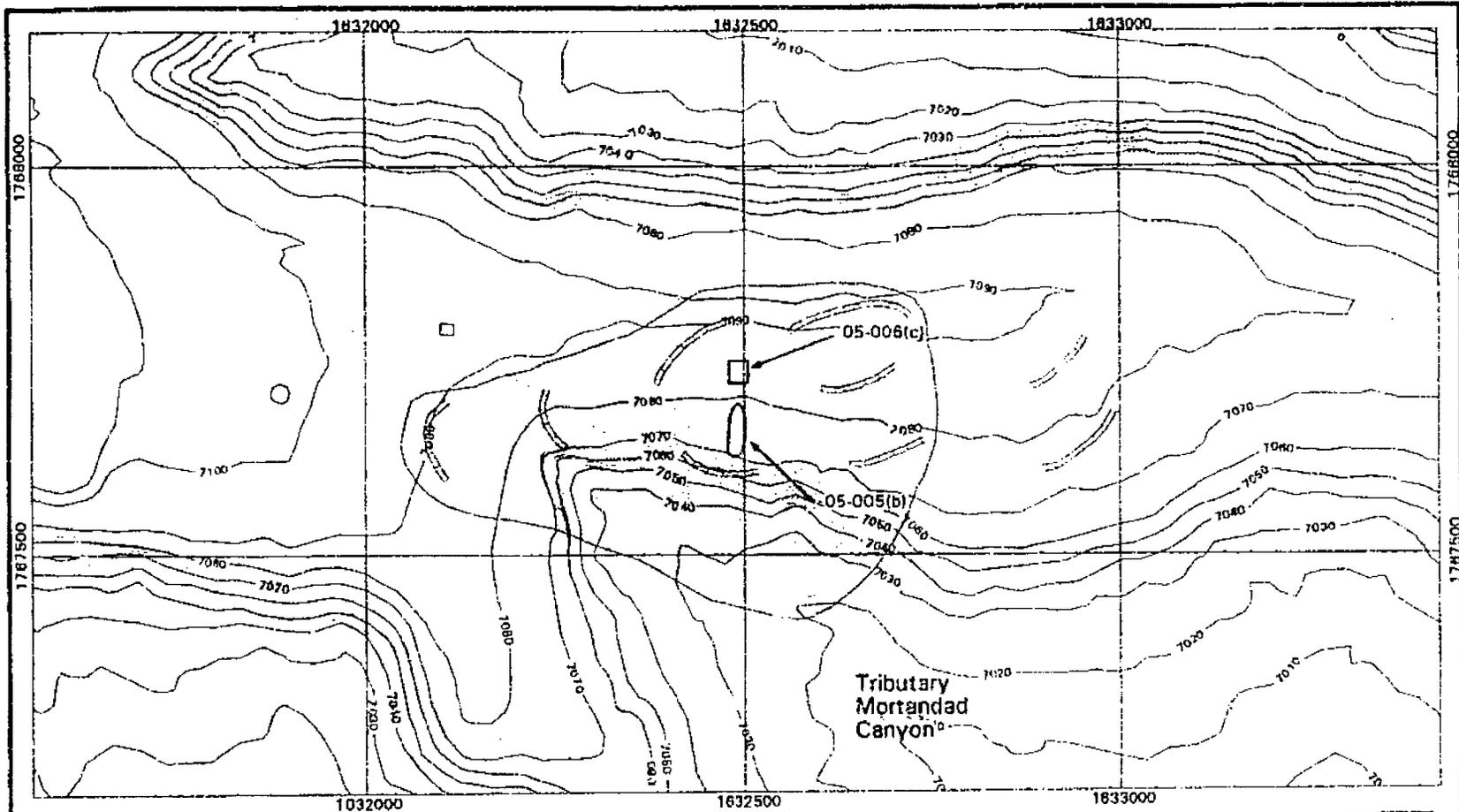
Maintenance performed:

Maintenance consisted of installation of an additional 28 wattles throughout the site. A few more trees were felled within drainages and spot reseeding and mulch were applied.



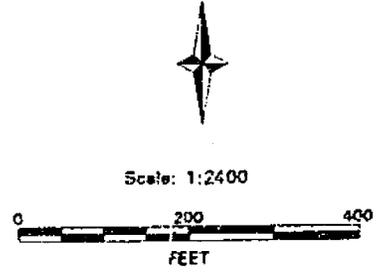
#### SITE STATUS

Site is in good condition, with vegetative cover of greater than 70%. Sediment migration is occurring in the steepest part of several drainage channels, but the straw wattles on the flatter bench appear to be keeping sediment from entering into Canada del Buey.



**Best Management Practices at PRSs 05-005(b) and 05-006(c)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseal
	Structure		Log Check Dams		Straw Wattles



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Los Alamos National Laboratory  
Los Alamos, New Mexico

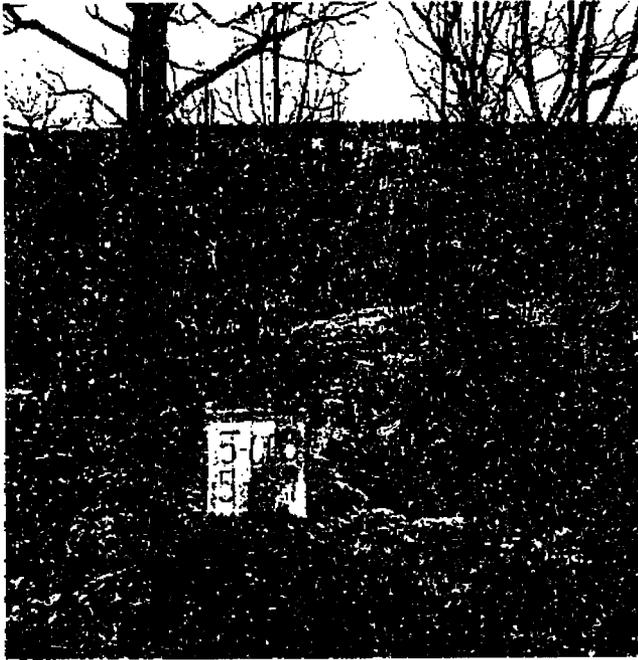
1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marcie Jones  
FIMAD G110026 02 Sep 01

5-003 - Erosion Matrix Score 3.6. The calibration facility, (TA-5-20), was an 8' x 12' x 8' high building built over a shaft approximately 35 feet deep. The building was used to calibrate thermoluminescent dosimeters with a sealed radium source. The Erosion Matrix Score was re-calculated to reflect the subsurface nature of the site. These are HSWA permitted sites.

5-004 - Erosion Matrix Score 49.7. An inactive septic system (TA-5-13) that received industrial waste. The septic system was removed prior to 1985. As built drawings indicate a discharge line running from TA-5-1 near the TA-5-16 barricade to TA-5-13 and south toward the canyon.



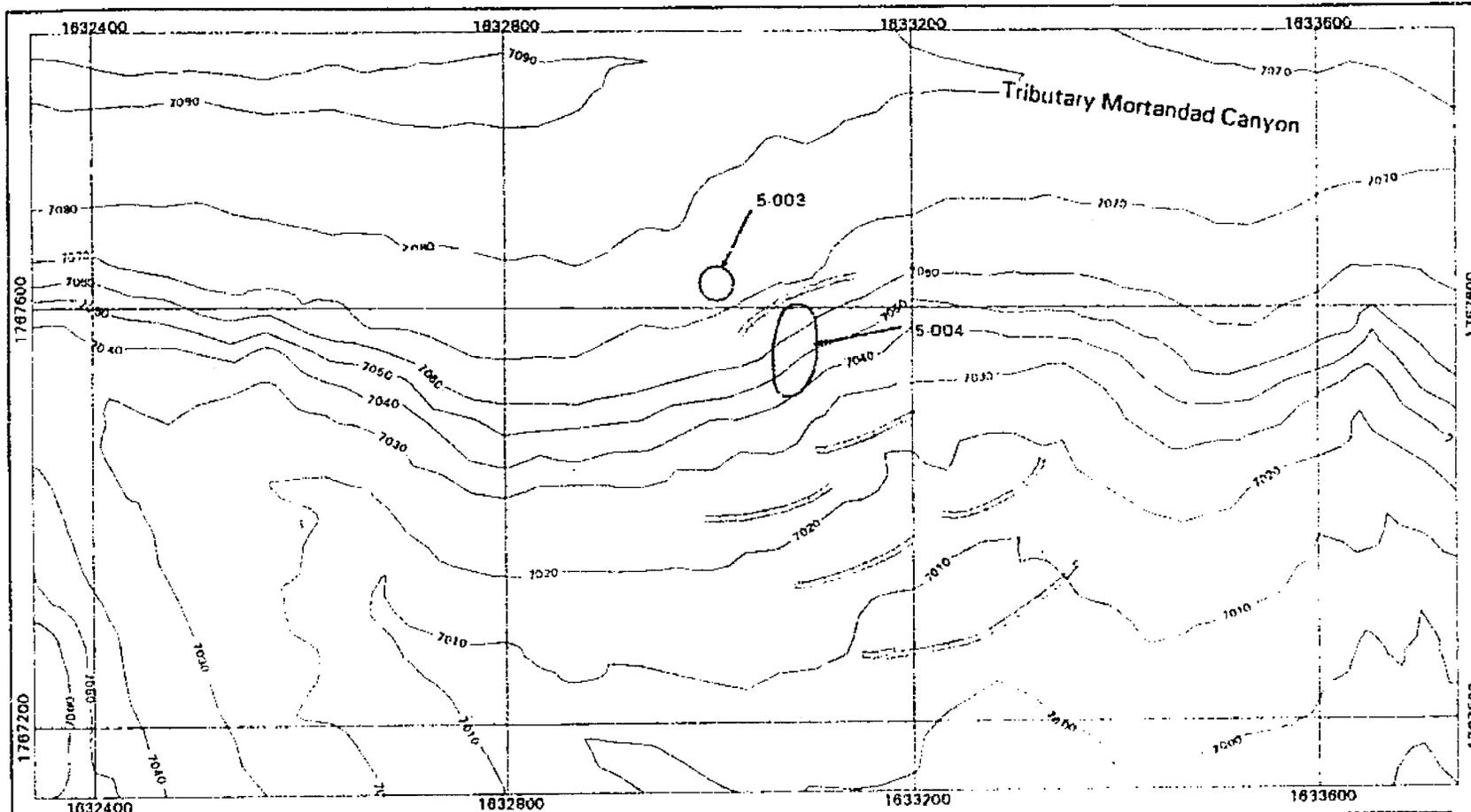
**CERRO GRANDE FIRE:**

This site is located on the south rim of a tributary to Mortandad Canyon within the Upper Canada del Buey Watershed Aggregate. The fire damage was moderate to severe with nearly complete damage to the ground cover and canopy.



**BMPs:**

Contour tree felling was done to support erosion control on the south facing slope. Straw wattles were installed within the drainage channels and within the drainage basin for sediment retention. Raking was completed manually and native seed mix and straw mulch were applied.



**Best Management Practices at PRS 5-003 and 5-004**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles

Scale: 1:1800

0 150 300  
FEET

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 Los Alamos, New Mexico

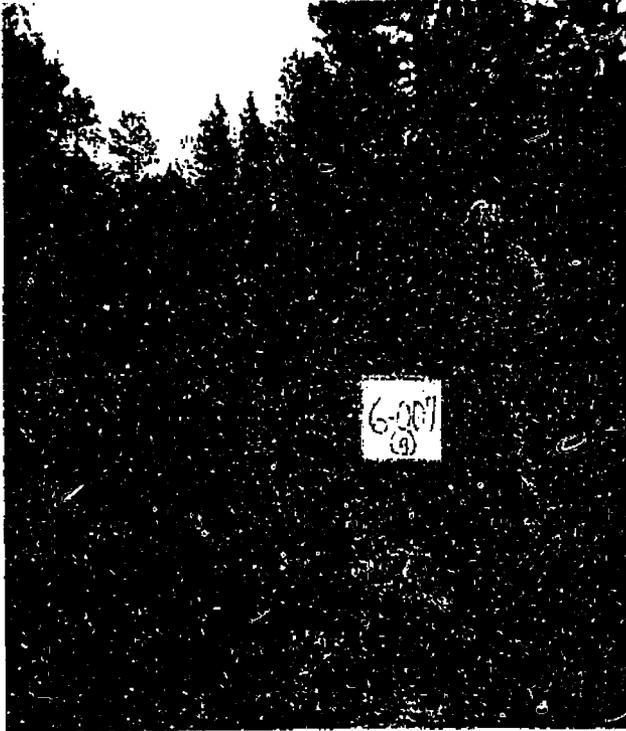
1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marlow Jones  
 FIMAD G108924 28 Nov 00

**TECHNICAL AREA-6 SITE BEFORE AND AFTER THE CERRO GRANDE FIRE**

6-007(g) – *Erosion Matrix Score 50.8*. Formerly Area Of Concern C-6-004, the site of building TA-6-12. Explosives, particularly PETN, were pressed in this building, which was removed from this site in 1949.



**CERRO GRANDE FIRE:**

This site is located on the south side of Pajarito Canyon within the Two Mile Canyon Watershed Aggregate. The drainage channel east of building TA-6-6 has minor evidence of fire damage.

**BMPs:**

Wattles were installed both up and down slope within the drainage channel. Rock/log check dams were installed within the channel to dissipate surface runoff.

