

**PERMIT ATTACHMENT M LONG-TERM MONITORING AND MAINTENANCE  
PLAN FOR SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN  
GRANTED CORRECTIVE ACTION COMPLETE WITH CONTROLS**

**M.1 INTRODUCTION**

This Long Term Monitoring and Maintenance Plan (LTMMP) addresses measures that the Permittees shall perform to provide protection of human health and the environment from constituents of concern present at various Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) at Sandia National Laboratories/New Mexico (SNL/NM). These SWMUs/AOCs are listed in Permit Attachment K, Table K-3, *Solid Waste Management Units, Areas of Concern, and Hazardous Waste Management Units for Which Corrective Action is Complete with Controls*, and Table M-1 of this Permit Attachment.

The SWMUs/AOCs subject to this LTMMP are located within the fenced boundaries of Kirtland Air Force Base (KAFB).

Measures under this LTMMP include surveillance of site conditions and maintenance of institutional controls. The controls are consistent with the risks presented by the site conditions and constituents of concern at each SWMU/AOC. The controls are implemented in an integrated and layered approach to enhance their effectiveness and reliability, and to provide continued protection in the event that one or more controls become temporarily impaired. Administrative and physical controls at the SWMUs/AOCs subject to this LTMMP include:

- Information management,
- Restrictions on future use,
- Awareness,
- Limited access restrictions as described in this LTMMP, and
- Physical features at some SWMUs/AOCs.

Maintenance of control measures, including routine surveillance, is conducted as necessary to prevent deterioration or failure of controls.

The administrative and physical controls are described in Section 2. The scope and frequency of surveillance and maintenance measures are described in Section 3, and periodic reports of SWMU/AOC status are summarized in Section 4 of this LTMMP. Information about the individual SWMUs/AOCs, controls, and maintenance measures is summarized in Table 1. Except for SWMUs 96 and 187, the SWMU/AOC locations are shown in Figures 1 through 5 of this Permit Attachment. The locations of SWMUs 96 and 187 could not be shown on Figures 1-5 due to their large spatial distribution. Instead, the locations for SWMUs 96 and 187 may be found on maps contained in the Investigation Report for each of these SWMUs.

## **M.2 INSTITUTIONAL CONTROLS**

### **M.2.1 Administrative Controls**

The following information about each SWMU/AOC listed in Table M-1 is maintained at SNL/NM: the SWMU/AOC location, characteristics, constituents of concern, corrective action, current conditions, and restrictions on future use.

The SWMUs/AOCs listed in Table M-1 are not approved for residential land use. Plans for future activities by the Permittees within one-half mile of each SWMU/AOC shall be evaluated to identify aspects that are not consistent with land use requirements for that SWMU/AOC.

### **M.2.2 Physical Controls**

Physical controls that shall be implemented for each SWMU/AOC are listed in Table M-1. Each of the SWMUs/AOCs listed in Table M-1 is located within the fenced boundaries of KAFB. Public access to KAFB is restricted. Additional physical controls at these SWMUs/AOCs consist of one or more of the following:

- Land use restrictions (primarily industrial),
- Warning and information signs posted at each SWMU/AOC where feasible,
- Fences that restrict access to some or all of each SWMU/AOC, and
- Physical features such as subsurface location (e.g., sewer lines).

Where signs are posted at the SWMUs/AOCs, the signs shall include the following information:

- SWMU/AOC number;
- Site-specific instructions; and
- Contact information for further direction.

The specific controls and maintenance measures for each SWMU/AOC are listed in Table M-1.

**Table M-1**  
**Summary of Institutional Controls for Solid Waste Management Units**  
**and Areas of Concern Requiring Controls**

SWMU/ AOC Number	Site Name	Site Data	Land Use	Signs and Postings	SWMU/AOC Inspections	Additional Information	Figure
<i>OU 1295 Septic Tanks and Drainfields</i>							
137	Bldg. 6540/6542 Septic System (TA-III)	Maintained and tracked	Industrial	4 signs on SWMU perimeter, one each at selected corners of the SWMU	Annual		3
<i>OU 1302 TA-I</i>							
96	Storm System Drain	Maintained and tracked	Industrial	Not feasible	None	SWMU consists of underground storm drains throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.	Not shown
98	Building 863 (TCA, Photochemical Releases: Silver Catch Boxes)	Maintained and tracked	Industrial	Not feasible	Annual	SWMU consists of subsurface area located under a building. No signs, postings, or inspections are feasible due to SWMU features.	1
187	Septic Tank Piping for POTW	Maintained and tracked	Industrial	Not feasible	None	SWMU consists of underground sewer lines throughout TA-I. No signs, postings, or inspections are feasible due to SWMU features.	Not shown
190	Steam Plant Tank Farm	Maintained and tracked	Industrial <sup>a</sup>	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU	Annual		1
226	Old Acid Waste Line	Maintained and tracked	Industrial	Not feasible	None	SWMU consists of underground drain line throughout TA-I, II, and IV. No signs, postings, or inspections are feasible due to SWMU features.	1 and 2

