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Sandia National Laboratories/New Mexico Geographic Data Atlas

Denise Bleakly and Lisa Eshelman

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

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Sandia National Laboratories/New Mexico Geographic Data Atlas

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Abstract

The *Sandia National Laboratories/New Mexico Geographic Data Atlas* contains a comprehensive overview of the types of geographic data available for the Sandia National Laboratories/New Mexico site. It presents the digital spatial data as a series of over 100 different maps that represent both environmental and facilities infrastructure data. The types of thematic data that are represented are: general site information; boundaries and special areas of concern; geology; land use; water resources; air quality, meteorology and environmental monitoring; biology and ecology; noise; cultural resources; visual resources; transportation; waste management; sitewide hydrogeologic report maps; facilities information; notable, selected or infrastructure facilities; and utilities.

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Sandia National Laboratories/New Mexico Geographic Data Atlas

INTRODUCTION

The Geographic Data Atlas is published jointly by the Environmental Geographic Information System (EGIS) and the Facilities Geographic Information System (FGIS) to support the data-gathering efforts of Sandia National Laboratories/New Mexico (SNL/NM) for the Sitewide Environmental Impact Statement (SWEIS). This atlas provides the SWEIS staff and contractors with an up-to-date set of maps that accurately portray the types of geographic data available through the Geographic Information Systems (GIS) systems at SNL/NM.

The EGIS provides environmentally related scientific data support and analysis through the implementation of an integrated GIS, relational database management systems (RDBMS) and associated analytical software. EGIS maintains an ARC/INFO GIS database containing more than 2,000 cartographic data layers that represent the environmental and physical characteristics of entities within the Kirtland Air Force Base (KAFB), the whole Kirtland Federal Complex (KFC), and other areas where SNL/NM has responsibility. EGIS creates customized maps that show customer data with respect to the topographic and environmental settings, and themes such as geology, soil types, vegetation, wells, and contaminant sources.

The Facilities Geographic Information System (FGIS) provides facilities-related information on utilities and the utility infrastructure, buildings, roads, and survey monumentation, and any geographically related information on the base mapping of the SNL/NM site. The FGIS updates and maintains the base maps and current digital orthophotography. All of this data is maintained on an INTERGRAPH Modular GIS Environment (MGE) platform.

The EGIS and FGIS have been sharing data since 1991. In Fiscal Year 1996 (FY96), EGIS and FGIS began meeting

regularly to discuss responsibilities, problems, common goals and methods to avoid duplication of effort through the development of data-sharing procedures. In FY97, software and hardware were purchased to more effectively share data by creating a joint use GIS data server. This atlas is the product of data, time and resource sharing between the EGIS and FGIS staff.

COORDINATE SYSTEM AND DATUM

All data contained in both the EGIS and FGIS have been referenced to the New Mexico State Plane Coordinate System, Transverse Mercator Projection, and the 1927 North American Vertical Datum.

ATLAS ORGANIZATION

This atlas is primarily organized into data category "themes." A data category theme includes maps pertaining to the same subject such as ecology, geology, or cultural resources. Because the EGIS and FGIS missions differ, this atlas contains two thematic sections:

1. Environmental Information
2. Facilities Information

The Environmental Information section presents maps derived from data stored within the EGIS system and indexes of general geographic information. The Facilities Information section presents maps with schematics of land use permits, buildings, and generalized utility maps. The FGIS maintains a ten-volume atlas of each one of the following sets of utility infrastructure data at a scale of 1 inch = 200 feet. (Note: not all of these data sets are represented in this atlas.)

1. Planimetric Data
2. Topographic Data
3. Water Distribution Systems
4. Steam Distribution Systems

5. Sanitary Sewer Systems
6. Storm Drain Systems
7. Perimeter Lighting Systems
8. Gas Distribution Systems
9. Communications Distribution Systems
10. Power Distribution Systems

CONTACTS

This atlas is meant to be an overview of the types of electronic geographic data available. For more information regarding the maps or the data represented in this atlas, please contact:

Environmental Geographic Information System (EGIS)

Contact Denise Bleakly, Department 6804 Environmental Analysis, at 505-284-2535, or email at: drbleak@sandia.gov.

The EGIS internal web site can be reached at:

<http://web.gis.sandia.gov>

Facilities Geographic Information System (FGIS)

Contact Lisa Eshelman, Department 7901, at 505-844-0162, or email at: leshel@sandia.gov.

The FGIS internal web site can be reached at:

<http://www-irn.sandia.gov/gis/gishp.htm>

The maps in this atlas were compiled by Denise Bleakly, Lisa Eshelman, Brian Delker and Susan Morrison.

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PART I

ENVIRONMENTAL INFORMATION

GENERAL INFORMATION

Southwest United States
New Mexico - Bernalillo County

Approximate Scale in Miles

0 70 140

Legend

- Bernalillo County, New Mexico
- SNL/NM Tech Area
- Roads
- Albuquerque City Limit
- Kirtland Federal Complex (KFC)

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Location of the Kirtland Federal Complex (KFC)
in Relation to the State of New Mexico,
Bernalillo County and the City of Albuquerque

08/04/99

MAPID=bd981010a

Unclassified

SNL/NM GIS ORG. 6804

Brian Delker

bd981010.aml

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Legend

- Kirtland Federal Complex (KFC)
- Roads -All Types
- Drainage
- 40-Foot Contour Line
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Base Map for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981011a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981011.aml	Page 11

Legend

- Kirtland Federal Complex (KFC)
- Roads -All Types
- Drainage
- 40-Foot Contour
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Kirtland Federal Complex (KFC)
Topographic Map

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981012a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981012.aml	Page 12

Legend

- Kirtland Federal Complex
- Roads - All Types
- SNL/NM Tech Area
- Drainage
- Crash Grid Outline

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Emergency Crash Grid Index
for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981013a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981013.aml	Page 13

Legend

- Kirtland Federal Complex (KFC)
- Quadrangle Boundary
- Roads -All Types
- Drainage
- SNL/NM Tech Area

Data Source: US Geological Survey (USGS)

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

U.S. Geological Survey (USGS) Quadrangle Index
Map for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981014a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981014.aml	Page 14

Legend

- Kirtland Federal Complex (KFC)
- Township or Range Line
- Section Line
- Section Number
- Roads - All Types
- Drainage
- SNL/NM Tech Area

Data Source: US Geological Survey (USGS)

Scale in Miles

Scale in Feet

Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Index Map of the Public Land
Survey System for the Kirtland
Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

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Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981015.aml	Page 15

BOUNDARIES AND SPECIAL AREAS OF CONCERN

Unexploded Ordnance(UXO) Key

Area Has Not Been Surveyed; Area is Within a Gun Fan of a Known Fire/Launch Site or is Within a Known Ordnance Use Area With Moderate UXO Hazard	Unassessed, Hazard Unknown
Area Has Been Visually Surveyed, Low UXO Hazard	High Explosives Removal Complete.
Area Has Been Visually Surveyed, Significant UXO Hazard	Low-Level Radiation Pit

Numbers in italics refer to UXO Site Survey Report available by contacting the Environmental Restoration(ER) Project

Legend

	Kirtland Federal Complex (KFC)
	Roads - All Types
	Drainage
	SNL/NM Tech Area

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Unexploded Ordnance (UXO) Areas
of the Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981016a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981016.aml	Page 17

NOTE:
Task in FY99 is to redefine boundaries of all the Quantity Distance Safety Zones in the Kirtland Federal Complex (KFC).