**SUMMARY OF INSPECTION & MAINTENANCE**

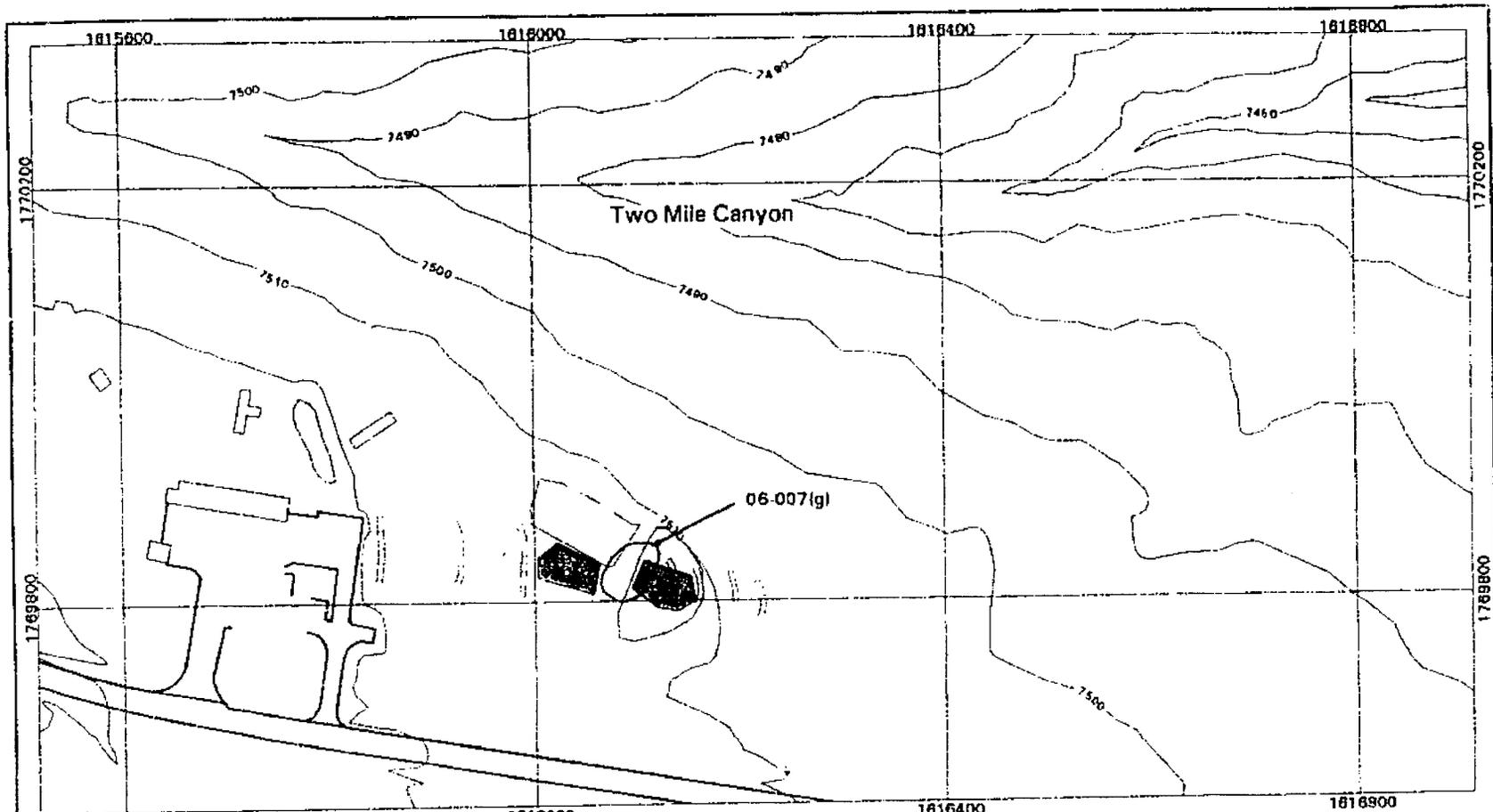
Sites inspected on:

- 5/10/2001
- 4/05/2001      An additional 4 straw wattles and
- 10/30/2000      2 cubic yards of riprap were installed.
- 10/28/2000

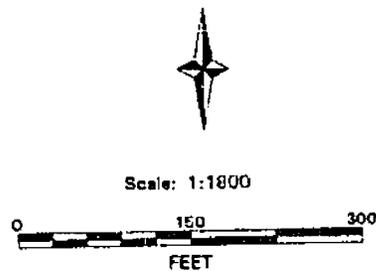
**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRS 06-007(g)**

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 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Merrilee Jones  
 FIMAD G108965 08 Aug 00

**TECHNICAL AREA-9 SITES BEFORE AND AFTER THE CERRO GRANDE FIRE**

9-004(o) - *Erosion Matrix Score 43.8*. Inactive NPDES outfall associated with a sump and settling tank within building TA-9-48. The reinforced concrete settling tank within building TA-9-48 (PRS 9-004(n)) is subsurface and was not impacted by the fire as originally suspected.



**CERRO GRANDE FIRE:**

This site is located south of Pajarito Canyon within the Starmer/Upper Pajarito Watershed Aggregate. The area received minor to moderate fire damage. The ground cover was completely burned but the canopy cover was only partially affected.

**BMPs:**

Straw wattles were installed within the drainage swales and rock check dams were placed within the channels to dissipate flow.

**SUMMARY OF INSPECTION & MAINTENANCE**

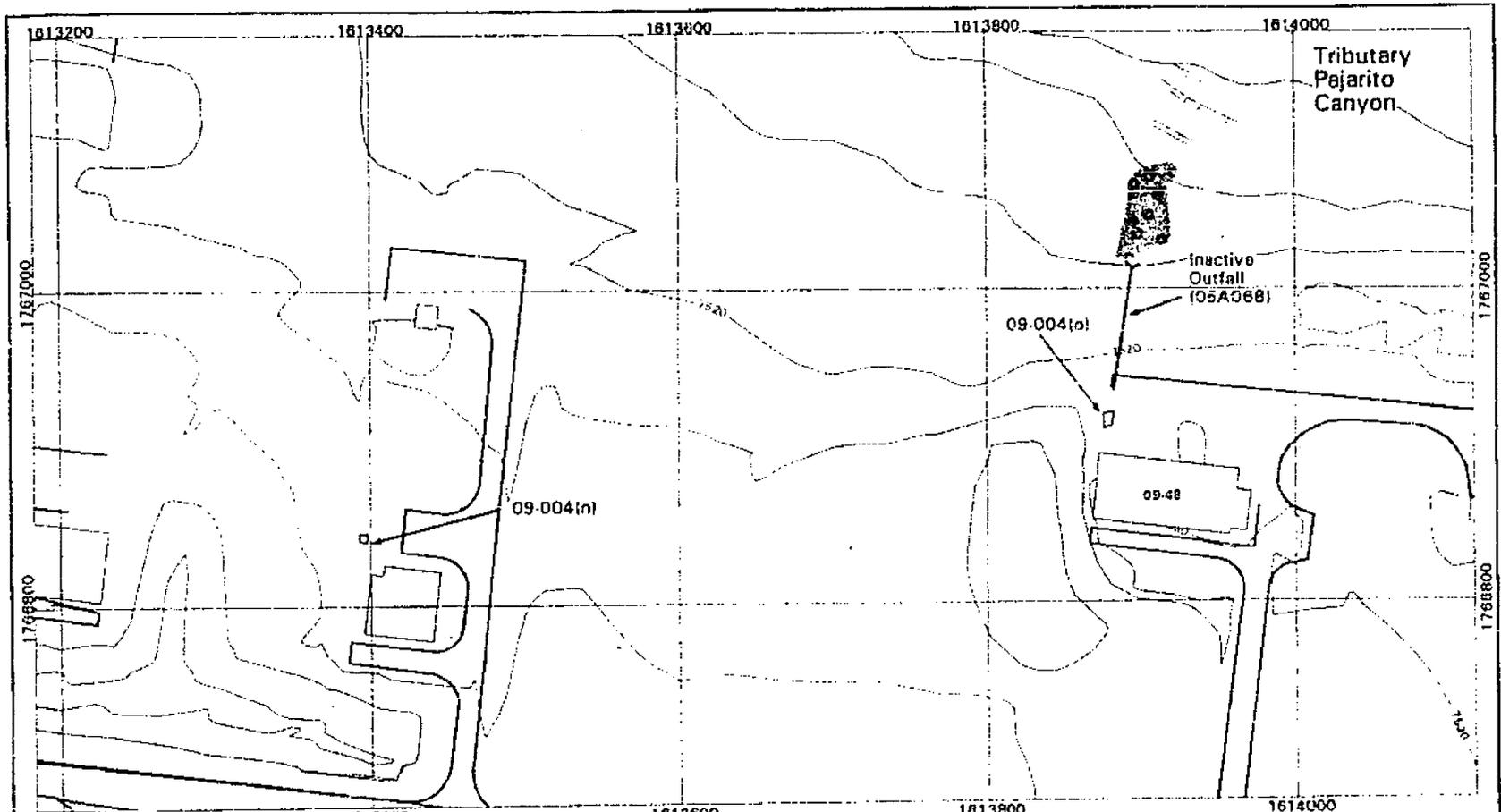
Sites inspected on:

- 6/29/2001
- 5/10/2001
- 4/05/2001      An additional 2 straw wattles were installed.
- 10/30/2000
- 6/24/2000

**SITE STATUS**

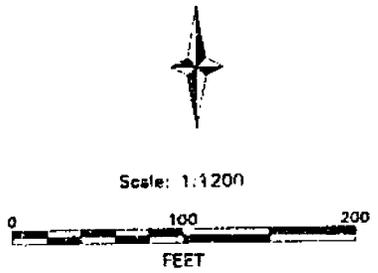
Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRSs 09-004(n,o)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



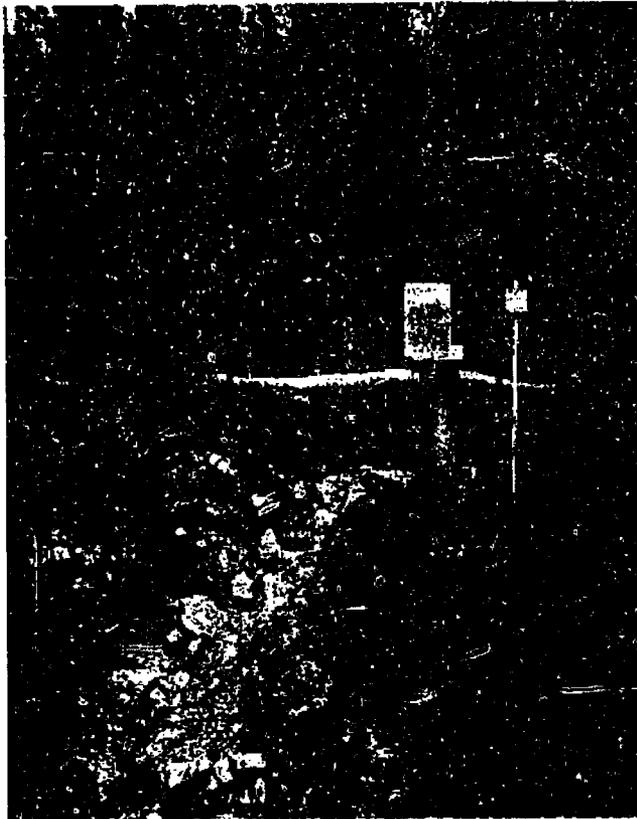
EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marie Jones  
 FIMAD G108927 08 Aug 00

9-009 - Erosion Matrix Score 58.8. A lagoon and sand filters used to treat sanitary waste. After flowing through the sand filters, effluent discharged to a currently inactive NPDES outfall (555 02S).



**CERRO GRANDE FIRE:**

This site is located south of Pajarito Canyon within the Starmer/Upper Pajarito Watershed Aggregate. The PRS is the former Sanitary Wastewater Treatment Facility north of TA-9. Site has moderate fire damage with ground and canopy cover being impacted.

**BMPs:**

Straw wattles were installed in the drainage swales and rock check dams were placed in the channels to dissipate flow (using existing materials found on-site). Watties were also provided upslope for run-on diversion.

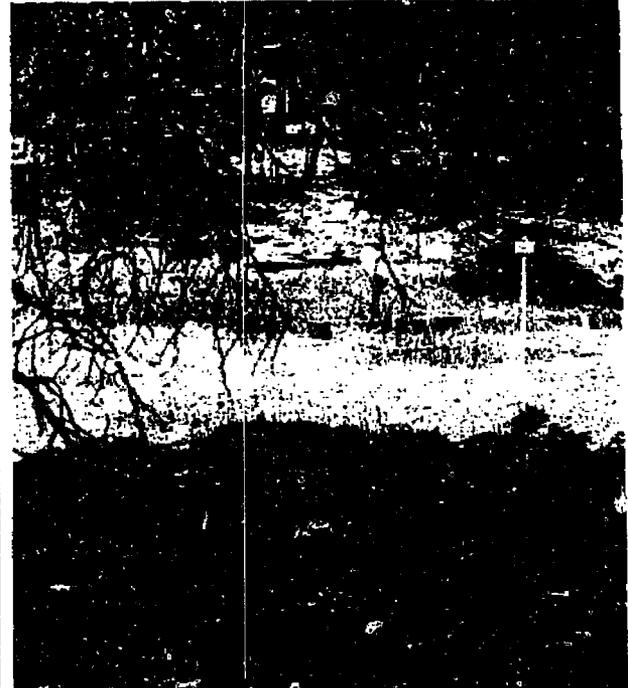
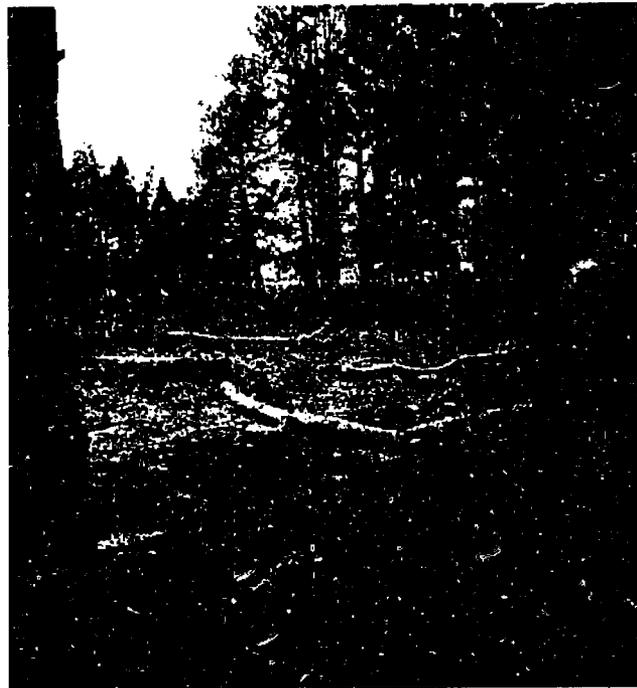
**SUMMARY OF INSPECTION & MAINTENANCE**