**Table M-1**  
**Summary of Institutional Controls for Solid Waste Management Units**  
**and Areas of Concern Requiring Controls**

<b>SWMU/ AOC Number</b>	<b>Site Name</b>	<b>Site Data</b>	<b>Land Use</b>	<b>Signs and Postings</b>	<b>SWMU/AOC Inspections</b>	<b>Additional Information</b>	<b>Figure</b>
<b><i>OU 1303 TA-II</i></b>							
1	Radioactive Waste Landfill	Maintained and tracked	Industrial	4 signs on SWMU perimeter, one each in selected corners of the SWMU	Annual		2
2	Classified Waste Landfill (TA-II)	Maintained and tracked	Industrial	5 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU	Annual		2
3	Chemical Disposal Pit	Maintained and tracked	Industrial	Included with SWMU 1	Annual	Located adjacent to SWMU 1.	2
135	Building 906 Drain System	Maintained and tracked	Industrial	1 sign	Annual		2
<b><i>OU 1306 TA III and V</i></b>							
105	Mercury Spill (Bldg. 6536)	Maintained and tracked	Industrial	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU	Annual		3
196	Bldg. 6597 Cistern (TA-V)	Maintained and tracked	Industrial	1 sign near the northeast corner of the SWMU	Annual		3
<b><i>OU 1307 Liquid Waste Disposal System</i></b>							
4	LWDS Surface Impoundments	Maintained and tracked	Industrial	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU	Annual		3

**Table M-1**  
**Summary of Institutional Controls for Solid Waste Management Units**  
**and Areas of Concern Requiring Controls**

<b>SWMU/ AOC Number</b>	<b>Site Name</b>	<b>Site Data</b>	<b>Land Use</b>	<b>Signs and Postings</b>	<b>SWMU/AOC Inspections</b>	<b>Additional Information</b>	<b>Figure</b>
<b><i>OU 1309 Tijeras Arroyo</i></b>							
45	Liquid Discharge (Behind TA-IV)	Maintained and tracked	Industrial	5 signs on SWMU perimeter, one in approximately each corner of the SWMU outside of the TA-IV fence	Annual	Western half of the SWMU is located within the TA-IV fenced boundary	2
46	Old Acid Waste Line Outfall	Maintained and tracked	Industrial	4 signs along the TA-IV fence line and 7 signs posted along the south and west perimeter of the SWMU	Annual		2
229	Storm Drain System Outfall (for TA-II)	Maintained and tracked	Industrial	1 sign at the top of the outfall	Annual		2
<b><i>OU 1332 Foothills Test Area</i></b>							
87	Building 9990 Firing Site	Maintained and tracked	Industrial <sup>a</sup>	4 signs, one at the access road and three on the perimeter of the SWMU	Annual		5
<b><i>OU 1335 Southwest Test Area</i></b>							
91	Lead Firing Site (Thunder Range)	Maintained and tracked	Industrial <sup>a</sup>	4 signs on SWMU perimeter, one in the approximate middle of each side of the SWMU	Annual		4
<b><i>Miscellaneous Sites</i></b>							
1029	Building 6584 North Septic System (TA-III)	Maintained and tracked	Industrial	3 signs on SWMU perimeter	Annual		3

<b>Table M-1</b> <b>Summary of Institutional Controls for Solid Waste Management Units</b> <b>and Areas of Concern Requiring Controls</b>							
<b>SWMU/ AOC Number</b>	<b>Site Name</b>	<b>Site Data</b>	<b>Land Use</b>	<b>Signs and Postings</b>	<b>SWMU/AOC Inspections</b>	<b>Additional Information</b>	<b>Figure</b>
1081	Building 6650 Septic System (TA-III)	Maintained and tracked	Industrial	3 signs on SWMU perimeter	Annual		3
1090	Bldg. 6721 Septic System (TA-III)	Maintained and tracked	Industrial	1 sign, approximately in the middle of the SWMU	Annual		3

<sup>a</sup> The Permittees have separate documentation with KAFB to maintain institutional controls at this location, however, this documentation does not prohibit KAFB uses of the land.