Legend

- Kirtland Federal Complex (KFC) Boundary
- Livefire Safety
- Road - All Types
- Special Sighting Zone
- Buffer Zone
- Major Safety Zone
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Safety Zones of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99 1:86400 MAPID=981017a

Unclassified SNL/NM GIS ORG. 6804

S Morrison sm980904a.aml Page 18

Training Area Key

1-B, Compass Course #4	6-D, New Cable Site Zone
2, 58th SOW Heliport Training Course	6-E, M-60 Combat Zone
3, Hazard Waste Area	7, Special Operations Training Zone, Compass Courses #1 & #3
4, INWS Radioactive Training Course	8, Air Force Training Area
5, Air Force Training Area	9, EOD Range
6-B, Explosive Impact Area	10, Isleta Drop Zone
6-C, No Sweat Boulevard, Compass Course #2	

Legend

Kirtland Federal Complex (KFC)

SNL/NM Tech Area

Road - All Types

0 1 2

Scale in Miles

0 7200 14400

Scale in Feet

0 1728 3456

Scale in Meters

Project Location Map

KAFB USFS Withdrawn Area

Sandia National Laboratories/New Mexico Environmental Geographic Information System

Geographic Data Atlas

Combat Training Areas of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981018a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981018.aml	Page 19

Legend

- Kirtland Federal Complex (KFC)
- Environmental Restoration Sites (ER)
- Roads - All Types
- Drainage
- SNL/NM Tech Area

Note: Triangles represent sites of an acre or less

0 1 2

Scale in Miles

0 7200 14400

Scale in Feet

0 1728 3456

Scale in Meters

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Environmental Restoration (ER) Sites at the
Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981019a
Unclassified		SNL/NM GIS ORG. 6804
Brian Delker	bd981019.aml	Page 20

Legend

- Kirtland Federal Complex (KFC)
- Environmental Restoration (ER) Site Accepted for No Further Action (NFA)
- Environmental Restoration (ER) Site Proposed for No Further Action (NFA)
- Other Environmental Restoration (ER) Site
- Environmental Restoration (ER) Site on an Active Facility
- Roads - All Types
- Drainage
- SNL/NM Tech Area

Note: Triangles represent sites of an acre or less

0 1 2

Scale in Miles

0 7200 14400

Scale in Feet

0 1728 3456

Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Environmental Restoration (ER) Sites
Proposed for No Further Action (NFA) Status
of the Kirtland Federal Complex (KFC)
(As of September 1997)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981020a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981020.aml	Page 21

Legend

- Kirtland Federal Complex (KFC)
- Installation Restoration Program Site (IRP)
- Roads - All types
- Drainage
- SNL/NM Tech Areas

Note: Triangles represent sites of an acre or less

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
United States Air Force (USAF)
Installation Restoration Program (IRP) Sites
of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

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Brian Delker	bd981021.aml	Page 22

GEOLOGY

Legend

- Kirtland Federal Complex
- Major Geologic Fault
- Roads - All Types
- Drainage
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Major Faults on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

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Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981022.aml	Page 24

Surface Geology Key
(Reflects Surveyed Areas Only)

Tertiary and Quaternary Types

- Holocene Units
- Pleistocene Units
- Undifferentiated Quaternary/Tertiary Units

Permian Types

- Abo Formation

Pennsylvanian Types

- Upper and Lower Madera Group and Sandia Formation

Precambrian Types

- Igneous
- Metamorphic

Legend

- Kirtland Federal Complex (KFC)
- Drainage
- 40-Foot Contour
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Generalized Surface Geology
of the Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

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Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981024.aml	Page 25

LAND USE

LAND USE CLASSIFICATION KEY	
	DOE Fee Owned
	DOE Withdrawn from U.S. Forest Service (USFS)
	DOE Leased (State of New Mexico and Bureau of Indian Affairs)
	U.S. Air Force Permitted to DOE
	U.S. Air Force Withdrawn from U.S. Forest Service Permitted to DOE
	U.S. Air Force Fee Various Structures Within This Area Permitted to DOE, SNL, TSD, CTA and Support Agreement Between U.S. Air Force and DOE for Various Facilities (Manzano Area)
	U.S. Air Force Withdrawn from U.S. Forest Service Joint Operating Agreement Between DOE, SNL, and PHILLIPS
	U.S. Air Force FEE Joint Operating Agreement Between DOE, SNL, and PHILLIPS
	U.S. Air Force Permitted to Others
	DOE Outgranted or Permitted to U.S. Air Force
	DOE Outgranted or Permitted to Others
	Private Property
	Bureau of Land Management
LEGEND	
	Kirtland Air Force Base Boundary
	U.S. Forest Service Withdrawn Area Boundary
	Paved Roads
	Unpaved Roads and Trails

Planimetry compiled by photogrammetric methods from aerial photography dated March 1983, March 1990, September 1991, and July 1992.
 Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, B27 North American Horizontal Datum, B29 North American Vertical Datum

U.S. DEPARTMENT OF ENERGY	
MANAGEMENT SUPPORT DIVISION	
KIRTLAND AIR FORCE BASE EAST	ALBUQUERQUE, NEW MEXICO
Sandia National Laboratories Facilities Development Center	
ALBUQUERQUE, NEW MEXICO; LIVERMORE, CALIFORNIA; TONOPAH, NEVADA	
Facilities Geographic Information System	
Landuse Permit Map	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/98	Map ID #: 970122

Legend

- Kirtland Federal Complex (KFC) Boundary
- Road - All Types
- SNL/NM Tech Area
- Recreational Use
- Industrial Use

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Future Use Designations for the
Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981026a
Unclassified	SNL/NM GIS ORG. 6804	
S Morrison	sm981026.aml	Page 28

WATER RESOURCES

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- Fault
- SNL/NM Tech Area
- Hydrogeologic Region 1
- Hydrogeologic Region 2
- Hydrogeologic Region 3

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Hydrogeologic Regions of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/04/99	1:86400	MAPID=981027
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981027.aml	Page 30

Legend

- Kirtland Federal Complex
- Roads - All Types
- 40-Foot Contour Lines
- SNL/NM Tech Areas
- Fault Line
- Approximate extent of Perched Aquifer system
- Drainage
- Intermed. water level elevation Contour (dash = approximate)
- Index water level elevation Contour (dash = approximate)

0 1 2

Scale in Miles

0 5600 11200

Scale in Feet

0 1344 2688

Scale in Meters

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Potentiometric Surface for the Regional
Groundwater System of the Kirtland Federal
Complex (October/November 1995)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99 1:67200 Mapid=981028