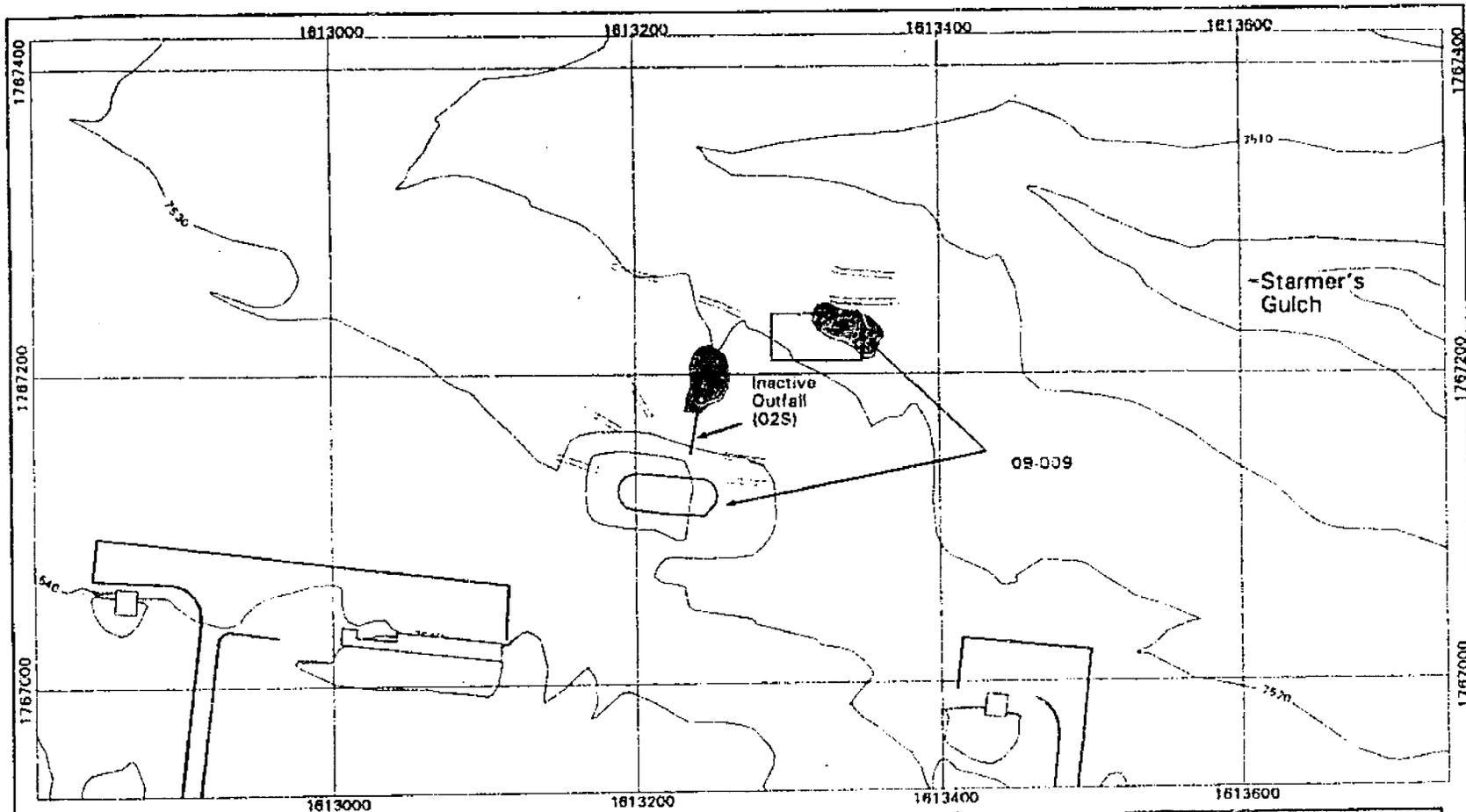
Sites inspected on:

- 6/29/2001
- 5/10/2001      An additional 2 straw wattles were installed
- 4/05/2001
- 10/30/2000
- 6/24/2000

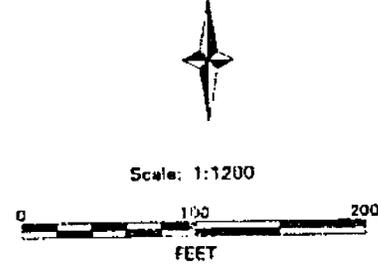
**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 40%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRS 09-009**

EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marcia Jones  
 FIMAD G110025 31 Aug 01

9-013 - *Erosion Matrix Score 56.0*. Material Disposal Area (MDA) M, was a surface disposal area located within TA-9. MDA-M occupied approximately 3.2 acres and was roughly circular in shape. Construction debris and solid wastes were disposed there from 1948 to 1965

**CERRO GRANDE FIRE:**

This site is located south of Pajarito Canyon within the Starmer/Upper Pajarito Watershed Aggregate. The area surrounding MDA M was moderately to severely burned as was a majority of the upper Pajarito Watershed. All of the existing erosion controls at the site were destroyed.

**BMPs:**

Run-on controls were replaced as shown below. The entire site was hand raked, reseeded and mulched. A retention basin was installed at the bottom of the slope to create a "zero discharge" area.





### SUMMARY OF INSPECTION & MAINTENANCE

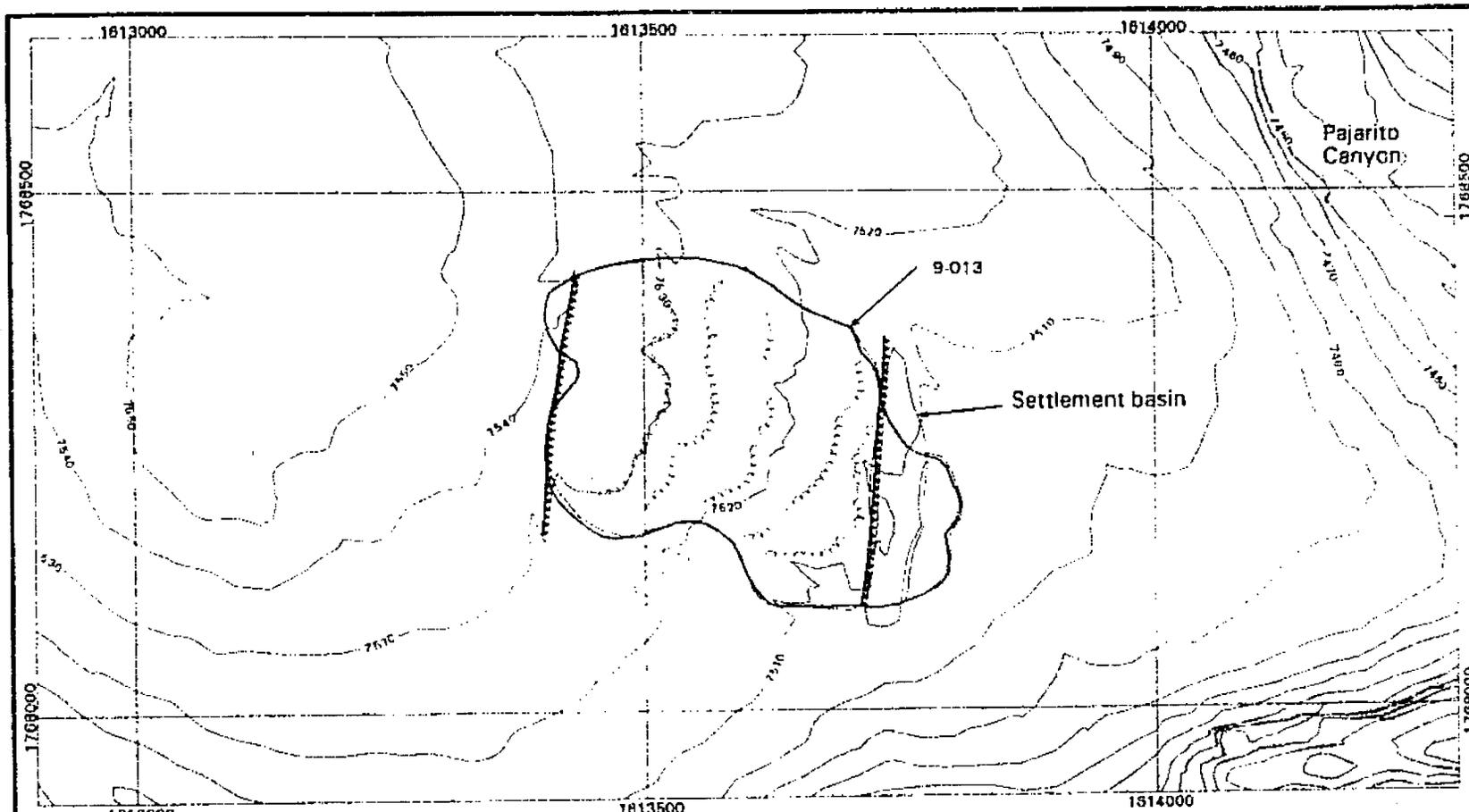
Sites inspected on:

6/28/2001  
5/10/2001  
4/05/2001      No maintenance required  
10/30/2000  
5/24/2000

### SITE STATUS

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRS 09-013**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



Scale: 1:1800



EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projector and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notes: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marisa Jones  
 FIMAD G108923 08 Aug 00

## TECHNICAL AREA-11 SITES BEFORE AND AFTER THE CERRO GRANDE FIRE

**11-004(a-f)** – *Erosion Matrix Score 56.0*. Active components of a drop tower (TA-11-25) complex located 180 feet east of TA-11-2 and TA-11-3.

**11-006(a-d)** – *Erosion Matrix Scores 10.6, 52.0, 68.8 and 74.0*. An HE sump (11-006(a)) that receives drainage from the concrete pad (TA-11-26) that surrounds the drop tower (TA-11-25). The sump is located to the east of the drop tower complex. Three reinforced concrete surface water catch basins receive drainage from the sump (11-006(b-d)).



### CERRO GRANDE FIRE:

This site is located north of Water Canyon within the S-Site Watershed Aggregate. The site has moderate to severe fire damage in the area surrounding the TA-11 Drop Tower. Log check dams within the major drainages received partial damage. All straw barriers installed around site were destroyed.

### BMPs:

The log check dams (on-site materials used) were replaced within the adjacent drainages. Straw watties were placed on the slopes and geotextile was installed in the areas with the most erosion potential. The area surrounding the Drop Tower was hydromulched to enhance the revegetation process.





SUMMARY OF INSPECTION & MAINTENANCE

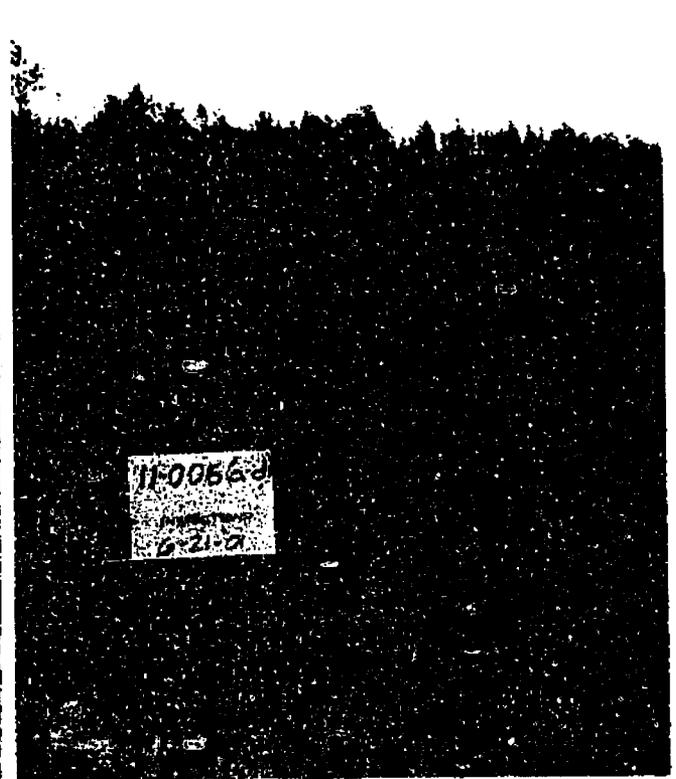
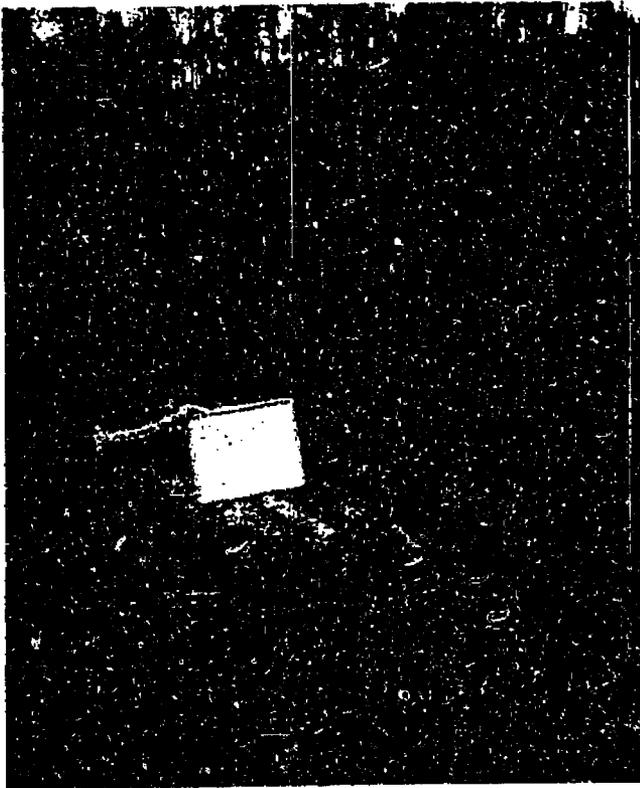
Sites inspected on:

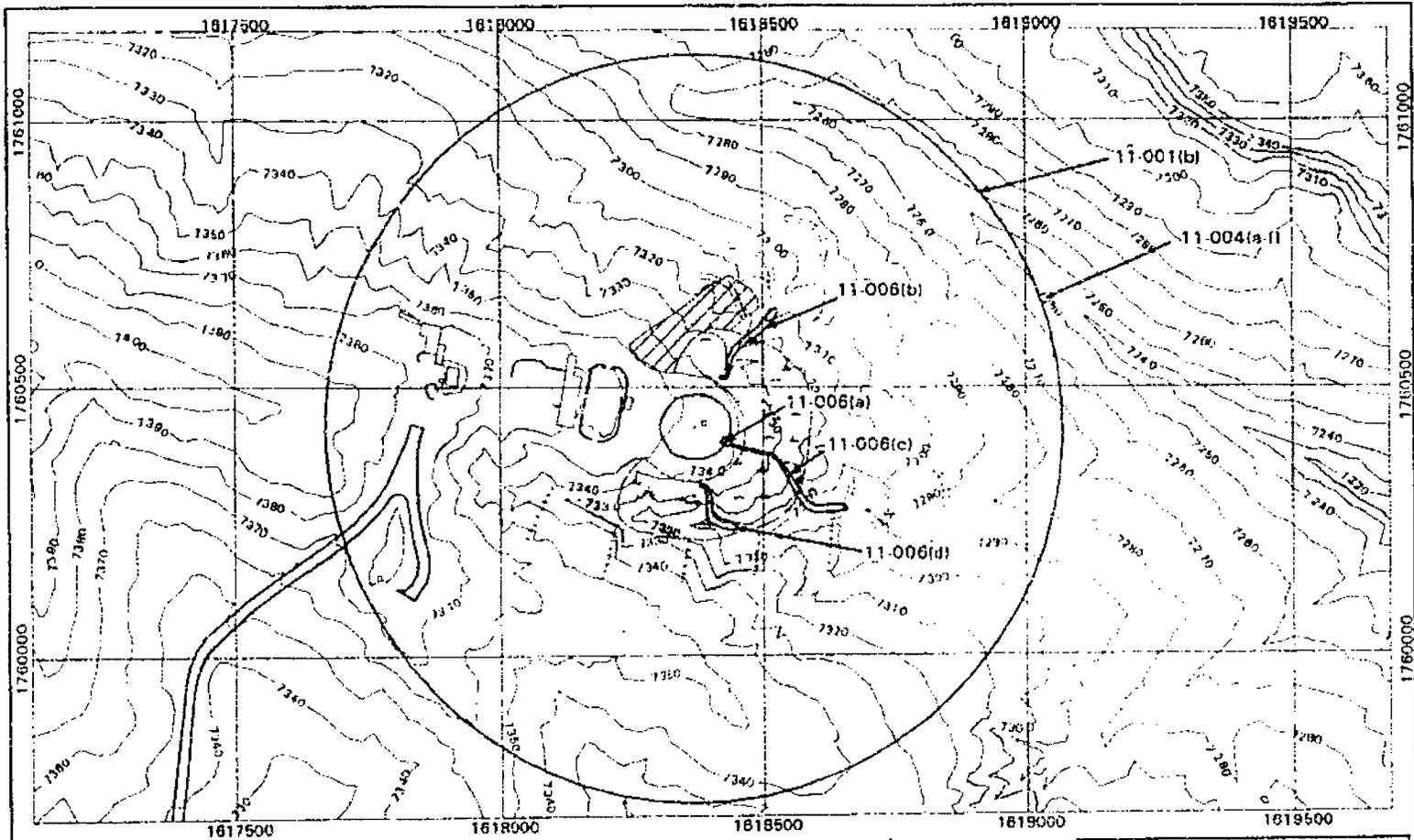
6/21/2001  
3/12/2001  
12/20/2000  
11/17/2000  
10/12/2000  
5/18/2000

No maintenance required

SITE STATUS

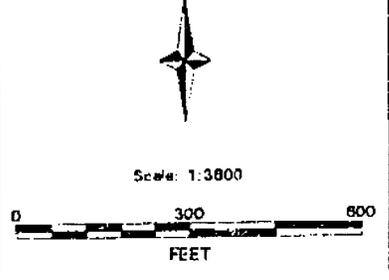
Site is in good condition, with vegetative cover of greater than 60%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRS 11-001(b), 11-004(a-f), 11-006(a-d)**

	10-ft Contour		Diversion Channel		Rock Check Dam
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dam		Straw Netting



EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marcia Jones  
 FIMAD G10R930 28 Nov 00

## TECHNICAL AREA-14 SITES AFTER THE CERRO GRANDE FIRE

**14-002(a)** - *Erosion Matrix Score 51.5*. Decommissioned closed firing chamber. The chamber was dismantled and removed in 1973. It was used extensively for HE tests, many using uranium-238.