### **M.3 MAINTENANCE OF INSTITUTIONAL CONTROLS**

#### **M.3.1 Maintenance of Administrative Controls**

Records and information for each SWMU/AOC listed in Table M-1 are maintained in written or electronic form at SNL. The records are kept current and are updated when new information becomes available or is generated. The records include the following:

- Site location and characteristics;
- Site history and corrective action;
- Land use permits or agreements with KAFB;
- Documentation of current site conditions, including information from annual inspections;
- Type of controls
- Maintenance records
- Planning information, including restrictions on future activities at the site; and
- Copies of reports previously submitted to the Department.

#### **M.3.2 Maintenance of Physical Controls**

The Permittees shall periodically inspect and maintain the physical controls at the SWMUs/AOCs. Documented annual inspections include reviews of the following, as applicable:

- Condition of the site;
- Evidence of erosion, seepage, or subsidence;
- Evidence of newly-occurring or newly-visible contamination;
- Condition and location of signs;
- Evidence of activities that are not consistent with restrictions in place; and
- Evidence of residential activities adjacent to the given SWMU/AOC that would necessitate additional awareness measures and access restrictions for the site.

Inspection results are evaluated for necessary maintenance, including repair, replacement, or installation. Maintenance will occur on the following schedule (Table M-2) unless weather or other site-specific conditions require a delay.

<b>Table M-2 Maintenance Schedule</b>	
<b>Maintenance Issue</b>	<b>Response Schedule</b>
Erosion, seepage, or subsidence	Evaluate severity and if necessary develop mitigation plan within 120 days  Complete in a timely manner
Newly-occurring or newly-discovered contamination	See Permit Part 8
Signs	Begin to address within 30 days  Complete in a timely manner
Activities that are inconsistent with site restrictions	Begin to address within 30 days  Complete in a timely manner
Awareness measures to address new residential activities adjacent to SWMU/AOC locations	Develop measures within 30 days  Implement measures in a timely manner
Access restrictions to address new residential activities adjacent to SWMU/AOC locations	Develop measures within 60 days  Implement measures in a timely manner

The Permittees shall perform follow-up inspections to verify completion of corrective actions. Follow-up inspections shall occur within 180 days after the actions are completed and may be combined with annual inspections.