Unclassified SNL/NM GIS ORG. 6804

Brian Delker bd981028.aml Page 31

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour Lines
- SNL/NM Tech Areas
- Drainage
- Approximate extent of Perched Aquifer system
- Shallow Groundwater Contour in Feet Above Mean Sea Level(dash = Inferred)
- Well Screened in Shallow Groundwater
- Well Screened in Regional Aquifer
- Production Well
- Out-of-Commission Well

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Potentiometric Surface for the Perched Aquifer
System Near Tijeras Arroyo on the
Kirtland Federal Complex(KFC) (September 1995)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	Mapid=981029a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981029.aml	Page 32

Legend

- Monitor Well
- ▲ Production Well
- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- Fluvial-to-Alluvial Sediment Transition
- Fault
- Groundwater Level Decline (Feet per Year)
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Annual Water-Level Elevation Declines in the Santa Fe Group Regional Aquifer System of the Kirtland Federal Complex(KFC) (1985 - 1996)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981030a
Unclassified		SNL/NM GIS ORG. 6804
Brian Delker	bd981030.aml	Page 33

Legend

- Monitoring Well
- Production Well (potable and non-potable)
- Production Well (out of commission)
- Plugged and/or Abandoned
- Spring
- Unknown Well Type
- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- SNL/NM Tech Area

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Lands

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Well and Spring Locations at the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981031a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981031.a	Page 34

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour Lines
- SNL/NM Tech Areas
- Drainage
- 100-Year Floodplain
- 500-Year Floodplain

Data Source: "U.S. Army Corps of Engineers, Albuquerque District, Sept. 1979

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

100- and 500-Year Floodplains of the Kirtland Federal Complex(KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	Mapid=981032a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981032.aml	Page 35

Legend

- Spring
- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- 100-Foot Contour
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Remote Area Drainage Map for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981034a
Unclassified		SNL/NM GIS ORG. 6804
Brian Delker	bd981034.aml	Page 37

Legend

- Stream Gauge Station
- 1994 Soil and Water Sampling Point
- 1995 Soil and Water Sampling Point
- National Pollutant Discharge Elimination System (NPDES) Permitted Outfall
- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- 100-Foot Contour
- SNL/NM Tech Area

Scale in Miles

Scale in Feet

Scale in Meters

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Storm Water Sampling Locations
for the Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981035a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981035.aml	Page 38

AIR QUALITY, METEOROLOGY, AND ENVIRONMENTAL MONITORING

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour
- SNL/NM Tech Area
- Air Monitoring Station (Volatile Organic Constituent [VOC])
- Criteria Pollutant Monitoring Station (CPMS)
- Air Monitoring Station (Particulate Matter [PM])

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Ambient Air Monitoring Stations of SNL/NM
on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	MAPID=981036a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981036.aml	Page 40

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour
- SNL/NM Tech Area
- Meteorological Towers

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Meteorological Monitoring Network of SNL/NM on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	MAPID=981037a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981037.aml	Page 41

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour
- SNL/NM Tech Area
- Meteorological Towers

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Three-Year Wind Climatology of SNL/NM on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	MAPID=981038a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981038.aml	Page 42

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour
- SNL/NM Tech Area
- Meteorological Towers

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Daytime Wind Patterns of SNL/NM on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	MAPID=981039a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981039.aml	Page 43

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- 40-Foot Contour
- SNL/NM Tech Area
- Meteorological Towers

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Nighttime Wind Patterns of SNL/NM on the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:67200	MAPID=981040a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981040.aml	Page 44

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- Buildings
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Area Sources of SNL/NM at the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981041a
Unclassified		SNL/NM GIS ORG. 6804
Susan Morrison	sm981041.aml	Page 45

BIOLOGY AND ECOLOGY

Vegetation Type Key

Grassland	Dense Stand of Trees
Grassland on Dissected Terrace	Woodland on Flat to Rolling Terrain
Grassland on Fine Sand	Woodland on Steep Rocky Slopes
Riparian Scrubland	Woodland on Rolling Mountainous Terrain
Riparian Woodland	

Legend

- Spring/Water Body
- Kirtland Federal Complex (KFC) Boundary
- Road
- Drainage
- 100-Foot Elevation Contour
- SNL/NM Tech Area

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Major Vegetation Types
at the Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981048a
Unclassified		SNL/NM GIS ORG. 6804
Brian Delker	bd981048.aml	Page 47

Soils Type Key

Bluepoint Series	Latene and Nickel Series
Cut and Fill Land	Madurez Series
Embudo and Tijeras Series	Rock Outcrop
Gila Series	Salas Series
Tesajo-Millet and Ildefonso Series	Seis and Silver Series
Laporte Series	Tome Series
	Wink Series

Legend

Kirtland Federal Complex (KFC)

Roads - All Types

Drainage

SNL/NM Tech Area

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Major Soil Types at the
Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981049a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981049.aml	Page 48

NOISE

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- Noise Contour Analysis Area
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Noise Contour Analysis Area Map
for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981050a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981050.aml	Page 50

CULTURAL RESOURCES

Legend

- Kirtland Federal Complex (KFC)
- Roads - All Types
- Drainage
- 100-Foot Contour
- SNL/NM Tech Area
- Block Survey
- Overlapping Survey Areas

Data Source: "Cultural Resources Overview and Regulatory Assessment for Sandia National Laboratories" - Prepared by TRC Mariah Assoc. Inc. Sept. 1996

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Early Cultural Surveys Conducted at the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981051a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981051.aml	Page 52

Legend

- Kirtland Federal Complex (KFC)
 - Roads - All Types
 - Drainage
 - 100-Foot Contour
 - SNL/NM Tech Area
 - Sandia Surveys
 - Overlapping Survey Areas
 - Area of Cultural Survey
 - IRP Survey Areas
 - IRP Survey Point
- Data Source: "Cultural Resources Overview and Regulatory Assessment for Sandia National Laboratories" - Prepared by TRC Mariah Assoc. Inc. Sept. 1996

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
More Recent Cultural Surveys Conducted
at the Kirtland Federal Complex (KFC)
(September 1996)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

	08/05/99	1:86400	MAPID=981052a
	Unclassified		SNL/NM GIS ORG. 6804
	Brian Delker	bd981052.aml	Page 53

Operated for the U.S. Department of Energy
Sandia National Laboratories/New Mexico

by Sandia Corporation

Survey data compiled from the U.S. Dept. of Energy and Sandia National Laboratories Plant Engineering U.S. Department of Energy Data and TRC Mariah Data Base compiled by photogrammetric methods from aerial photography dated March/April 1988, March/April 1990, September 1991 and July 1992
State Plane Coordinate System, New Mexico Central Zone
1927 North American Horizontal Datum, 1929 North American Vertical Datum

Inset Map of More Recent Cultural Resource Surveys at the Kirtland Federal Complex (KFC)

Map recreated by the Sandia National Laboratories Environmental Geographic Information System from a 30 X 40 map produced by TRC Mariah Associates Inc. GIS Support Group, Albuquerque, New Mexico. *Cultural Resources Overview and Regulatory Assessment for Sandia National Laboratories* Sept. 1996