**14-002(c)** - *Erosion Matrix Score 36.8*. A control bunker built in 1944 converted to storage in 1961. In 1965 storage contents were destroyed. The 1990 SWMU report indicated that this site was contaminated with high explosives.

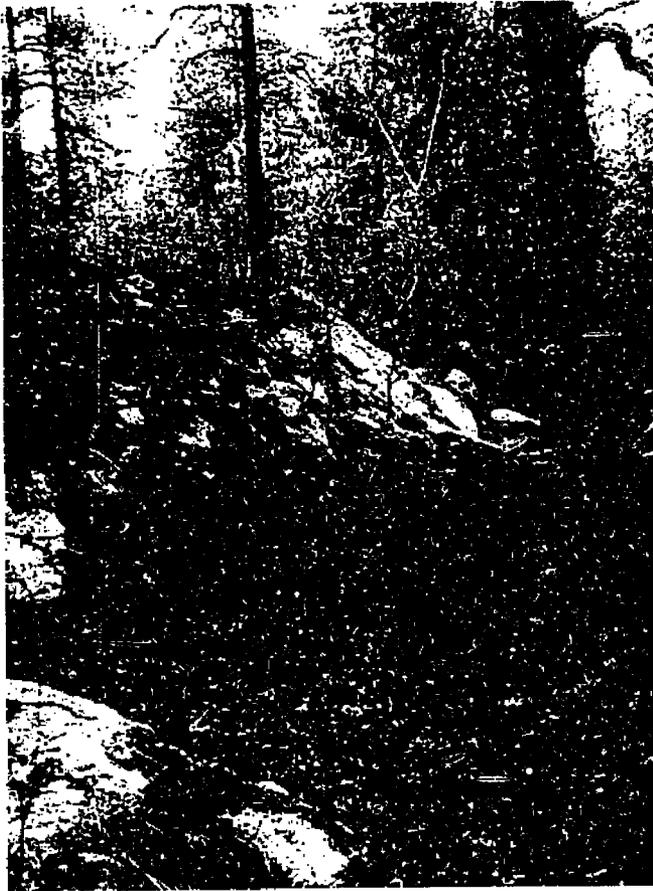
**14-002(d)** - *Erosion Matrix Score 46.8*. Firing pad in which small explosive tests (up to 15 lbs) were photographed, some of the shots contained uranium.

**14-002(e)** - *Erosion Matrix Score 47.8*. Firing pad on which explosive tests were photographed. Shots were small (up to 15 pounds) and some contained uranium.

**14-006** - *Erosion Matrix Score 47.1*. This PRS consists of a sump, drain line, and outfall. It was used to separate pieces of HE from liquid. The sump is now plugged and the only discharge to the outfall is rain water. HE and toxic chemicals may be present.

**14-009** - *Erosion Matrix Score 53.7*. Surface disposal area consisting of ruptured sand bags which were used for containment during explosives testing activity. Sand could be contaminated with lead, uranium, HE and beryllium.

**14-010** - *Erosion Matrix Score 51.5*. High explosive waste sump adjacent to TA-14-2. The site may have contained HE and other chemicals. The sump and drain-line were removed.



### CERRO GRANDE FIRE:

This site is located north of Canon de Valle within the Canon de Valle Watershed Aggregate. The entire south facing slope located to the south of TA-14 structures was moderately burned with substantial damage to the groundcover.



**PHOTOGRAPH:**

This photograph was taken on June 8<sup>th</sup>, 2000.  
The drainage shown is located below building  
14-43.



**BMPs:**

Straw wattles were installed across the drainage  
swale. The area was hand raked, reseeded and  
mulched. A rock check dam was installed at the  
lowest part of the drainage.



#### SUMMARY OF INSPECTION & MAINTENANCE

Sites inspected on:

5/10/2001  
4/25/2000  
10/30/2000  
6/9/2000

Maintenance performed:

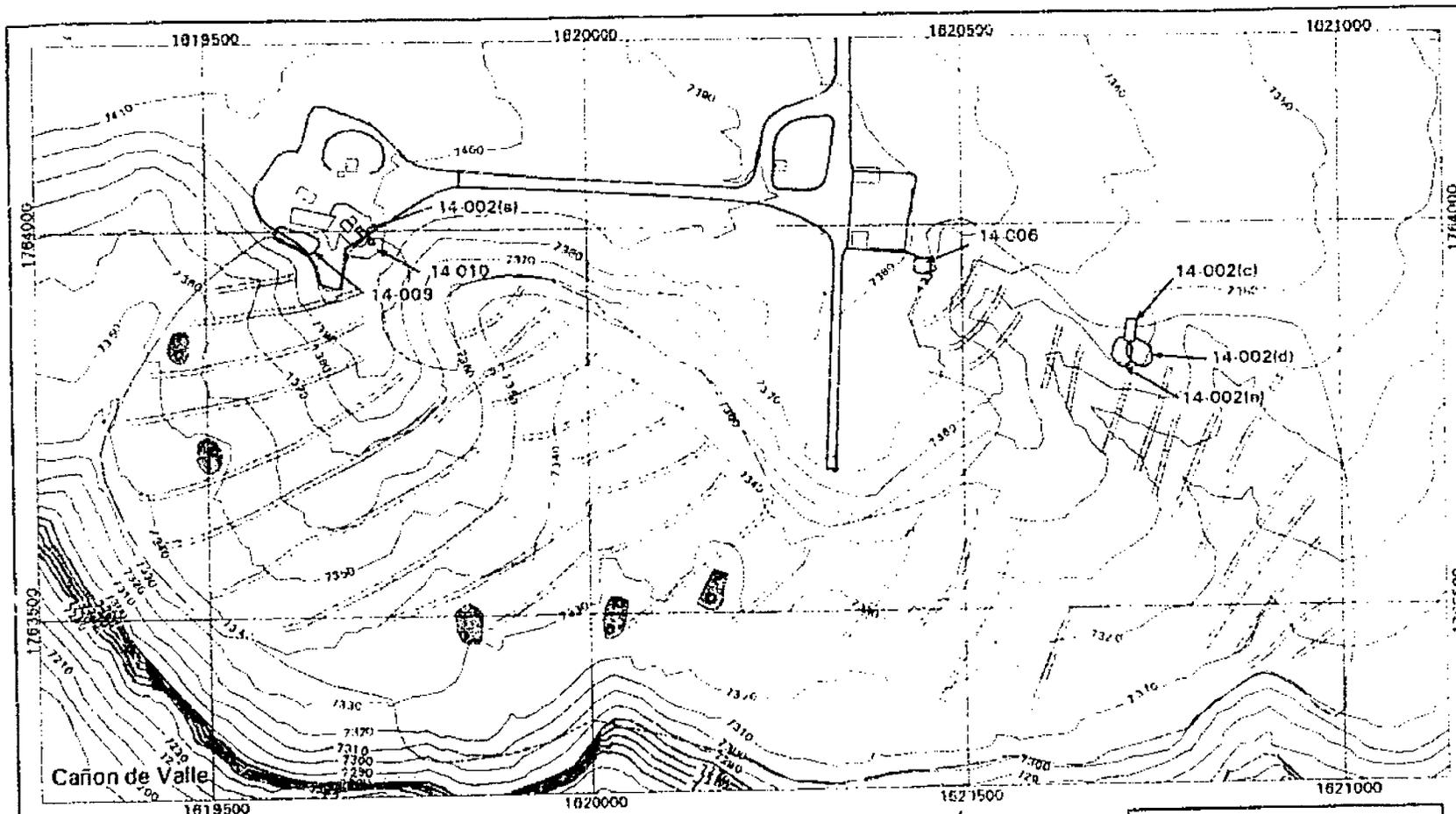
Several more straw wattles were installed due to damage from wildlife.



#### SITE STATUS

Site is in good condition, with vegetative cover of greater than 70% throughout the site. The area appears stable with evidence of sediment migration being minimal.

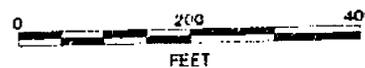
07/30/01



**Best Management Practices at PRSs 14-002(s,c-e), 14-006, 14-009, and 14-010**




Scale: 1:2400

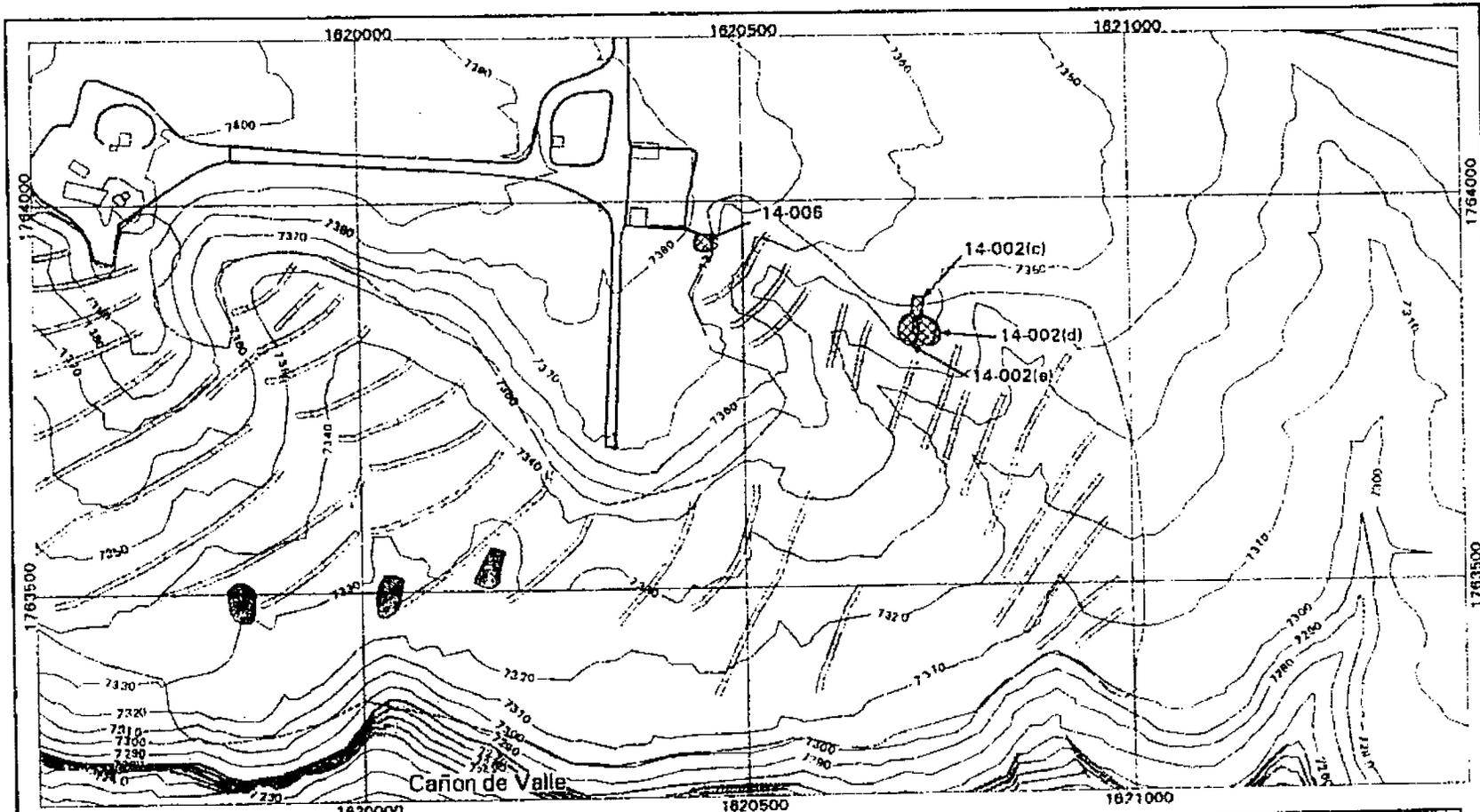


EES-5 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

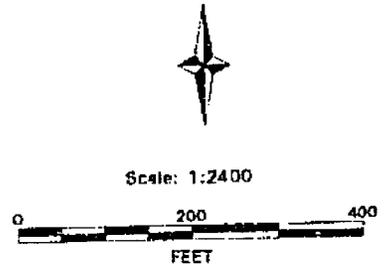
Notice: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marcia Jones  
FIMAD G108932 09 Aug 00



**Best Management Practices at PRSs 14-002(c,d,e) and 14-006**

	10-ft Contour		Diversion Channel		Log Check Dams
	2-ft Contour		Erosion Cover		Rock Check Dams
	Paved Road/Parking		Geotextile		Silt Fence
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Jute Matting		Straw Wattles



EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marlow Jones  
 FIMAD G108931 01 Aug 00

## TECHNICAL AREA-15 – INACTIVE FIRING SITE R44 BEFORE AND AFTER THE CERRO GRANDE FIRE

**15-006(c) – Erosion Matrix Score 64.5.** PRS 15-006(c) was the third most extensively used firing site at TA-15, used from the 1950s until 1992. Approximately 7,000 Kg of uranium and other materials, including lead and beryllium were expended. **15-008(b) - Erosion Matrix Score 67.2.** Surface disposal area north of PRS 15-006(c), R-44 Firing Site. Remnants and debris from tests were pushed over the edge of the canyon.