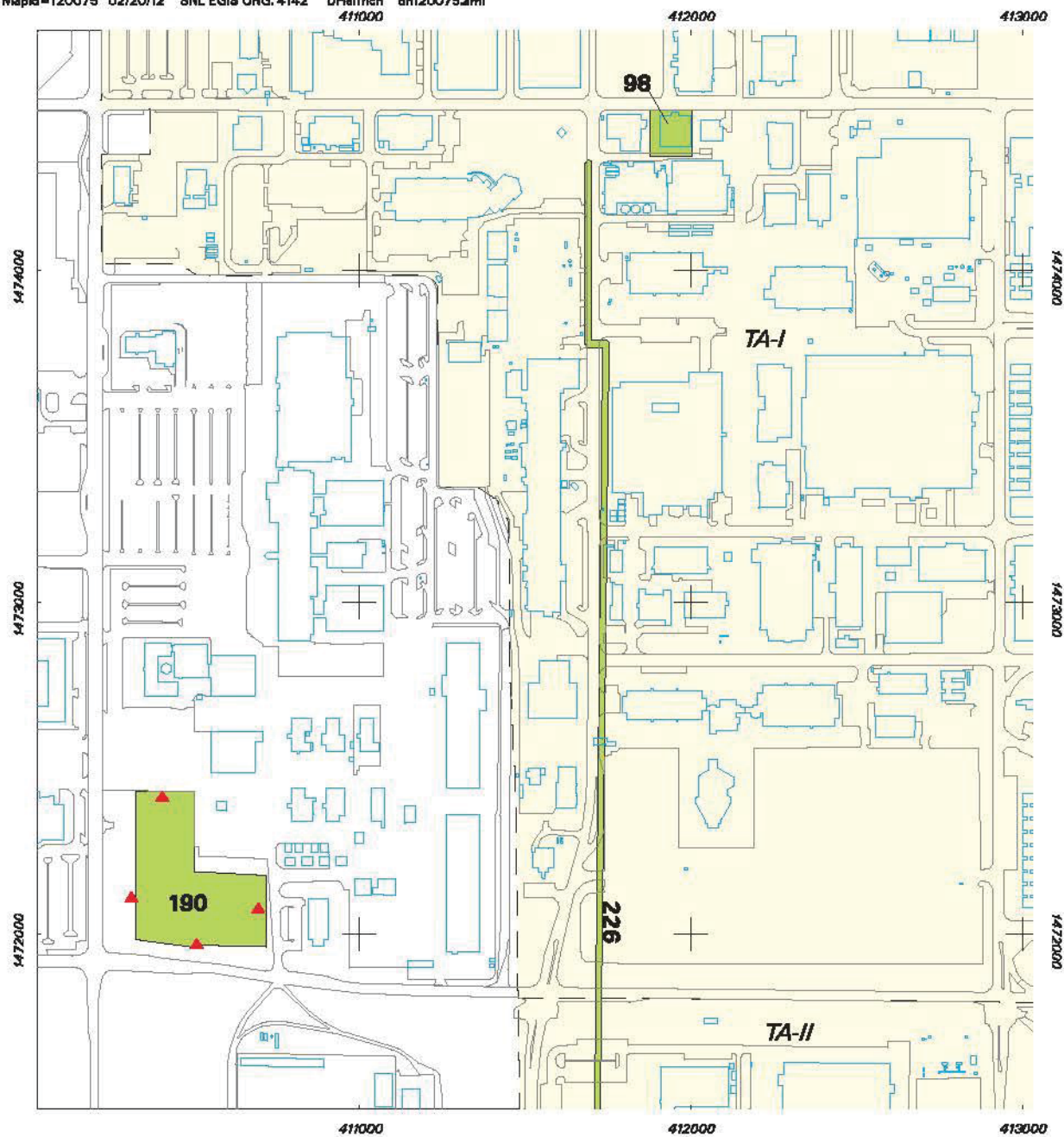
#### **M.4 LTMMP REPORTING REQUIREMENTS**

An annual SWMU/AOC LTMMP report shall be prepared to document the following:

- Annual inspection results;
- Maintenance and repair activities required;
- Status of maintenance and repair activities; and
- Other conditions or events at the site that affect the performance of the controls.

The report shall include all SWMUs/AOCs listed in the Permit Table M-1. The annual report for each calendar year shall be submitted to the Department by March 31 of the following year.