VISUAL RESOURCES

Legend

- Kirtland Federal Complex (KFC) Boundary
- Road
- SNL/NM Tech Area
- Urban/Campus Setting
- Transitional/Mixed Use
- Native Shrub/Grassland
- Native Forest
- Withdrawn Area Proposed for Return to Public Access

Data Source: Consensus Planning Inc., Albuquerque, New Mexico 1996

0 1 2

Scale in Miles

0 7200 14400

Scale in Feet

0 1728 3456

Scale in Meters

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Historic Development Patterns of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981054a
Unclassified		SNL/NM GIS ORG. 6804
Brian Delker	bd981054.aml	Page 56

Scenic Attractiveness Key

- A - Distinctive
- B - Typical
- C - Indistinctive

Legend

- Kirtland Federal Complex (KFC) Boundary
- Road
- Drainage
- SNL/NM Tech Area
- Withdrawn Area Proposed for Return to Public Access
- Canyons

Data Source: Consensus Planning Inc., Albuquerque, New Mexico 1996

0 1 2
Scale in Miles

0 7200 14400
Scale in Feet

0 1728 3456
Scale in Meters

KAFB USFS Withdrawn Area

Project Location Map

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Scenic Attractiveness
of the Kirtland Federal Complex (KFC)**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981055a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981055.aml	Page 57

Landscape Visibility Key

Distance Zones
 fg - Foreground (0 - 1/2 mile)
 mg - Middleground (1/2 - 4 miles)
 bg - Background (4 miles - horizon)

Concern Levels
 1 - High concern for scenery
 2 - Moderate concern for scenery
 3 - Low concern for scenery

Scenic Attractiveness
 A - Distinctive
 B - Typical
 C - Indistinctive

Existing Scenic Integrity
 H - High (Imperceptibly Altered)
 M - Moderate (Slightly Altered)
 L - Low (Moderately Altered)
 VL - Very Low (Heavily Altered)

Scenic Classes

- Class 1 High public value
- Class 2 High public value
- Class 3 Moderate public value
- Class 4 Moderate public value
- Class 5 Moderate public value
- Class 6 Low public value

Legend

- Kirtland Federal Complex (KFC) Boundary
- Road
- SNL/NM Tech Area
- Withdrawn Area Proposed for Return to Public Access

Data Source: Consensus Planning Inc., Albuquerque, New Mexico 1996

Scale in Miles: 0 1 2

Scale in Feet: 0 7200 14400

Scale in Meters: 0 1728 3456

Project Location Map

KAFB USFS Withdrawn Area

Sandia National Laboratories/New Mexico Environmental Geographic Information System

Geographic Data Atlas

Scenic Classes of the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981056a
Unclassified	SNL GIS ORG. 6804	
Brian Delker	bd981056.aml	Page 58

TRANSPORTATION

Legend

- Kirtland Federal Complex
- Roads - All Types
- SNL/NM Tech Area
- Explosive Route
- Primary Explosive Route to Pad 5
Kirtland Underground Munitions
Management Storage Complex (KUMMSC)
- Alternate Explosive Route to Pad 5
Kirtland Underground Munitions
Management Storage Complex (KUMMSC)

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

Road Network for the Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981057a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981057.aml	Page 60

Legend

- Kirtland Federal Complex
- Albuquerque City Limit
- Major Transportation Route
- Minor Transportation Route

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas

**Road Network for the
City of Albuquerque**

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:158400	MAPID=981058a
Unclassified		SNL GIS ORG. 6804
Brian Delker	bd981058.aml	Page 61

WASTE MANAGEMENT

Legend

- Waste Management Facility
- Kirtland Federal Complex
- Roads - All Types
- Drainage
- SNL/NM Tech Area

Sandia National Laboratories/New Mexico
Environmental Geographic Information System

Geographic Data Atlas
Waste Management Facilities for the
Kirtland Federal Complex (KFC)

Transverse Mercator Projection, New Mexico State Plane Coordinate System,
Central Zone, 1927 North American Horizontal Datum,
1929 North American Vertical Datum

08/05/99	1:86400	MAPID=981059a
Unclassified	SNL/NM GIS ORG. 6804	
Brian Delker	bd981059.aml	Page 63

SITEWIDE HYDROGEOLOGIC REPORT MAPS

Introduction

The following maps are mechanical reductions of plate-sized (36"x48") maps developed for the "Sandia National Laboratories/New Mexico Sitewide Hydrogeologic Report." Their inclusion here is for data representational purposes only. They have not been edited to meet the format of the rest of the document. These maps are a good representation of the extent of the geological information available for Sandia National Laboratories/New Mexico, as well as Kirtland Air Force Base.

Historic
Holocene (early?)
[late]
Pleistocene (middle?)
[early?]
Pliocene
pre-Pliocene

Man-made Deposits and Features
af

Alluvial Fan Deposits
H1B
H1R
H17
H1S
H1S
H14
H13
H12
H11

Fluvial Terrace Deposits
H1B
H17
H1S
H12

Stream Channel Deposits
Hac Hae

Floodplain Deposits
H1p

Eolian Deposits
Hs Hd

Playa Deposits
Hpl

Colluvial Deposits
Co

Pediment Deposits
Pd

Consolidated and Semiconsolidated Units
H1C
H1C
H1C
H1C

Soil Pit Locations
Spring Locations
Well Locations
Borehole Locations
Dike
Fault Location Known
Fault Location Approximate
Fault Location Concealed
Lineament
Kirtland AFB Boundary
Roads
Technical Area Boundary
200 Foot Index Contours
40 Foot Contours

Scale: 1" = 2000'

Graphic Scale: 0 to 4000 feet / 0 to 1200 meters

Inset Map: Location of the study area within New Mexico

Surficial Geology and Faults by:
William Lettis & Associates

Bedrock Geology by:
1. Gram, Inc.,
2. Krumhansel & McConnell (1994),
3. Myers & McKay (1970 & 1976).

Sandia National Laboratories, New Mexico
Environmental Restoration
Geographic Information System

PLATE I
Surficial Geologic Map
of SNL/KAFB,
Albuquerque, New Mexico

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1" = 2000'

Unclassified

12/95

1:24000

DRAFT

12/95

MAPID=960322

SNL GIS ORG. 7512

12/95

Legend

- Spring Locations
- Well Locations
- Borehole Locations
- Roadways
- KAFB Boundary
- 100 Foot Index Contours
- 10 Foot Contours
- Seismic Refraction Lines
- Magnetometer Lines
- Fault in bedrock: D on down-side if known
- Strike and Dip data (in degrees) from:
1. GRAM, 1995;
2. Myers & McKay, 1970 & 1976;
3. Reiche, 1949
- Note: Readings from small outcrops posted adjacent to outcrop
- Apparent Dip
- Subhorizontal Dip

TERTIARY(?) / QUATERNARY

Tgc CaCO₃ - cemented gravel of Travertine Hills

TRIASSIC

TRs Santa Rosa(?) Formation

PERMIAN

Ps San Andreas Formation

Pg Glorieta Sandstone

Pv Yezo Formation

Pa Abo Formation

Pb Bursum Formation

PENNSYLVANIAN

IPmu Upper Madera Group (=Wild Cow Fm.)