### CERRO GRANDE FIRE:

This site is located on the south rim of Three Mile Canyon within the Three Mile Watershed Aggregate. 15-006(c) has moderate to severe burn damage with most of the damage adjacent to the former R-44 Firing Pad. A large amount of firing site related debris has been exposed throughout the site (especially towards the east).

### BMPs:

Straw wattles, rock check dams and silt fencing were installed throughout the burned areas. The area was then hydromulched to enhance the revegetation process.



### SUMMARY OF INSPECTION & MAINTENANCE

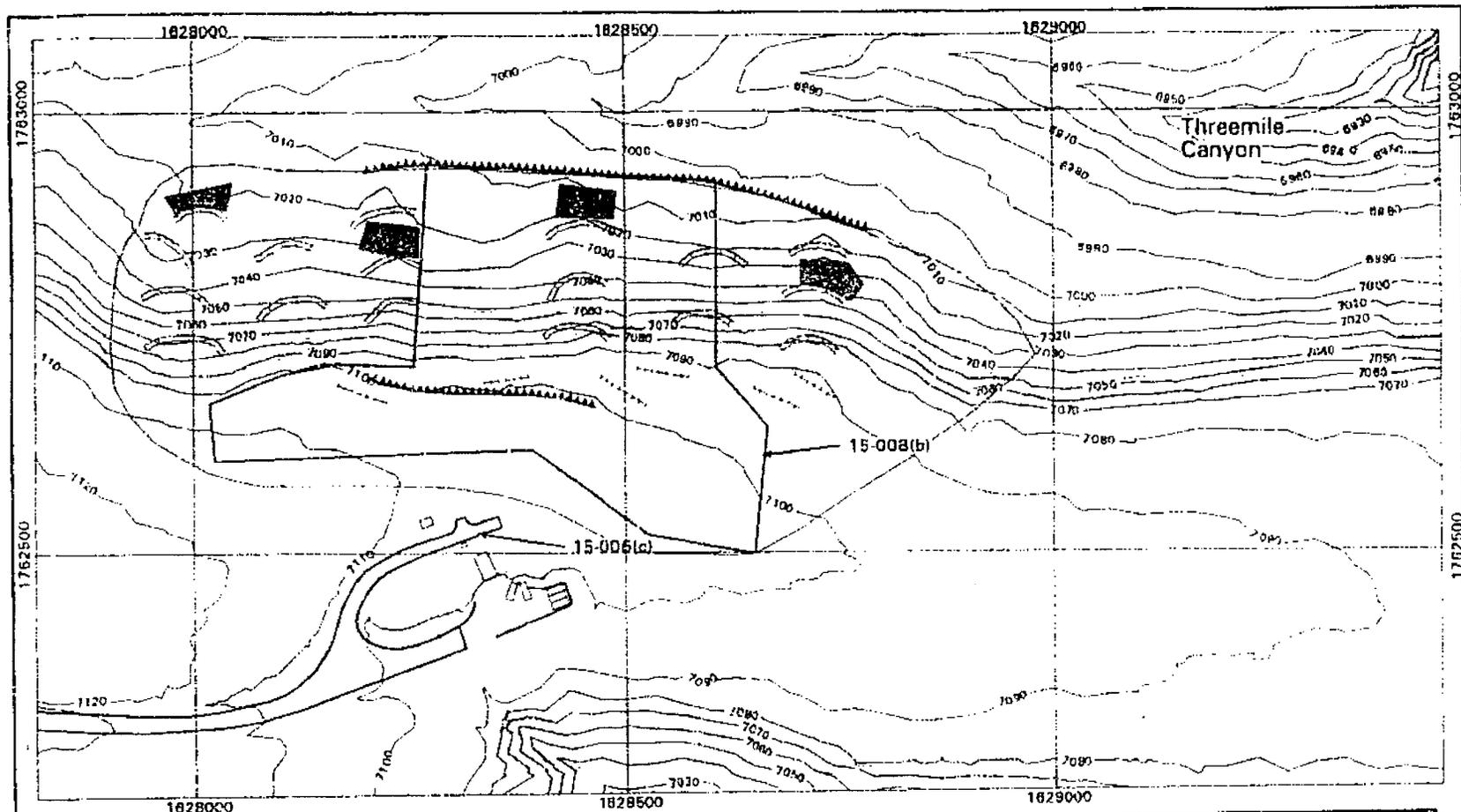
Sites inspected on:

6/29/2001  
5/10/2001  
3/30/2001            No maintenance required  
10/20/2000  
5/24/2000

### SITE STATUS

Over 20 cubic yards of firing site debris was removed from the surrounding area. Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRSs 15-006(c) and 15-008(b) (R-44)**




Scale: 1:2100



EES-5 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marcia Jones  
FIMAD G108933 28 Nov 00

## TECHNICAL AREA-15 – HOLLOW SITE BEFORE AND AFTER THE CERRO GRANDE FIRE

C-15-007 - *Erosion Matrix Score 51.5*. Stained soil noted during a 1988 ER site reconnaissance visit. A transportable building was placed over it. The area was sampled in 1997. C-15-010 - *Erosion Matrix Score 8.8*. Removed inactive underground fuel storage tank. 15-014(k) - *Erosion Matrix Score 3.6*. Concrete open trench drains. 15-011(a) - *Erosion Matrix Score 3.6*. Concrete trench drains. 15-014(l) - *Erosion Matrix Score 3.6*. Drain line from roof of building TA-15-194. 15-011(b) - *Erosion Matrix Score 87.0*. Dirt drainage ditch located southwest of Building R-194. Drainage may have received degreasers, solvents containing sulfuric acid, and/or hydrochloric acid. 15-011(c) - *Erosion Matrix Score 87.0*. Drainage, PRS 15-011(c), serves the outfalls from buildings within The Hollow that have had various uses as assembly building, laboratories, and shops. 15-014(j) - *Erosion Matrix Score 61.3*. PRS 15-014(j) consists of three outfalls from Building R-50 and a drainage channel that is partially asphalt just below the outfall leading towards the canyon.



### CERRO GRANDE FIRE:

This site is located near the confluence of Canon de Valle and Water Canyon within the Canon de Valle Watershed Aggregate. The site was moderately to severely damaged including several burned structures.

### BMPs:

Straw wattles were installed along the western perimeter of the mesa. Several trees were contour felled for erosion control along the drainage channel. The site was hand-raked, reseeded and straw mulched.

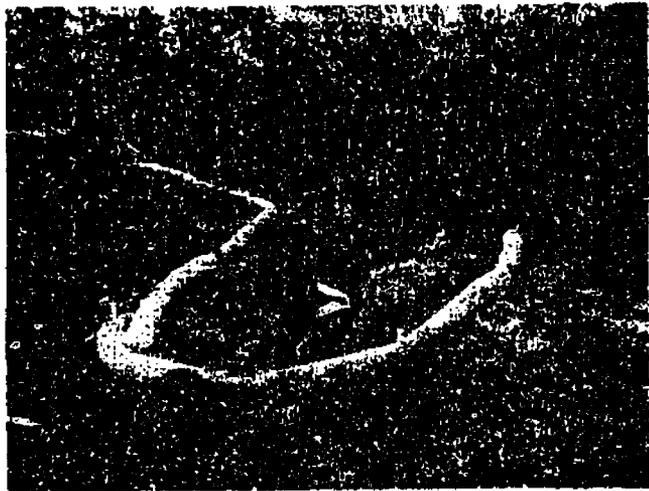
### SUMMARY OF INSPECTION & MAINTENANCE

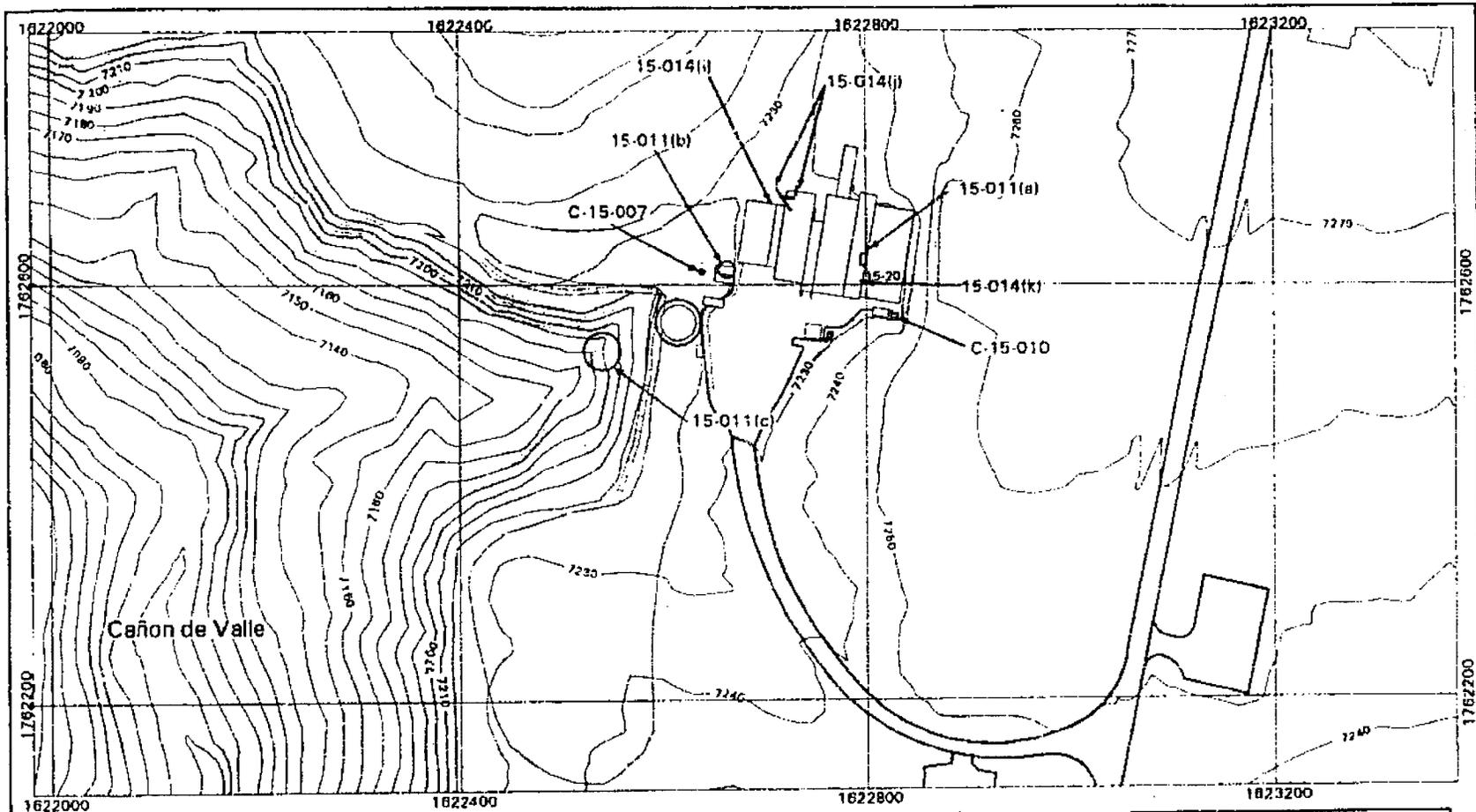
Sites inspected on:

5/10/2001	
3/30/2001	No maintenance required
10/20/2000	
5/26/2000	

### SITE STATUS

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at FRSs 15-011(a-c), 15-014(i-k), C-15-007, and C-15-010**




Scale: 1:1800



EES-5 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
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Produced by Marcie Jones  
FIMAD G108935 08 Aug 00

**TECHNICAL AREA-15 - MDA-Z BEFORE AND AFTER THE CERRO GRANDE FIRE**

15-007(b) – *Erosion Matrix Score 40.2*. MDA Z is an inactive disposal area that was used from 1965 to 1981 for construction debris, steel blast matting from PHERMEX, and other debris.



**CERRO GRANDE FIRE:**

This site is located near the confluence of Canon de Valle and Water Canyon within the Canon de Valle Watershed Aggregate. The area received minor burn damage primarily to the ground cover.

**BMPs:**

Straw wattles were installed above the site within the existing drainage channel and below the area with exposed debris.

**SUMMARY OF INSPECTION & MAINTENANCE**

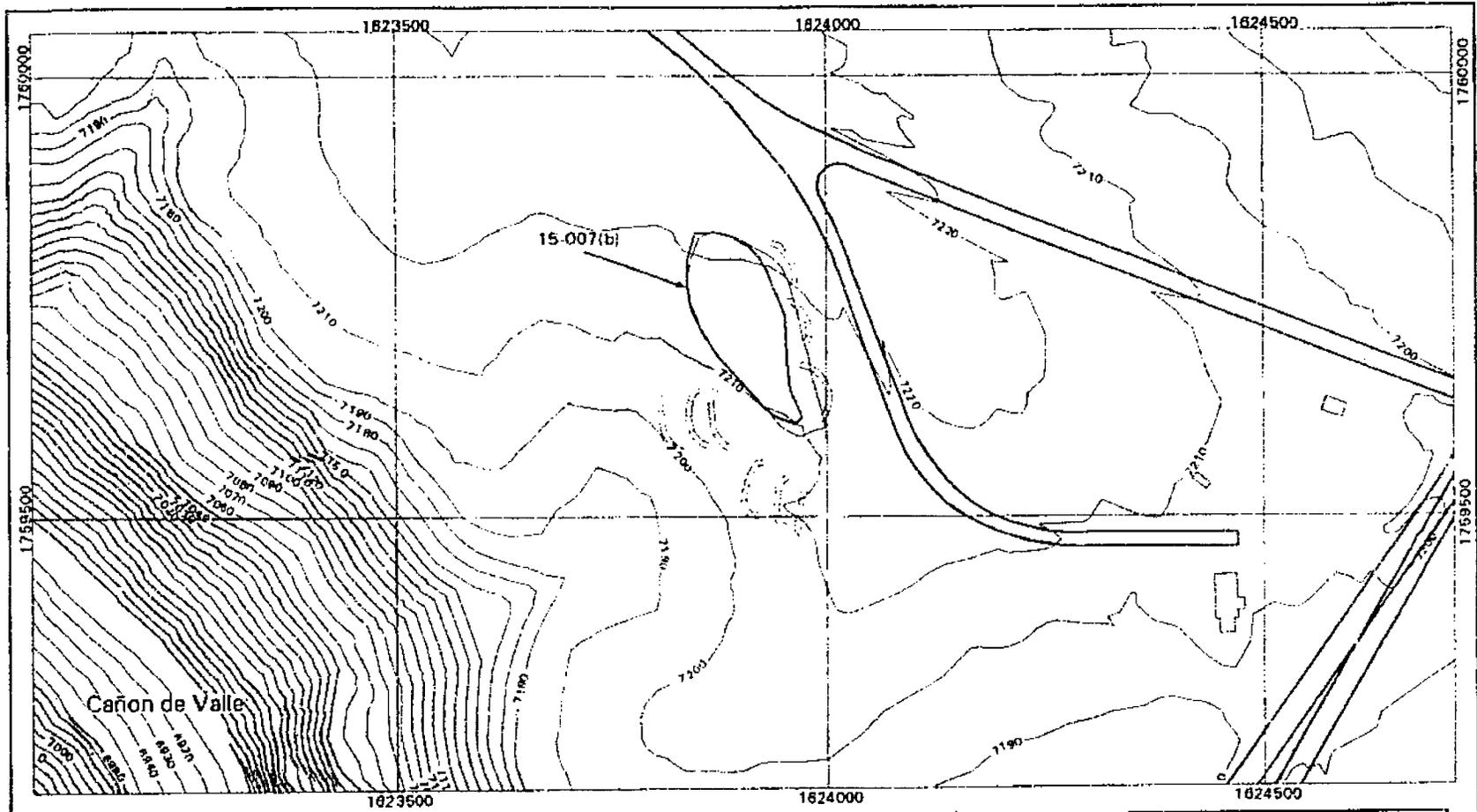
Sites inspected on:

6/29/2001  
5/10/2001  
3/30/2001            No maintenance required  
10/30/2000  
6/10/2000

**SITE STATUS**

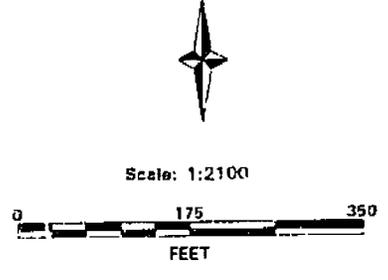
Site is in good condition, with vegetative cover of greater than 50%. The area appears stable with evidence of sediment migration being minimal.