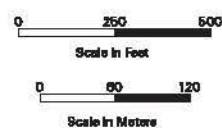


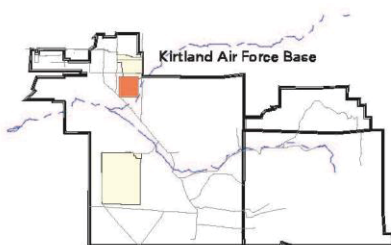
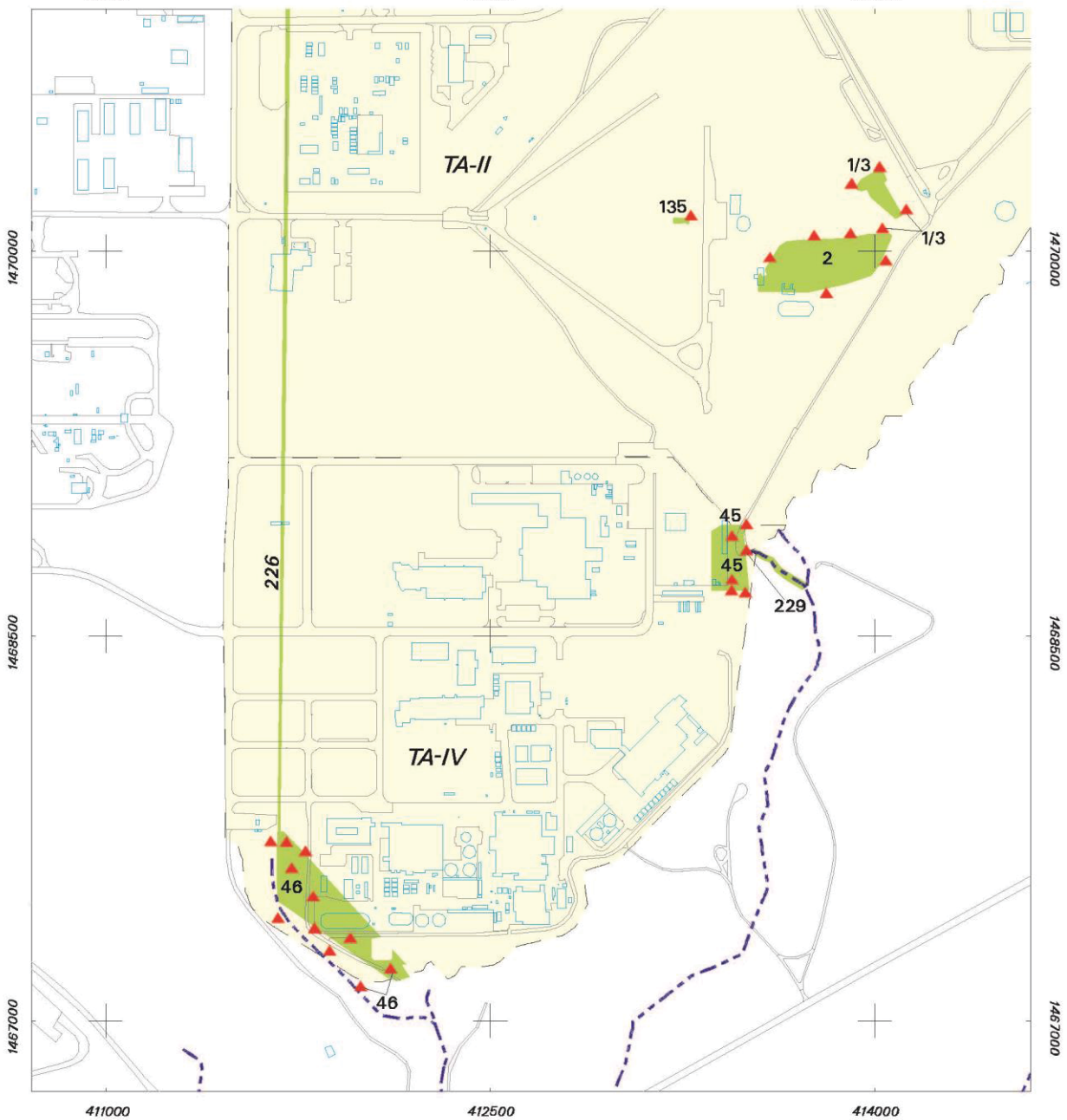
### Legend



-  Sign Location
-  Road
-  Building / Structure
-  SWMU with Controls
-  SNL Tech Area I