IPml Lower Madera Group (=Los Moyos Fm.)

IPs Sandia Formation

PRECAMBRIAN

Igneous Rocks

pC Undifferentiated

pCg Granite

pCd Diorite

Metamorphic Rocks

pCq Quartzite

pCa Amphibolite

pCmr Metarhyolite

pCgn Gneiss

pCgr Greenstone

pCs Schist & Phyllite

pCqs Interbedded quartzite/schist

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE II SNL/KAFB & VICINITY SURFACE BEDROCK GEOLOGY

1" = 2000'	1:24000	MAPID = 880335
Unclassified	DRAFT	SNL GIS ORG. 7512
am880335.aml		12/20/85

Legend

- ▲ Soil Pit Locations
- Spring Locations
- Well Locations
- Borehole Locations
- Dike
- Fault Location Known
- - - Fault Location Approximate
- ... Fault Location Concealed
- Lineament
- Kirtland AFB Boundary
- Roads
- Technical Area Boundary
- 50 Foot Index Contours
- 10 Foot Contours
- Cross Sections
- Area of Investigation Boundary
- Buildings

Surficial Geology and Faults by:
William Lettis & Associates.

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE III Tijeras Arroyo Area Surficial Geology Map

1" = 500'	14000	MAPID = 980287
Unclassified	DRAFT	SNL O/S ORG. 7512
esomart	snl800287.sml	12/15/96

- ### Legend
- ▲ Soil Pit Locations
 - ◆ Spring Locations
 - Well Locations
 - Borehole Locations
 - Dike
 - Fault Location Known
 - - - Fault Location Approximate
 - · · Fault Location Concealed
 - Lineament
 - Kirtland AFB Boundary
 - Roads
 - - - Technical Area Boundary
 - 50 Foot Index Contours
 - 10 Foot Contours
 - Cross Sections
 - Area of Investigation Boundary
 - Buildings

Surficial Geology and Faults by:
William Lettis & Associates.

Surface Bedrock Geology by:
1. Gram, Inc.,
2. Krumhansel & McConnell (1994).

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE V Travertine Hills Area Surficial Geology Map

Unclassified	DRAFT	SNL OIG ORG 7612
12/15/95

Areal limits of surface exposures on SNL/AKAF:

- WJLA & Associates, 1985; Surficial Geologic Map, Scale 1:24,000.

Manzanita Mountains:

1. Myers, D.A., & McKay, E.J., 1970. Geologic Map of the Mount Washington Quadrangle, Bernalillo and Valencia Counties, New Mexico; USGS Map GQ-886, Scale 1:24,000.
2. Myers, D.A., & McKay, E.J., 1978. Geologic Map of the North End of the Manzanito Mountains, Tularosa and Sedillo Quadrangles, Bernalillo County, New Mexico; USGS Map I-968, Scale 1:24,000.

Manzano Basin:

- Myers, D.A., & McKay, E.J., 1976; op. cit.

Manzano Basin, western flank:

- GRAM, Inc., 1995 field geology.

Arroyo del Coyote:

- GRAM, Inc., 1995 field geology.

Tavernet Hills and western EOD Hills:

- Kirtland, J.L. & McConnell, V.S., 1904. "Geology of the Tuxter Hills Area, Kirtland Air Force Base, Rough Draft"; Sandia National Laboratories, Dept.6118.
- 2. Gram, inc., 1995 field geology.

Eastern EOD Hills:

- GRAM, Inc., 1995 field geology.

Coyote Test Field:

- WJLA & Associates, 1995; op. cit.
- 2. Myers, D.A., & McKay, E.J., 1970; op. cit.

Target Road, north:

- GRAM, Inc., 1995 field geology.

Springs		
Wells	—	Fault in bedrock; D on down-side if known
Boreholes	D	
Roadways	—	Strike and Dip data (in degrees) from:
KAFB Boundary	20 $\frac{M}{15}$	1. GRAM, 1995; 2. Myers & McKay, 1970 & 1976.
100 Foot Index Contours		Note: Readings from small outcrops posted adjacent to outcrop
10 Foot Contours		
Seismic Refraction Lines	→	Apparent Dip
Magnetometer Lines	⊙	Subhorizontal Dip

Tgc CaCO₃ - cemented gravel of Travertine Hills

Pa Abo Formation

IPmu Upper Madera Group (=Wild Cow Fm.)

IPml Lower Madera Group (= Los Mochos Fm.)

IPs Sandia Formation

PRECAMBRIAN

Igneous Rocks

pC Undifferentiated

pCg Granite

pCd Diorite

Metamorphic Rocks

pCq Quartzite

pCa Amphibolite

pCmn Metarhyolite

pCgn Gneiss

Greenstone

pCgs Interbedded

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE VII
SNL/KAFB & VICINITY
SURFACE BEDROCK GEOLOGY
NORTHERN HALF

1"=1000'	1 12000	MAPID=960335
Unclassified	DRAFT	ENR 015 ORG 7512
sonomri	sm550335.aml	12/20/85

Legend

- Springs
- Wells
- Boraholes
- Roadways
- KAFB Boundary
- 100 Foot Index Contours
- 10 Foot Contours
- Seismic Refraction Lines
- Magnetometer Lines
- Fault in bedrock; D on down-side if known
- Strike and Dip data (in degrees) from:
1. GRAM, 1995;
2. Myers & McKay, 1970 & 1976;
3. Reich, 1949
- Note: Readings from small outcrops posted adjacent to outcrop
- Apparent Dip
- Subhorizontal Dip

TERTIARY(?) / QUATERNARY

Tgc CaCO₃ - cemented gravel of Travertine Hills

TRIASSIC

Trs Santa Rosa(?) Formation

PERMIAN

Ps San Andreas Formation

Pg Glorieta Sandstone

Py Yeso Formation

Pa Abo Formation

Pb Bursum Formation

PENNSYLVANIAN

IPmu Upper Madera Group (= Wild Cow Fm.)

IPml Lower Madera Group (= Los Moyos Fm.)

IPe Sandia Formation

PRECAMBRIAN

Igneous Rocks

pCg Granite

Metamorphic Rocks

pCq Quartzite

pCmr Metarhyolite

pCgn Gneiss

pCs Schist & Phyllite

Sources of Surface Bedrock Data

Areol limits of surface exposures on SNL/KAFB:
- WLA & Associates, 1995; Surficial Geologic Map, Scale 1:24000.
Manzanita Mountains:
1. Myers, D.A., & McKay, E.J., 1970. Geologic Map of the Mount Washington Quadrangle, Bernalillo and Valencia Counties, New Mexico; USGS Map G0-886, Scale 1:24000.
Travertine Hills and western EOD Hills:
1. Krumholz, J.L. & McConnell, V.S., 1994. "Geology of the Travertine Hills Area, Kirtland Air Force Base, Rough Draft"; Sandia National Laboratories, Dept. 6118.
2. Gram, Inc., 1995 field geology.
Eastern EOD Hills:
- GRAM, Inc., 1995 field geology.
Coyote Test Field:
1. WLA & Associates, 1995; op. cit.
2. Myers, D.A., & McKay, E.J., 1970; op. cit.
Target Road, north and south:
- GRAM, Inc., 1995 field geology.
South Fence Road, east of ITRT:
- GRAM, Inc., 1995 field geology.
Hubbell Spring area:
1. Reich, P., 1949. "Geology of the Manzanita and North Manzano Mountains, New Mexico"; Geological Society of America Bulletin, v.60, p. 1183-1212.
2. USGS 7.5 Hubbell Spring, NM topographic quadrangle map.
3. GRAM, Inc., 1995 field geology.