**Best Management Practices at PRSs 15-007(b)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Perking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



EES-6 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on the map is provisional  
and has not been checked for accuracy.

Produced by Marce Jones  
FIMAD G108934 08 Aug 00

## TECHNICAL AREA-16 SITES AFTER THE CERRO GRANDE FIRE

**16-028(a) – Erosion Matrix Score 51.5.** An active outfall drainage associated with TA-16-228 High Explosive Wastewater Treatment Facility. The discharge enters the canyon between TA-16-228 and the liquid impoundment SWMU (16-008(b)).

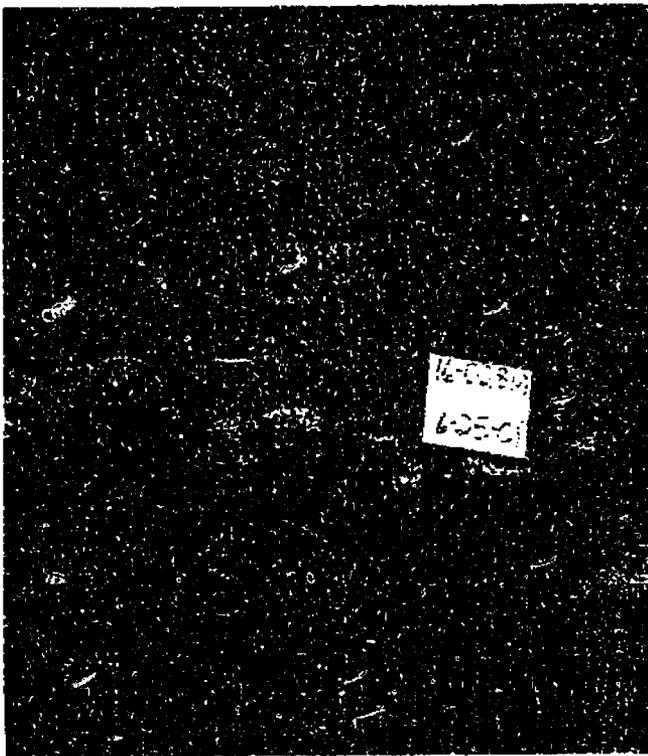


### CERRO GRANDE FIRE:

This site is located near a tributary of Water Canyon within the Canon de Valle Watershed Aggregate. The site has minimal fire damage to the west and south. Some minor burning occurred within the SWMU boundary, but consisted mostly of destroyed grasses. The HEWTF remains operational.

### BMPs:

Straw barriers and rock check dams (existing materials found on site) were placed within the drainage swale to reduce sediment transport potential.



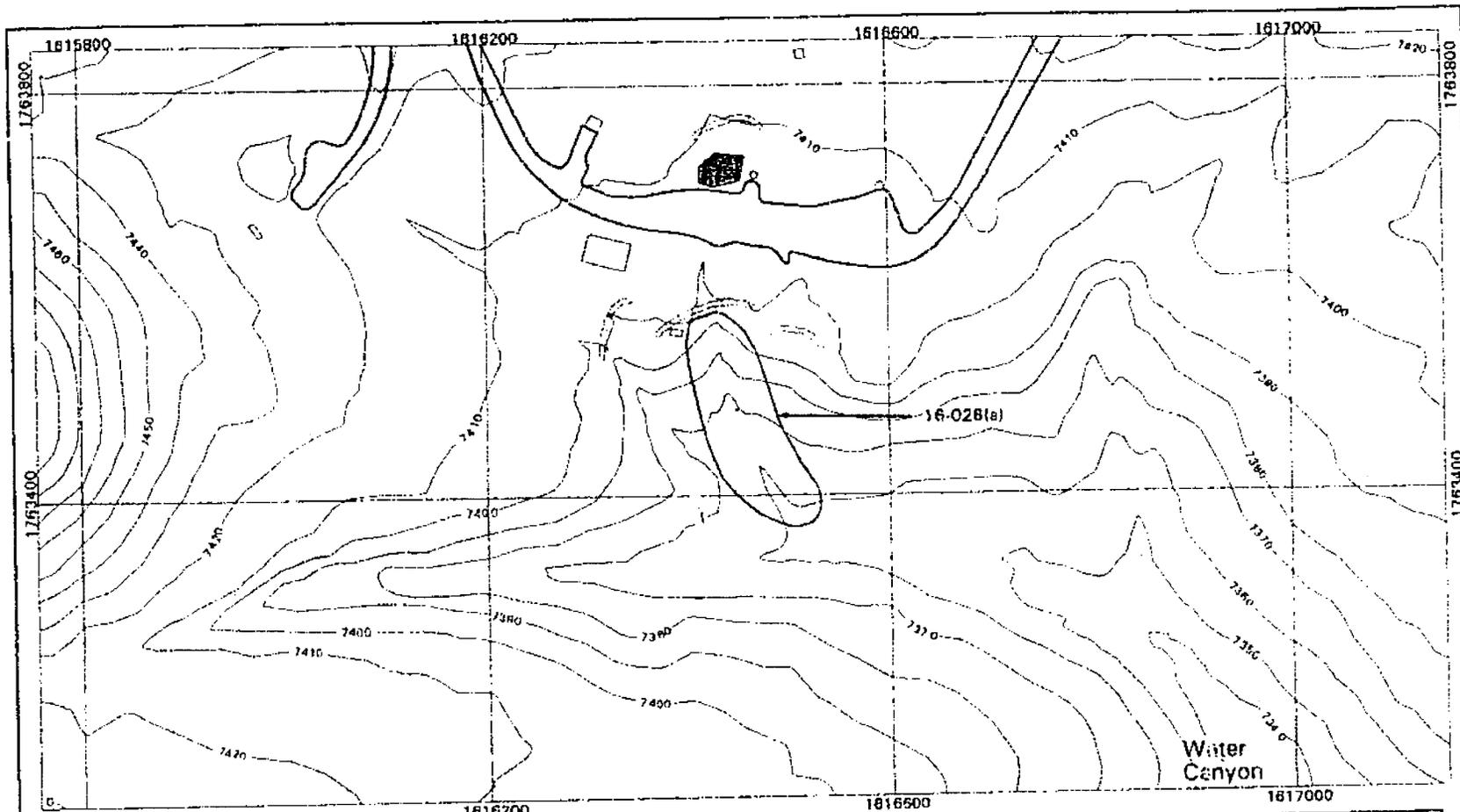
### SUMMARY OF INSPECTION & MAINTENANCE

Site inspected on:

6/25/2001  
5/10/2001  
3/30/2001            No maintenance required  
10/30/2000  
6/1/2000

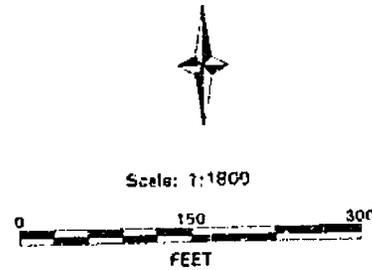
### SITE STATUS

Site is in good condition, with vegetative cover of greater than 50%. The area appears stable with evidence of sediment migration being minimal.



**Best Management Practices at PRS 16-028(a)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/ Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marilee Jones  
 RMAD G108945 08 Aug 00

16-003(f) – *Erosion Matrix Score 8.8*. An inactive HE sump associated with TA-16-304. No HE is currently used and the probability of HE in the sump is low.



**CERRO GRANDE FIRE:**

Site is located in a small tributary drainage to Water Canyon within the S-Site Watershed Aggregate. Site has minor to moderate fire damage within the outfall drainage.

**BMPs:**

Straw wattles were installed upslope from the drainage to divert and dissipate runoff. Straw barriers and rock check dams (using on-site material) were placed within the channel and the site was hand-raked, reseeded and straw mulched.

**SUMMARY OF INSPECTION & MAINTENANCE**

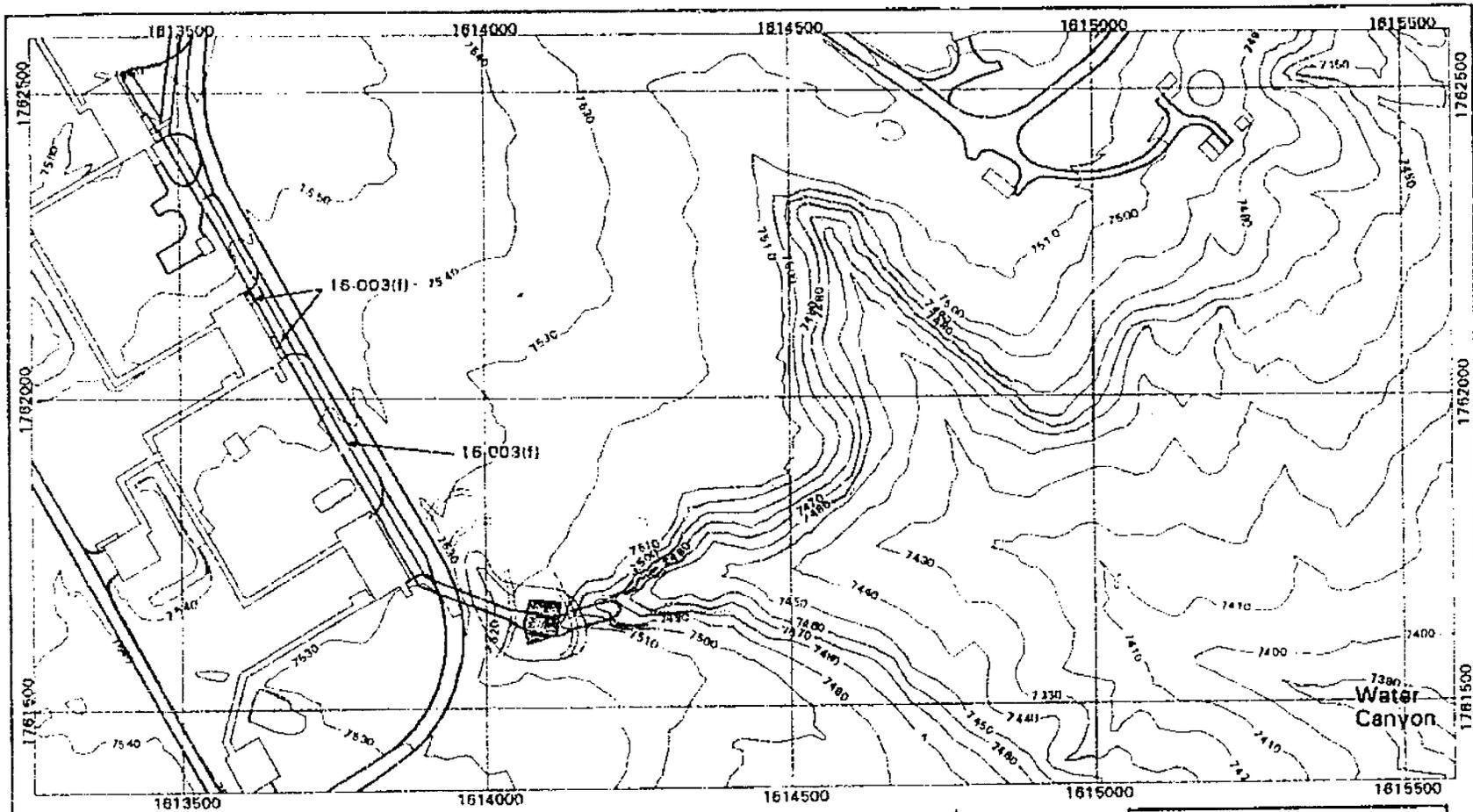
Site inspected on:

6/25/2001  
3/12/2001  
12/20/2001      No maintenance required  
11/17/2000  
9/14/2000  
5/24/2000



**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.



**Best Management Practices at PRS 16-003(f)**




Scale: 1:3000



EES GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Note: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marcus Jones  
FIMAD G108937 08-Aug-00

16-021(c) - *Erosion Matrix Score 73.3*. The outfall associated with the 13 HE sumps on the northeast side of TA-16-260. The drainage channel from the outfall flows about 600 feet to the bottom of Canon de Valle. A small pond, 55 feet long is formed by a rock dam located 93 feet from the outfall. The longitudinal axis of the pond is oriented east-west. The site is undergoing an Interim Measure at this time. 16-003(k) - *Erosion Matrix Score 38.6*. 13 HE sumps and drain lines associated with outfall.



#### CERRO GRANDE FIRE:

This site is located in a tributary drainage of Canon de Valle within the Canon de Valle Watershed Aggregate. Burn damage is minor to moderate within the SWMU boundary. Heavy equipment on-site was not affected by the fire, although some hoses, drums and misc. equipment were damaged. The upper drainage pond was not burned. The lower drainage received minimal damage from the fire.

#### BMPs:

Straw barriers were replaced within the drainage channel and jute matting was installed to protect the exposed slopes. All excavated material remains covered with HDPE liners and is surrounded by an earthen berm. The storm water retention pond was unharmed and remains effective as a "zero discharge" BMP.