**Figure 1**  
**Solid Waste Management Units -**  
**Corrective Action Complete**  
**with Controls, Tech Area I**

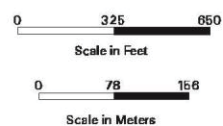


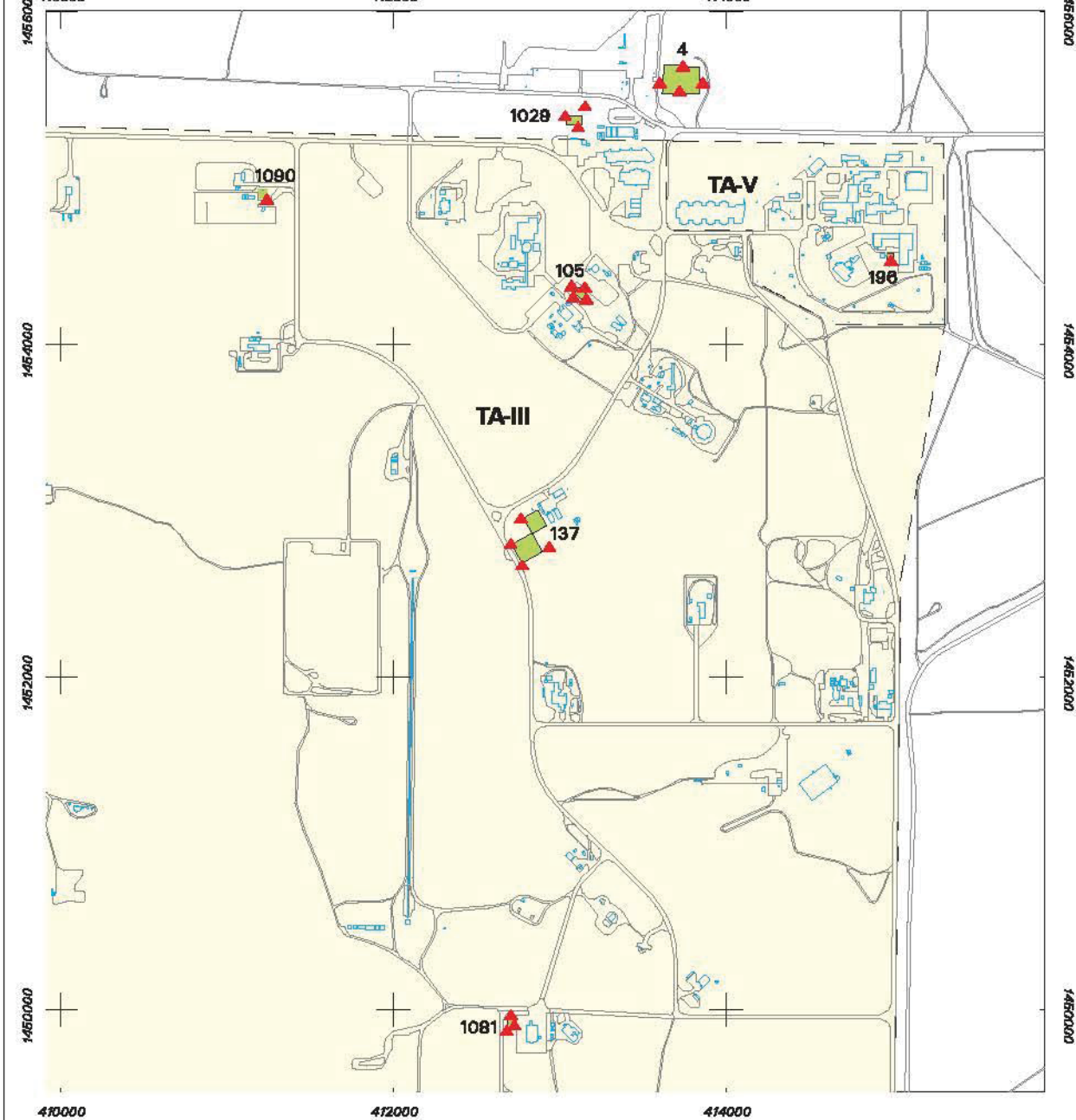


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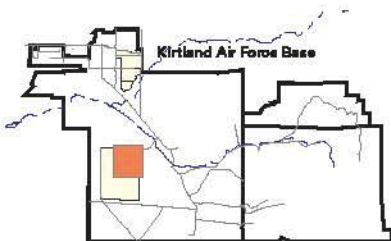
-  Sign Location
-  Road
-  Surface Drainage
-  Building / Structure
-  SWMU with Controls
-  SNL Tech Area II & IV

**Figure 2**  
**Solid Waste Management Units -**  
**Corrective Action Complete with**  
**Controls, Tech Areas II and IV**