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

**PLATE VIII
SNL/KAFB & VICINITY
BEDROCK GEOLOGY
SOUTHERN HALF**

1" = 1000'	1:12000	MAPID=960337
Unclassified	DRAFT	SNL GIS ORG. 7612
escom	sm860337.dml	12/20/95

Legend

- Wells
- Springs
- Boreholes
- Roadways
- KAFB Boundary
- Fault Lines
- - - Technical Area Boundary
- - - Cross Section A
- - - Cross Section B
- - - Cross Section C
- - - Cross Section D
- - - Cross Section E
- - - Cross Section F
- - - Cross Section G

LITHOFACIES

Ancestral Rio Grande

- Rio Grande "C"
- Rio Grande "B"
- Rio Grande "A"

Alluvial Fan

- Coarse Alluvial Fan Lithofacies
- Fine Alluvial Fan Lithofacies

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE IX PRE-SURFICIAL (Pre-Holocene/Middle Pleistocene) GEOLOGIC MAP

	1"=2000'	1:24000	MAPID=960323
	Unclassified	DRAFT	SNL GIS ORG. 7512
	scmorr	sm960323.dwg	12/18/95

Legend

- Wells
- Springs
- Boreholes
- Map Control Point with Top "A" Elevation
- KAFB Boundary
- Fault Lines
- Technical Area Boundary
- Cross Section A
- Cross Section B
- Cross Section C
- Cross Section D
- Cross Section E
- Cross Section F
- Cross Section G
- East Limit Top of Rio Grande "A"
- 100 Foot Index Contours
- 20 Foot Contours
- Roadways
- McCormick Ranch Anticline
- 3-Point Calculation of Formation Dip
- Top of Rio Grande "A"
- Time-Equivalent Alluvial Fan Lithofacies
 - Coarse Alluvial Fan Lithofacies
 - Fine Alluvial Fan Lithofacies

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE X STRUCTURE MAP on top of RIO GRANDE "A"

1"=2000'	1:24000	MAPID = 880324
Unclassified	DRAFT	SNL GIS ORG. 7512
ecm001	sm880324.dwg	12/18/95

Legend

- Wells
- Springs
- Boreholes
- Roadways
- KAFB Boundary
- Fault Lines
- Technical Area Boundary
- Interm. Contours (dash = approx.)
- Index Contours (dash = approx.)

Santa Fe Group

- Rio Grande "A"
- Rio Grande "B"
- Fine Alluvial Fan
- Tertiary Conglomerate
- Alluvium east of fault complex
- Lower Tertiary (Baca/Galisteo)
- Permian
- Pennsylvanian (mostly Madera, with some Sandia)
- Precambrian (undifferentiated)

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE XI ELEVATION OF AND GEOLOGY AT REGIONAL POTENTIOMETRIC SURFACE CI = 10 & 50 FT.

1" = 2000'	124000	MAPID = 960346
Unclassified	DRAFT	SNL GIS ORG. 7512
DAHeilrich	sh960346.aml	12/2/95

Legend

- D Normal fault in bedrock;
D on down-side if known
- U Reverse fault in bedrock;
U on up-side
- Spring
- Wells
- Boreholes
- Roadways
- KAFB Boundary

PERMIAN

- Pe San Andreas Formation
- Pg Glorieta Sandstone
- Py Yeso Formation
- Pa Abo Formation
- Pb Bursum Formation

PENNSYLVANIAN

- IPmu Upper Madera Group (=Wild Cow Fm.)
- IPml Lower Madera Group (=Los Mochos Fm.)
- IPs Sandia Formation

PRECAMBRIAN

- pC Undifferentiated
- pCg Granite
- pCd Diorite
- pCq Quartzite
- pCa Amphibolite
- pCmr Metarhyolite
- pCgn Gneiss
- pCgr Greenstone
- pCs Schist & Phyllite
- pCqs Interbedded quartzite/schist

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE XII SNL/KAFB & VICINITY SURFACE AND SUBSURFACE BEDROCK GEOLOGIC MAP NORTHERN HALF

1" = 1000'	1:12000	MAPID = 960442
Unclassified	DRAFT	SNL OIS ORG 7612
datefile	ch850442.mxd	1/18/86

Legend

- D Normal fault in bedrock;
D on down-side if known
- U Reverse fault in bedrock;
U on up-side
- Spring
- Well
- Borehole
- Roadways
- KAFB Boundary

PERMIAN

- Ps San Andreas Formation
- Pg Glorieta Sandstone
- Py Yeso Formation
- Pa Abo Formation
- Pb Bursum Formation

PENNSYLVANIAN

- IPmu Upper Madera Group (=Wild Cow Fm.)
- IPml Lower Madera Group (=Los Moyos Fm.)
- IPs Sandia Formation

PRECAMBRIAN

- pC Undifferentiated
- pCg Granite
- pCd Diorite
- pCq Quartzite
- pCa Amphibolite
- pCmr Metarhyolite
- pCgn Gneiss
- pCgr Greenstone
- pCs Schist & Phyllite
- pCqs Interbedded quartzite/schist

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE XIII SNL/KAFB & VICINITY SURFACE AND SUBSURFACE BEDROCK GEOLOGIC MAP SOUTHERN HALF

Geological data from various sources and maps
Compiled by: SNL, KAFB, and other sources
Scale: 1 inch = 1000 feet
Date: 1/15/86

1" = 1000'	1:12000	MAPID = 950443
Undeveloped	DRAFT	SNL GIS ORG 7612
date	08/04/86	1/15/86

Sources of Surface Bedrock Data

Manzano Base and Manzanita Mountains:
1. Myers & McKay, 1976.
2. Myers & McKay, 1970.
South side Coyote water gap & west EOD Hills:
- Krumholz, J.L. & McConnell, V.S., 1994.
"Geology of the Travertine Hills Area,
Kirtland Air Force Base, Rough Draft".
Sandia National Laboratories, Dept. 6118.
All other:
- GRAM, Inc., 1995 field geology.