#### SUMMARY OF INSPECTION & MAINTENANCE

##### Site inspected on:

6/25/2001  
3/12/2001  
12/20/2000  
11/17/2000  
10/12/2000  
5/24/2000

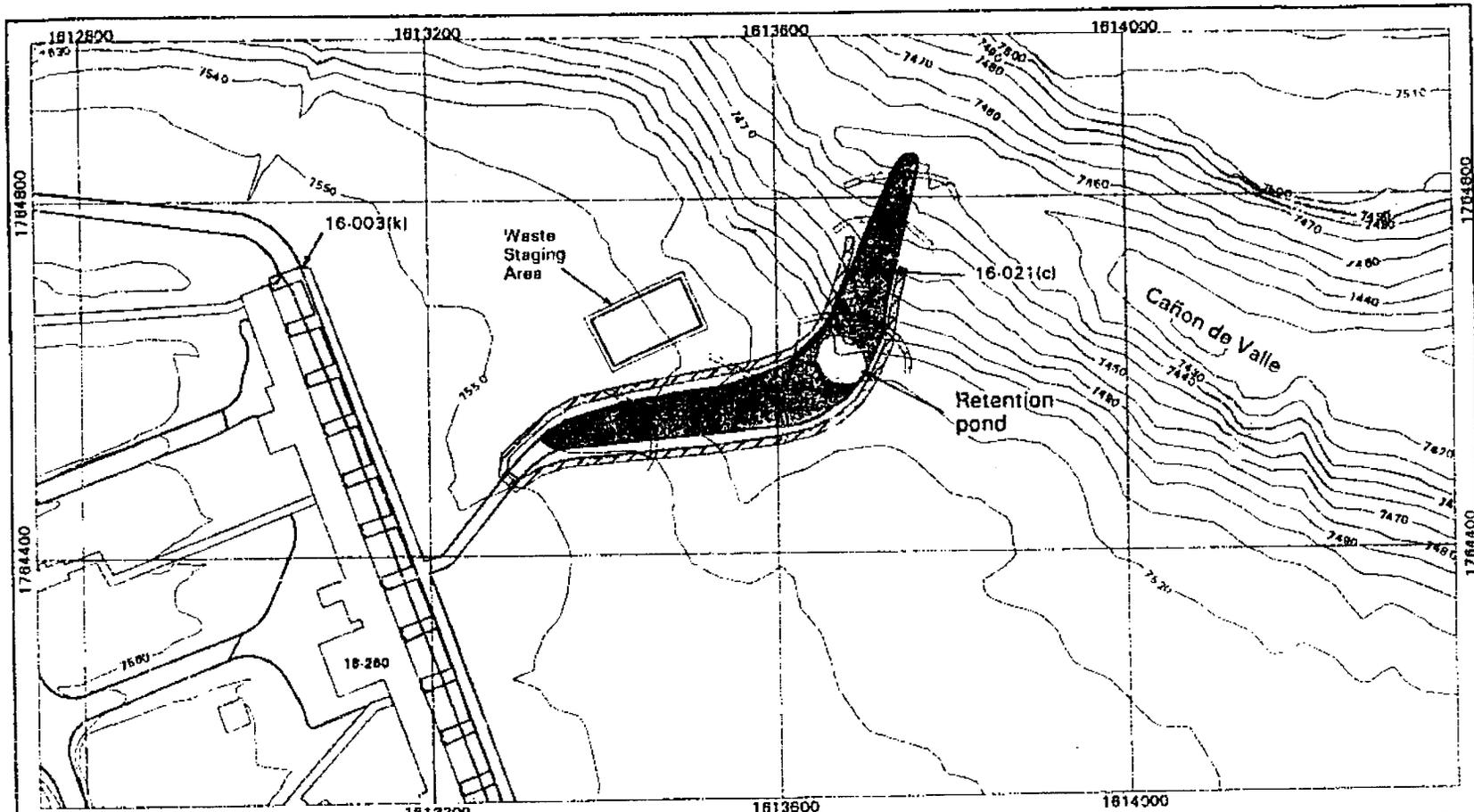
##### Maintenance Performed:

An interim measure was recently completed at the site to remove several hundred cubic yards of HE contaminated soil from the drainage channel. The excavation is complete and site restoration activities are ongoing. The site will be inspected and maintained until final stabilization is completed.

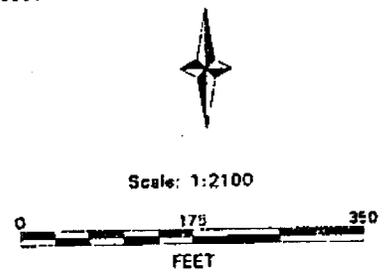


#### SITE STATUS

Site is in good condition, with vegetative cover of greater than 60% along the channel banks. The channel has been completely excavated of contaminated soil and river rock was placed to dissipate any future storm water runoff.



**Best Management Practices at PRS 16-021(c)**

EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
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Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marcia Jones  
 FIMAD G110030 31 Aug 01

16-020 -- *Erosion Matrix Score 61.3*. A small outfall within a drainage channel on the south side of TA-16-222 that slopes gently for approximately 295 ft. to a confluence with the main channel of Canon de Valle.



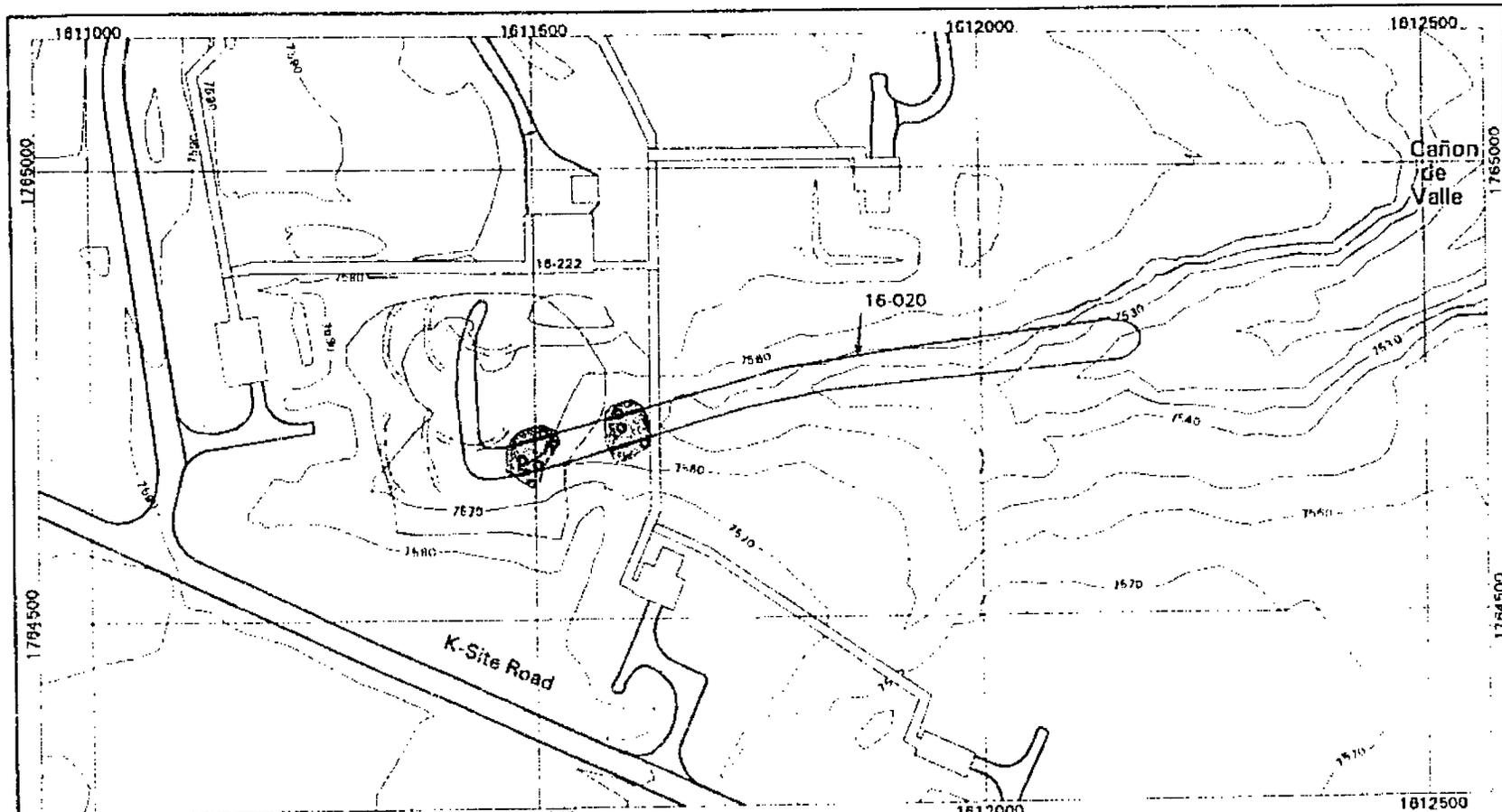
**CERRO GRANDE FIRE:**

This site is located east of S-Site Road in the upper tributary of Canon de Valle within the Canon de Valle Watershed Aggregate. No damage was observed from the outfall to the first rock check dam. Below the second rock check dam, fire damaged much of the ground cover and several of the ponderosa pine trees. All straw were destroyed.



**BMPs:**

Straw wattles were installed throughout the outfall area to dissipate run-on. Ashflow from run-on events have been and will continue to be a problem in this area.



**Best Management Practices at PRS 16-020**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Flaxseed
	Structure		Log Check Dams		Straw Wattles



Scale: 1:2100



EES-5 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks.  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marcia Jones  
FIMAD G108942 08 Aug 00

16-019 - *Erosion Matrix Score 83.0*. A material disposal area (MDA R) that consists of the WW II S-Site burning ground and its waste disposal site. This site was found smoldering on May 18<sup>th</sup>, 2000.



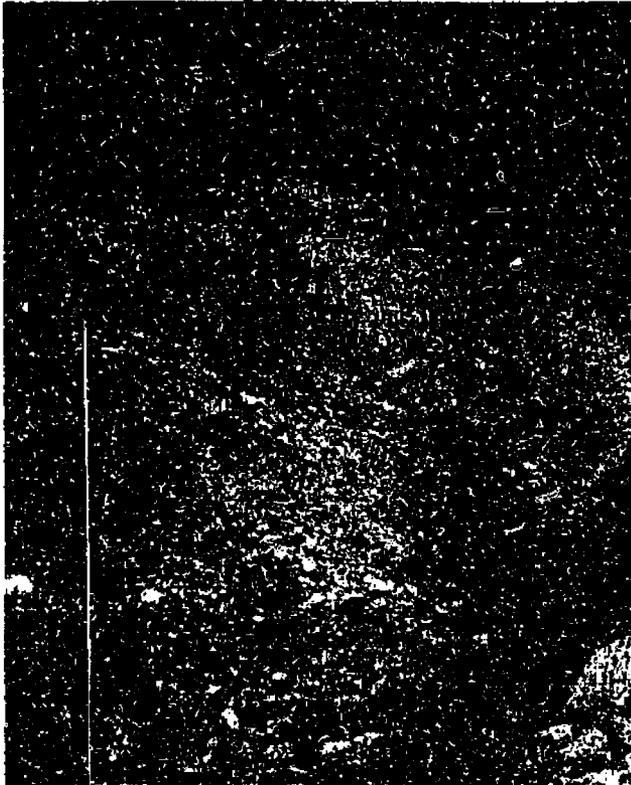
**CERRO GRANDE FIRE:**

This site is located near building TA-16-260 above Canon de Valle within the Canon de Valle Watershed Aggregate. The site has moderate to severe fire damage over a majority of the area. Miscellaneous debris was exposed on the mesa and slope above canyon channel. The dissipation controls installed within the eastern drainage were destroyed. The ground and canopy cover was completely destroyed. Ash is up to 12" deep in some areas at the toe of slope. Burning occurred in the Canon de Valle leaving severe erosion potential behind.



**BMPs:**

The fire smoldered for several weeks prior to being extinguished in August 2000. The site was then excavated and 95% of the debris was staged in the area. Trees were contour felled at the toe of the slope to provide sediment retention. Straw wattles were installed across the entire slope at four locations. The entire slope was hydromulched to enhance the vegetation process.



#### SUMMARY OF INSPECTION & MAINTENANCE

Site inspected on:

6/26/2001  
3/12/2001  
12/21/2000  
11/17/2000  
10/13/2000  
9/24/2000  
5/18/2000

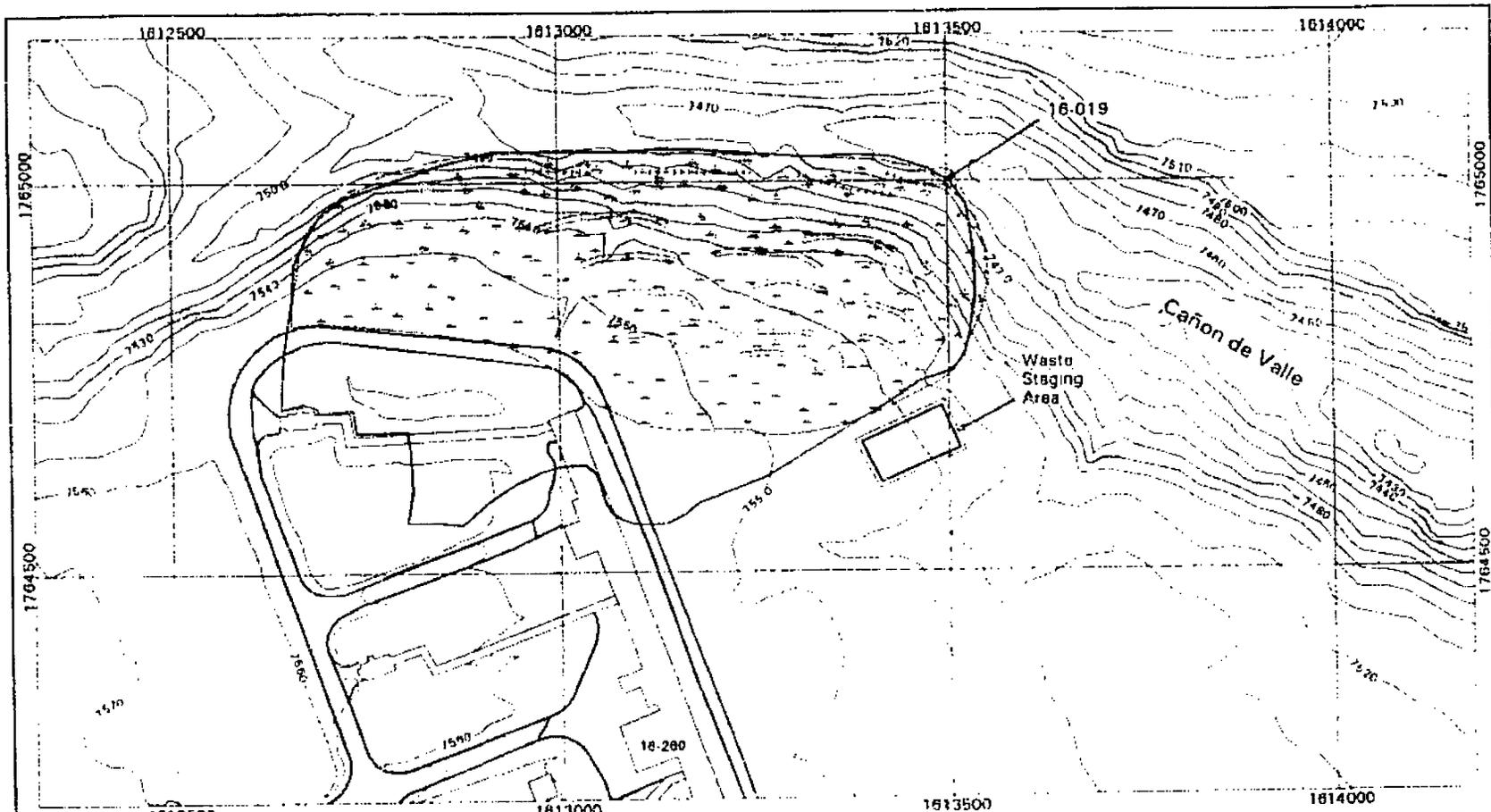
Maintenance performed:

Several straw wattles were replaced due to wildlife damage. After the excavated soils staged on top of the mesa were removed, the area was reseeded and covered with several inches of straw mulch.