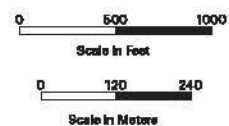


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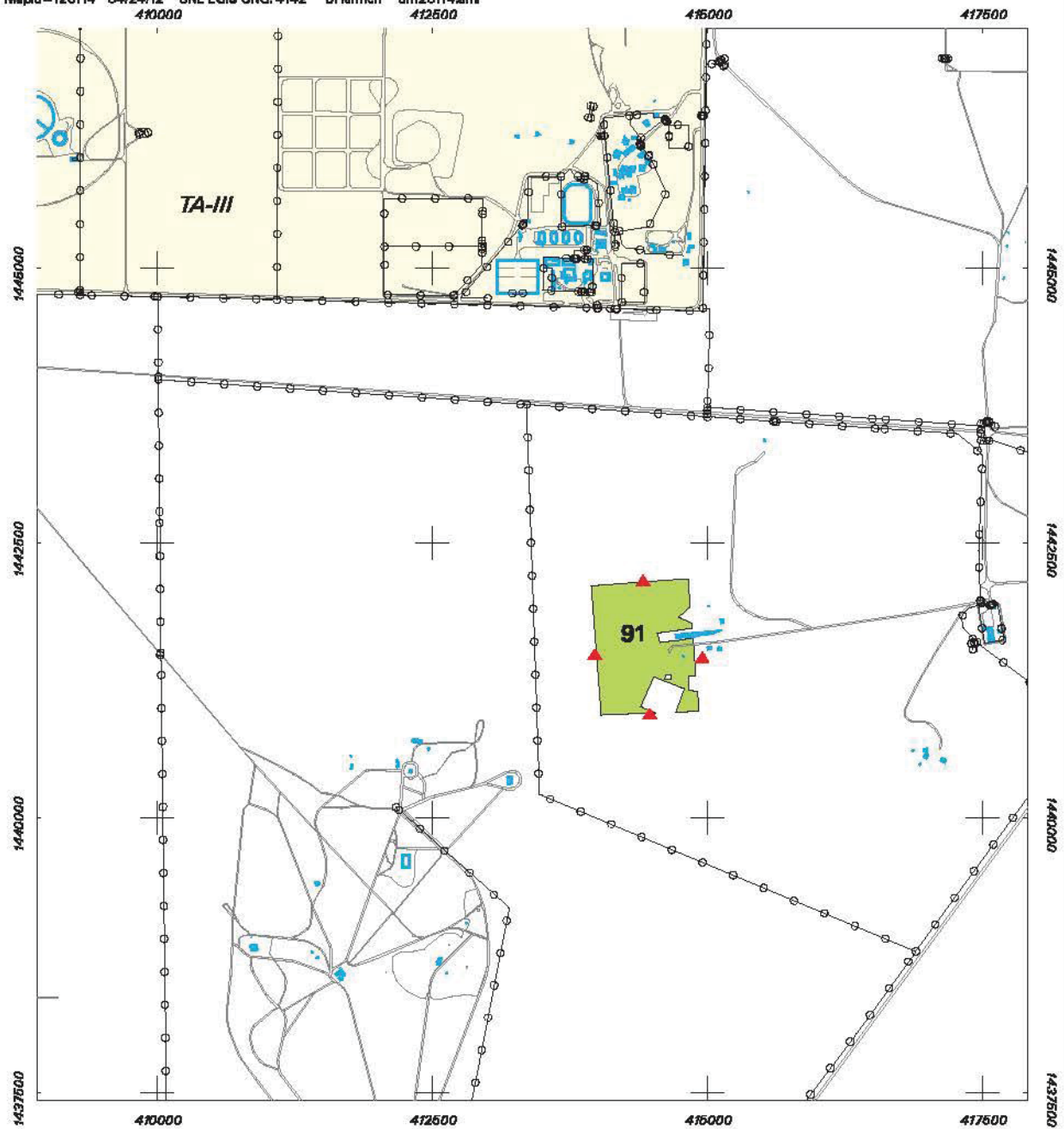


-  Sign Location
-  Road
-  Building / Structure
-  SWMU with Controls
-  SNL Tech Area III

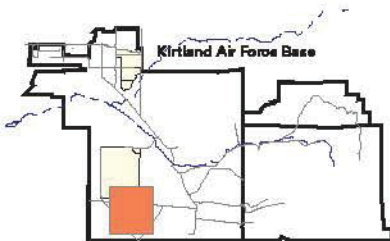
**Figure 3**  
**Solid Waste Management Units -**  
**Corrective Action Complete with**  
**Controls, Tech Areas III and V**