Legend

- Roadways
- KAFB Boundary
- Normal Fault (D on downside)
- Thrust Fault (U on upside)
- Anticline Axis
- Synclinal Axis

Strike and Dip data
(in degrees) from:
1. GRAM, 1995;
2. Myers & McKay, 1970 & 1976.
Note: Readings from small
outcrops posted adjacent
to outcrop

PERMIAN

Pa Abo Formation

PENNSYLVANIAN

- IPmu Upper Madera Group (=Wild Cow Fm.)
- IPml Lower Madera Group (=Los Moyos Fm.)
- IPs Sandia Formation

PRECAMBRIAN

- pGg Granite
- pCd Diorite
- pCq Quartzite
- pCa Amphibolite
- pCmr Metarhyolite
- pCgn Gneiss
- pCgr Greenstone
- pCqs Interbedded Quartzite/Schist

Scale in Feet
0 500 1000
Scale in Meters
0 120 240

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

PLATE XIV ARROYO DEL COYOTE SURFACE AND SUBSURFACE BEDROCK GEOLOGY

Scale: 1"=500'
1:5000
MAPID=05044.4
UNCLASSIFIED DRAFT
SHAFT: 050444.4
1/9/95

- Legend**
- Springs
 - Wells
 - Boreholes
 - Roadways
 - KAFB Boundary
 - 100 Foot Index Contours
 - 50 Foot Contours
 - LINE "100"
 - LINE "50"
 - Seismic Refraction Lines
 - Magnetometer Lines
 - Well Control Point
 - Bedrock Elevation in feet (< = less than)
 - Bedrock Outcrop

Sandia National Laboratories, New Mexico
Environmental Restoration Geographic Information System

**PLATE XV
SNL/KAFB & VICINITY
SUBSURFACE BEDROCK
ELEVATION MAP**

	1" = 1000'	1:12000	MAPID = 980445
	Unclassified	DRAFT	SNL GIS ORG 7512
	dahallr	04/05/04 (04/05/04)	1/18/96

Legend

- Springs
- Wells
- Boreholes
- Roadways
- KAFB Boundary
- 100 Foot Index Contours
- 20 Foot Contours
- Seismic Refraction Lines
- Magnetometer Lines
- Bedrock Outcrop

Sandia National Laboratories, New Mexico
 Environmental Restoration Geographic Information System

PLATE XVI
 ARROYO DEL COYOTE
 SUBSURFACE BEDROCK
 ELEVATION MAP

1"=500'
 1:5000
 UNCLASSIFIED
 DRAFT
 em960339

MAPID=960339
 SNL GIS ORG 7612
 12/2005

PART II

FACILITIES INFORMATION

NOTABLE, SELECTED, OR INFRASTRUCTURE FACILITIES

D12

D13

D14

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

D15

E15

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System

Tech Area I Notable, Selected
or Infrastructure Facilities

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 980082

E12

E13

E14

Page 84

E12

E13

E14

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

958
Hazardous Waste
Management Facility (HWMF)

905
Explosive
Components Facility (ECF)

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 823 North American Vertical Datum

Facilities Geographic Information System

Tech Area II
Notable, Selected, or
Infrastructure Facilities

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 980083

E12

E13

E14

Page 85

Q12

P12

O12

N12

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

6715
Thermal Treatment Facility

6538
Radiant Heat Facility

6583
Classified
Destruction
Facility

6520
Centrifuge Complex

6510
Drop/Impact
Complex

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1989, March 1996,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (NE Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980085

N14

Q14

P14

O14

N14

N13

N12

Q12

Q13

Q14

Q10

P10

O10

N10

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

6740
Sled Track Complex

6750
Terminal Ballistics Facility

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1985, March 1996,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (NW Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980087

Q12

P12

O12

N12

T12

S12

R12

Q12

T12

Q12

T13

Q13

T14

Q14

T14

S14

R14

Q14

Page 88

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

6920
Radioactive and Mixed Waste
Management Facility(RMWMF)

6630
Liquid Metal
Processing Facility

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (SE Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980088

T10

S10

R10

Q10

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1996,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech AreaII (SWQuadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 990088

Q12

G12

G13

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

963
Repetitive High Energy Pulsed Power
Unit II (RHEPP II)
High Power Microwave Lab
Advanced Pulsed Power Research Module
(AAPRM)

Salvage Yard

960
Excimer Laser
Processing Laboratory

961
TESLA

970
HERMES III
Sandia Accelerator & Beam Research Experiment (SABRE)
Radiographic Integrated Test Stand (planned)

981
SATURN
Short-Pulse High Intensity
Nanosecond X-Radiator (SPHINX)

983
Z-Machine

986
Repetitive High Energy
Pulsed Power Unit I (RHEPP I)

Note: The RHEPP2 facility, a selected facility is located in Bldg. 963, together with the non-selected facility, the Coating Laboratory.

Planimetry compiled by photogrammetric methods from aerial photography dated March 1983, March 1990, September 1991 and July 1992.
 Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System

Tech Area IV
 Notable, Selected, or
 Infrastructure Facilities

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 980084

H12

H13

Page 90

DOE Area 3 Rd.

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area V Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980089

UTILITIES

LEGEND

- Storm Drain Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1998,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System

Tech Area I
Storm Drain

Facilities Technical Support Dept. 7901

Date: 08/01/99

Map ID #: 970081

LEGEND

- Storm Drain Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods
from aerial photography dated March 1989, March
1990, September 1991, and July 1992.

Transverse Mercator Projection, New Mexico State
Plane Coordinate System, Central Zone, 1927 North
American Horizontal Datum, 1929 North American
Vertical Datum

Facilities Geographic Information System

Tech Area III & V North
Storm Drain

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 970083

- LEGEND**
- Storm Drain Lines
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991, and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III & V South Storm Drain	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970084

LEGEND

- Sanitary Sewer Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area I Sanitary Sewer	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970085

- LEGEND
- Sanitary Sewer Lines
 - - - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - - - Railroad
 - - - Tech Area Boundary

Planimetry compiled by photogrammetric methods from
 aerial photography dated March 1983, March 1990,
 September 1991 and July 1992.
 Transverse Mercator Projection, New Mexico State Plane
 Coordinate System, Central Zone, 827 North American
 Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area II & IV Sanitary Sewer	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970088

- LEGEND
- Sanitary Sewer Lines
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III & V North Sanitary Sewer	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970087

- Sanitary Sewer Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1985, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III & V South Sanitary Sewer	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970088

LEGEND

- Domestic Water Line
- Abandoned Domestic Water Line
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1985, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 829 North American Vertical Datum

Facilities Geographic Information System
Domestic Water System for
Tech Area I
Facilities Technical Support Systems Dept. 7901
Date: 08/01/99 Map ID #: 970139

Q10

P10

O10

N10

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

6740
Sled Track Complex

6750
Terminal Ballistics Facility

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1985, March 1996,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (NW Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980087

Q12

P12

O12

N12

T12

S12

R12

Q12

T12

Q12

T13

Q13

T14

Q14

T14

S14

R14

Q14

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Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

6920
Radioactive and Mixed Waste
Management Facility(RMWMF)

6630
Liquid Metal
Processing Facility

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (SE Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980088

T10

S10

R10

Q10

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1996, September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III (SW Quadrant) Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 990088

Q12

G12

G13

Legend

- Notable, Selected, or Infrastructure Facilities
- Buildings
- Road
- Chainlink Fence
- Barbedwire Fence
- Tech Area Boundary

963
Repetitive High Energy Pulsed Power
Unit II (RHEPP II)
High Power Microwave Lab
Advanced Pulsed Power Research Module
(AAPRM)

Salvage Yard

960
Excimer Laser
Processing Laboratory

961
TESLA

970
HERMES III
Sandia Accelerator & Beam Research Experiment (SABRE)
Radiographic Integrated Test Stand (planned)

981
SATURN
Short-Pulse High Intensity
Nanosecond X-Radiator (SPHINX)

983
Z-Machine

986
Repetitive High Energy
Pulsed Power Unit I (RHEPP I)

Note: The RHEPP2 facility, a selected facility is located in Bldg. 963, together with the non-selected facility, the Coating Laboratory.