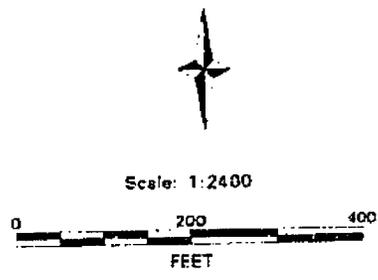
#### SITE STATUS

All excavated soil and debris have been removed from the site. The controls installed at the site have been very effective in stabilization of the slope. The run-on diversion trench has reduced storm water flow onto the site by more than 75%. The vegetative groundcover has reduced erosion potential on the slope and the migration of sediment at the site is minimal.



**Best Management Practices at PRS 16-019**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydr mulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



EE5-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marlow Jones  
 FIMAD G108941 08 Aug 00

16-003(a) – *Erosion Matrix Score 55.5*. A single inactive HE sump and an outfall associated with TA-16-410 (former NPDES outfall 05A053).



**CERRO GRANDE FIRE:**

Site is located near a tributary in upper Water Canyon within the Upper Water Canyon Watershed Aggregate. The site has minor to moderate fire damage within the outfall drainage.

**BMPs:**

Straw wattles were installed near the outfall pipe and below the mesa's edge within the bottom of the tributary drainage. The area around the outfall was hand-raked, reseeded and straw mulched.



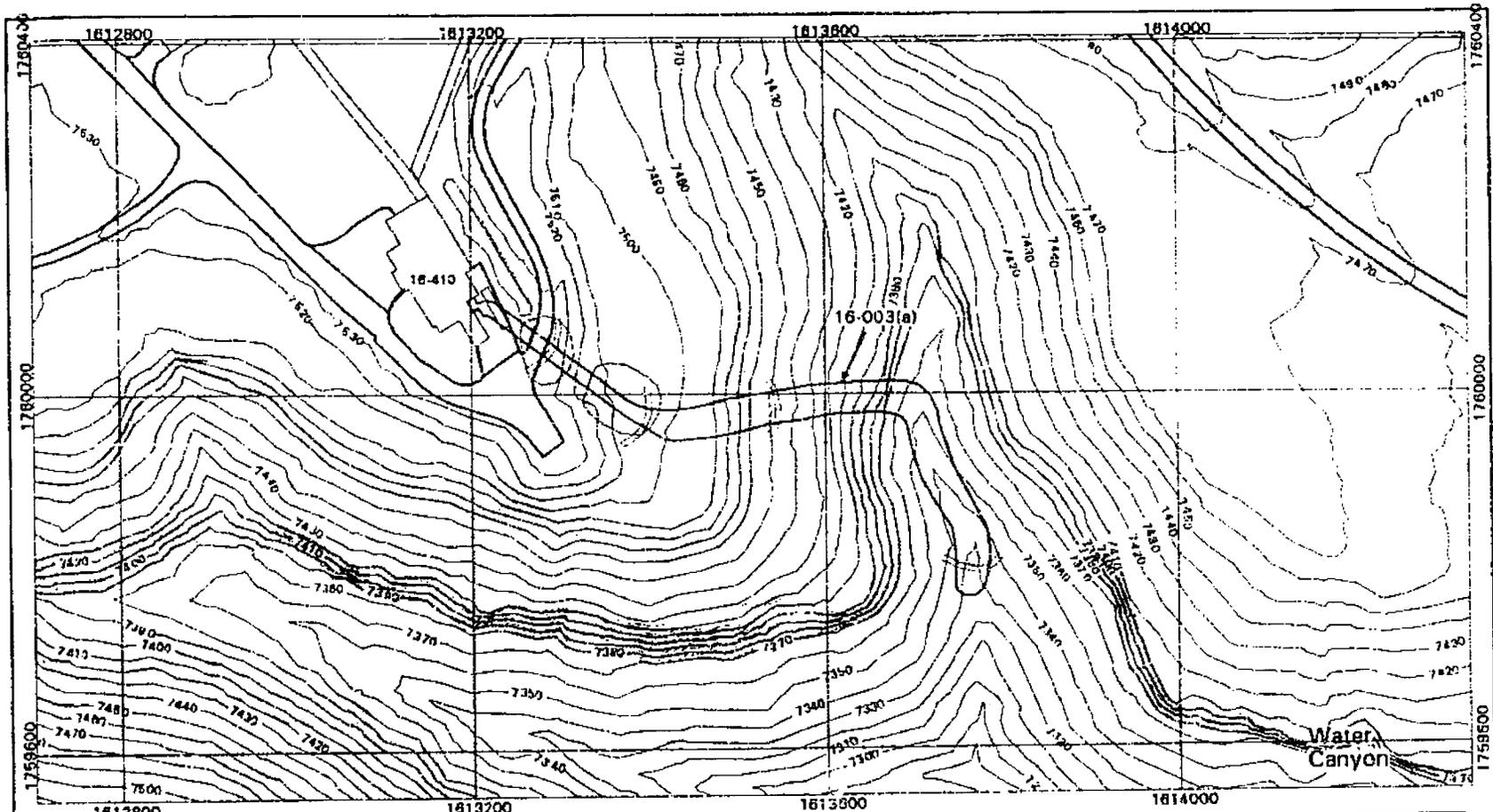
**SUMMARY OF INSPECTION & MAINTENANCE**

Site inspected on:

- 6/25/2001
- 3/12/2001
- 11/17/2000      No maintenance required
- 10/12/2000
- 9/14/2000
- 5/24/2000

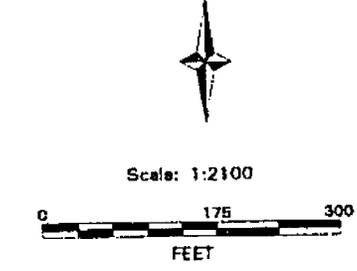
**SITE STATUS**

Site is in good condition, with vegetative cover of greater than 70%. The area appears stable with evidence of sediment migration being minimal.



**Best Management Practices at PRS 16-003(a)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydr mulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



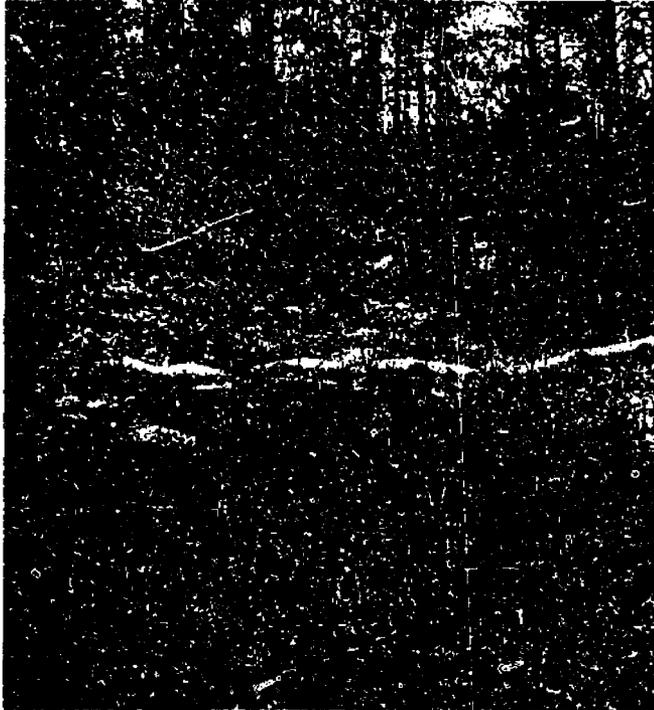
EES-5 GIS Team  
 Los Alamos National Laboratory  
 Los Alamos, New Mexico

1983 North American Datum  
 Projection and Grid Ticks:  
 New Mexico State Plane Coordinate System,  
 Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
 and has not been checked for accuracy.

Produced by Marcie Jones  
 FIMAD G109936 08 Aug 00

16-003(n) – *Erosion Matrix Score 25.0*. An active HE sump associated with TA-16-342. The outfall, EPA 05A062, receives effluent from a HE sump on the northeast corner of TA-16-342. The outfall discharges into a tributary of Canon de Valle. 16-003(o) – *Erosion Matrix Score 27.3*. Six active HE sumps associated with TA-16-340. The outfall, EPA 05A054, discharges effluent from the six HE sumps on the northeast side of TA-16-340. The effluent flows into a common drain line that discharges into a short tributary of Canon de Valle.



**CERRO GRANDE FIRE:**

The site is located in a tributary drainage of Water Canyon within the Canon de Valle Watershed Aggregate. The site has minor to moderate fire damage within the drainage channel down to the existing wetlands located approximately ¼ mile downstream.

**BMPs:**

Straw wattles were installed above and below the wetland to help control sediment transport within the channel. Rock check dams (on-site materials used) were installed for flow dissipation. Wetland vegetation has begun to re-establish itself.



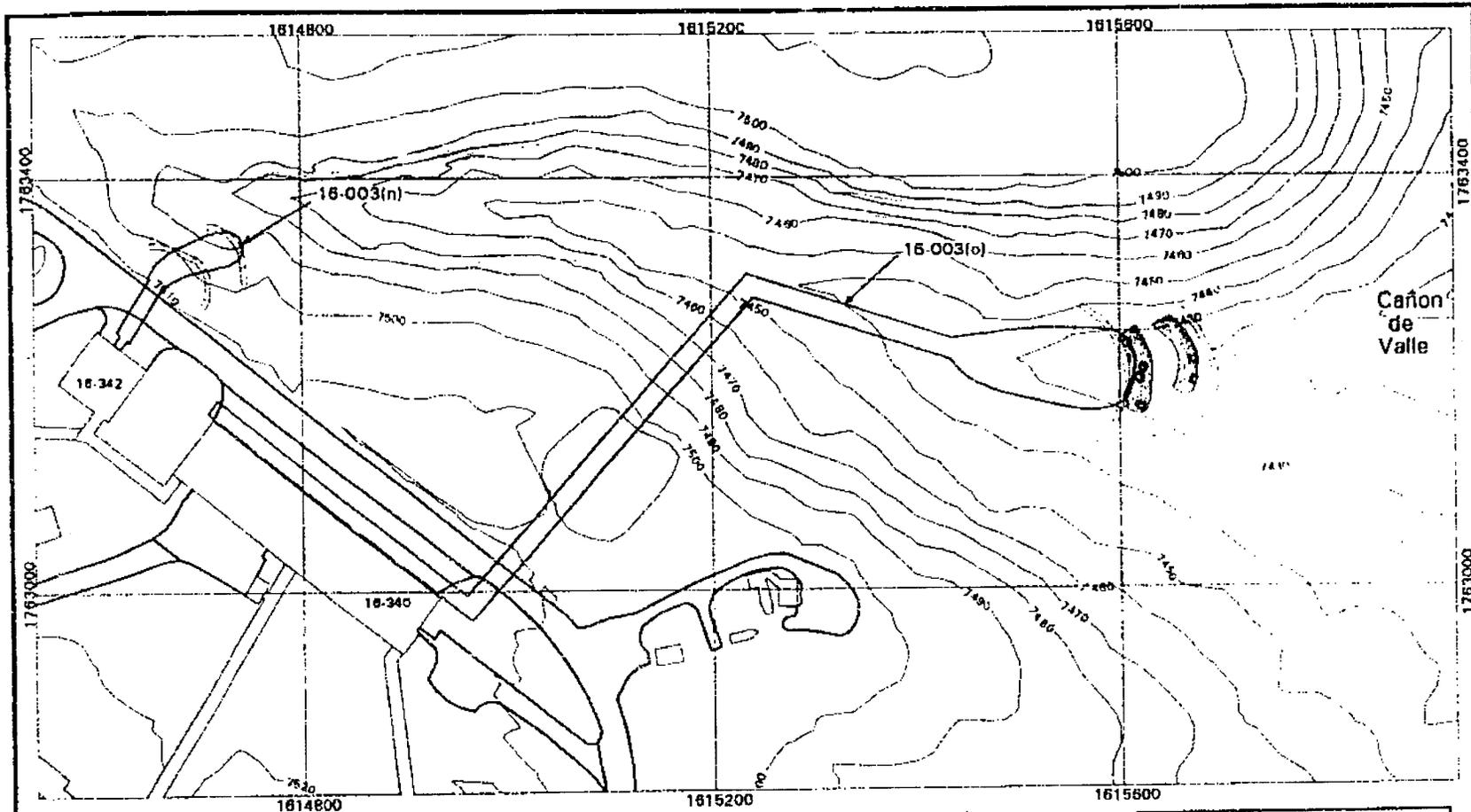
**SUMMARY OF INSPECTION & MAINTENANCE**

Site inspected on:

- 6/26/2001
- 3/12/2001
- 11/17/2000
- 12/20/2000      No maintenance required
- 10/12/2000
- 9/18/2000
- 5/24/2000

**SITE STATUS**

Revegetation efforts within the tributary drainage have been successful. The wetland grasses as well as the surrounding channel bank grasses have achieved a greater than 70% cover. The site appears stable and sediment migration at the site is minimal.



**Best Management Practices at PRSs 16-003(n,o)**

	10-ft Contour		Diversion Channel		Rock Check Dams
	2-ft Contour		Earthen Berm		Secondary Containment
	Paved Road/Parking		Geotextile/Jute Matting		Silt Fence/Dike
	PRS		Hydromulching		Straw Mulch/Reseed
	Structure		Log Check Dams		Straw Wattles



Scale: 1:1800



EES 5 GIS Team  
Los Alamos National Laboratory  
Los Alamos, New Mexico

1983 North American Datum  
Projection and Grid Ticks:  
New Mexico State Plane Coordinate System,  
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional  
and has not been checked for accuracy.

Produced by Marisa Jones  
FIMAD G108938 09 Aug 00