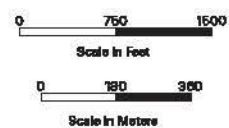


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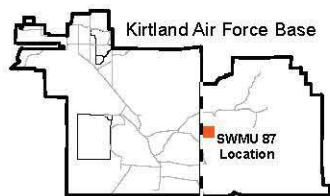
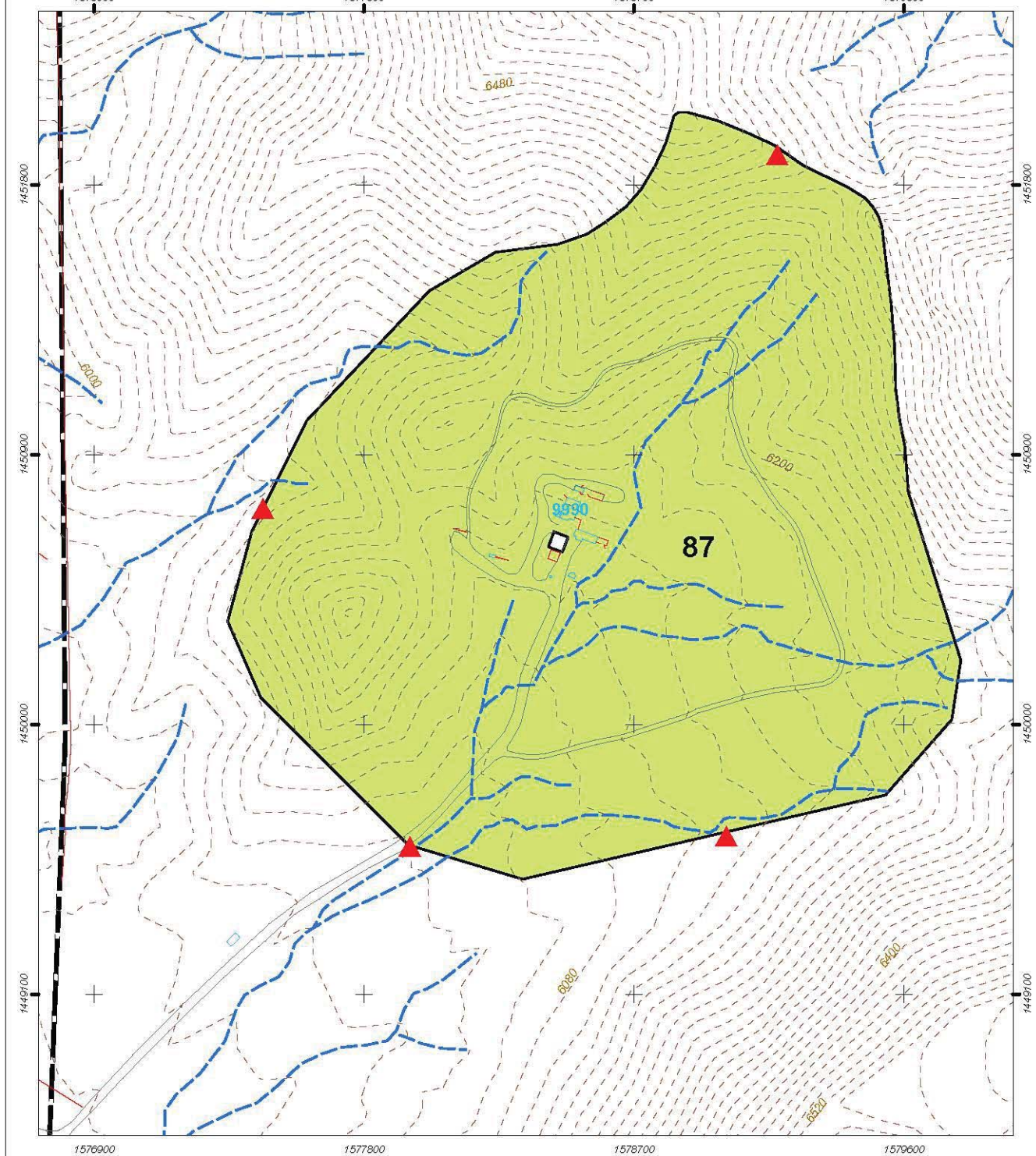
-  Sign Location
-  Road
-  Fence
-  Building / Structure
-  SWMU with Controls
-  SNL Tech Area III

**Figure 4**  
**Solid Waste Management**  
**Unit 91 - Corrective Action**  
**Complete with Controls**



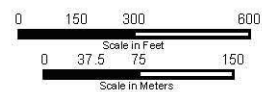
Projection: New Mexico State Plane, Central  
Zone 3002, 1927 North American Datum

Sandia National Laboratories, New Mexico  
Environmental Geographic Information System



- Legend**
- Sign Location
  - 20-ft. Contour
  - Unpaved Road
  - Fence
  - Surface Drainage
  - Building / Structure
  - SWMU with Controls
  - KAFB Boundary

**Figure 5**  
**Solid Waste Management**  
**Unit 87 - Corrective Action**  
**Complete with Controls**



Sandia National Laboratories, New Mexico  
 Environmental Geographic Information System