Planimetry compiled by photogrammetric methods from aerial photography dated March 1983, March 1990, September 1991 and July 1992.
 Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System

Tech Area IV
Notable, Selected, or
Infrastructure Facilities

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 980084

H12

H13

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● Notable, Selected, or Infrastructure Facilities

- Roads
- - - DOE Owned Property
- ▬▬▬ Kirtland Military Reservation
- ▬▬▬▬▬ Cibola National Forest

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991, and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 827 North American Horizontal Datum, 823 North American Vertical Datum

Facilities Geographic Information System	
Coyote Test Field, Manzano Area & Withdrawn Area Notable, Selected, or Infrastructure Facilities	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 980080

UTILITIES

LEGEND

- Storm Drain Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1998,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System

Tech Area I Storm Drain

Facilities Technical Support Dept. 7901

Date: 08/01/99

Map ID #: 970081

LEGEND

- Storm Drain Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1983, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Tech Area III & V North Storm Drain	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970083

LEGEND

- Storm Drain Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991, and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 829 North American Vertical Datum

Facilities Geographic Information System

Tech Area III & V South Storm Drain

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 970084

LEGEND

- Sanitary Sewer Lines
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System

Tech Area I
Sanitary Sewer

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 970085

- LEGEND**
- Sanitary Sewer Lines
 - - - Unpaved Road
 - Paved Road
 - |— Barbed Wire Fence
 - |— Chainlink Fence
 - Building
 - - - Railroad
 - - - Tech Area Boundary

Planimetry compiled by photogrammetric methods from
 aerial photography dated March 1983, March 1990,
 September 1991 and July 1992.
 Transverse Mercator Projection, New Mexico State Plane
 Coordinate System, Central Zone, 827 North American
 Horizontal Datum, 823 North American Vertical Datum

Facilities Geographic Information System	
Tech Area II & IV Sanitary Sewer	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970086

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991, and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System	
Domestic Water System for Tech Areas II and IV	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970140

- LEGEND
- Power Duct Banks
 - Overhead Power Line
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from
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Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Power Distribution for Tech Area I	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970143

- LEGEND
- Power Duct Banks
 - Overhead Power Line
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 827 North American
Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System	
Power Distribution System for Tech Areas II and IV	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970144

- LEGEND**
- Power Duct Banks
 - Overhead Power Line
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Power Distribution System for Tech Areas III and V (South)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970148

LEGEND

- Communication Line
- Abandoned Communication Line
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Railroad
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1983, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System

Communication Distribution
System for Tech Area I

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 970147

- LEGEND
- Communication Line
 - - - Abandoned Communication Line
 - - - Unpaved Road
 - Paved Road
 - - - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - - - Railroad
 - - - Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 883, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Communication Distribution System for Tech Areas III and V (North)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970149

Planimetry compiled by photogrammetric methods
from aerial photography dated March 889, March
890, September 891 and July 892.

Transverse Mercator Projection, New Mexico State
Plane Coordinate System, Central Zone, 827 North
American Horizontal Datum, 829 North American
Vertical Datum

Facilities Geographic Information System	
Chilled Water System for Tech Areas III and V (North)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970153

- LEGEND**
- Chilled Water Lines
 - Abandoned Communication Line
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Planimetry compiled by photogrammetric methods from aerial photography dated March 1989, March 1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 827 North American Horizontal Datum, 829 North American Vertical Datum

Facilities Geographic Information System	
Chilled Water System for Tech Areas III and V (South)	
Facilities Technical Support Services Dept. 7901	
Date: 08/01/99	Map ID #: 970154

- LEGEND
- Gas Line
 - - - Abandoned Gas Line
 - - - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - - - Railroad
 - - - Railroad
 - - - Tech Area Boundary

Planimetry compiled by photogrammetric methods from
 aerial photography dated March 1989, March 1990,
 September 1991 and July 1992.
 Transverse Mercator Projection, New Mexico State Plane
 Coordinate System, Central Zone, 827 North American
 Horizontal Datum, 1923 North American Vertical Datum

Facilities Geographic Information System	
Gas System for Tech Areas II and IV	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970160

- LEGEND
- Gas Line
 - Abandoned Gas Line
 - Unpaved Road
 - Paved Road
 - Barbed Wire Fence
 - Chainlink Fence
 - Building
 - Railroad
 - Tech Area Boundary

Plantmetry compiled by photogrammetric methods from aerial photography dated March 1993, March 1998, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State Plane Coordinate System, Central Zone, 1927 North American Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System	
Gas System for Tech Areas III and V (North)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970161

Planimetry compiled by photogrammetric methods
from aerial photography dated March 1989, March
1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State
Plane Coordinate System, Central Zone, 1927 North
American Horizontal Datum, 829 North American
Vertical Datum

Facilities Geographic Information System	
Gas System for Tech Areas III and V (South)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970162

LEGEND

- Street Lighting
- Street Lighting
- Unpaved Road
- Paved Road
- Barbed Wire Fence
- Chainlink Fence
- Building
- Tech Area Boundary

Planimetry compiled by photogrammetric methods from
aerial photography dated March 1989, March 1990,
September 1991 and July 1992.
Transverse Mercator Projection, New Mexico State Plane
Coordinate System, Central Zone, 1927 North American
Horizontal Datum, 1929 North American Vertical Datum

Facilities Geographic Information System

Street Lighting for
Tech Areas II and IV

Facilities Technical Support Systems Dept. 7901

Date: 08/01/99

Map ID #: 970164

Planimetry compiled by photogrammetric methods
from aerial photography dated March 1989, March
1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State
Plane Coordinate System, Central Zone, 1927 North
American Horizontal Datum, 1929 North American
Vertical Datum

Facilities Geographic Information System	
Street Lighting for Tech Areas III and V (North)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970165

Planimetry compiled by photogrammetric methods
from aerial photography dated March 1989, March
1990, September 1991 and July 1992.

Transverse Mercator Projection, New Mexico State
Plane Coordinate System, Central Zone, 1927 North
American Horizontal Datum, 1929 North American
Vertical Datum

Facilities Geographic Information System	
Street Lighting for Tech Areas III and V (South)	
Facilities Technical Support Systems Dept. 7901	
Date: 08/01/99	Map ID #: 970168

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