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<td>WOD</td>
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1.0 INTRODUCTION AND SUMMARY

The purpose of this Base Realignment and Closure (BRAC) Cleanup Plan (BCP) is to summarize the current status of the Fort Wingate Depot Activity (FWDA) environmental restoration and associated environmental compliance.

The last BCP update for FWDA was published in 1995 (Earth Tech, 1995). At that time, environmental restoration activities at FWDA were proceeding under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) guidelines, with the exception of the Open Burning/Open Detonation (OB/OD) Area, which was proceeding under Resource Conservation and Recovery Act (RCRA) guidelines, with the U.S. Environmental Protection Agency (USEPA) Region 6 as the lead regulatory agency.

Since that time, the New Mexico Environment Department (NMED) has become the lead regulatory agency, and the pathway for environmental restoration has been evolving for a number of years. Although environmental restoration activities have continued since 1995, updates to the BCP were put on hold while a pathway was finalized.

In 2002, NMED determined that the pathway would be a Resource Conservation Act (RCRA) permit for post-closure care of the OB/OD Area, with a RCRA corrective action module attached to address requirements for other sites. A draft permit was issued 14 September 2004, and the public comment period extended into February 2005.

A series of meetings and conference calls regarding the September 2004 draft permit were held between April 2005 and August 2005, with NMED, the Army, and other stakeholders working to resolve issues (including the number of sites requiring investigation and/or restoration) regarding the draft permit. These negotiations resulted in a new draft permit, issued 29 August 2005. Following an additional public comment period, the Permit (NM 6213820974) was finalized in December 2005 and became effective 31 December 2005 (NMED, 2005).

A BCP is a planning document. This version of the BCP was prepared with information available as of September 2005.

1.1 BCP ORGANIZATION

Chapter 1 describes the objectives of the environmental restoration program, explains the purpose of the BCP, introduces the Project Team formed to review the program, and provides a brief history of the installation.

Chapter 2 summarizes the current status of the FWDA property disposal and reuse planning process and describes the relationship of the disposal process with other environmental programs.

Chapter 3 summarizes the environmental restoration, compliance, natural and cultural resources, and community involvement programs at the installation.
Chapter 4 describes the environmental condition of property.

Chapter 5 provides master schedules of activities to be performed throughout the duration of the environmental restoration, compliance, and natural and cultural resources programs.

Chapter 6 provides a list of documents referenced herein.

The following appendices are included in this document:

- Appendix A  Maps
- Appendix B  Reuse Information
- Appendix C  Summary of Asbestos Inspections and Abatements
- Appendix D  Statement of Clearance for Explosive Ordnance Investigation and Removal
- Appendix E  Schedule and Funding Information

1.2 ENVIRONMENTAL RESPONSE OBJECTIVES

Environmental restoration at FWDA has been proceeding under the Defense Environmental Restoration Program (DERP), established by Section 211 of the Superfund Amendments and Reauthorization Act (SARA) of 1986. The Office of the Secretary of Defense (OSD) formulates policy and provides oversight for the DERP.

The statutory goals of the DERP are:

- Taking appropriate response actions to investigate, and where necessary, address releases of hazardous substances or pollutants and contaminants, and correcting other environmental damage which creates an imminent and substantial endangerment to the public health or welfare or to the environment; and

- Protecting public safety through the demolition and removal of unsafe Department of Defense (DOD) buildings and structures, including those at sites formerly used by or under the jurisdiction of the Secretary of Defense.

The OSD establishes specific goals and objectives for the DERP in the Defense Planning Guidance (DPG). DPG goals include:

- Reducing risk to human health and the environment through implementation of effective, legally compliant, and cost-effective response actions;

- Making property at installations closing or realigning under the BRAC Program environmentally suitable for transfer;

- Having final remedies in place and completing response actions; and
• Requiring certain percentages of sites in the program to progress to specific stages of the response process by specific dates.

1.3 BCP PURPOSE, UPDATES, AND DISTRIBUTION

This BCP presents a status summary for environmental restoration and compliance programs at FWDA, and a comprehensive strategy for environmental restoration and related compliance activities. The BCP also outlines the approach to response actions and defines the status of efforts to resolve technical and other issues to allow continued progress.

BCPs were intended to be updated on an annual or bi-annual basis, or more frequently depending on progress. However, in Fiscal Year (FY) 2006, BRAC installations that are not in Remedy-in-Place or Remedy Complete status will be creating BRAC Installation Action Plans (IAPs) to take the place of the BCPs. Thus, this will be the last BCP update for FWDA.

1.4 BRAC CLEANUP TEAM/PROJECT TEAM

The FWDA BRAC Cleanup Team (BCT) was established in 1993, and for the most part met quarterly until March 2004, when meetings were suspended while permit negotiations were conducted.

The BCT has been led by Larry Fisher, the FWDA BRAC Environmental Coordinator (BEC). Mr. Fisher represented first the Tooele Army Depot (TEAD) commander and later the Army BRAC Division (BRACD) to which FWDA was assigned following the creation of BRACD in 2002. As part of the permit negotiations in 2005, the Army agreed to establish an on-site BEC. Mr. Mark Patterson is became the on-site BEC, beginning in November 2005.

The two other formal BCT members are Remedial Project Managers from USEPA Region 6 and NMED Hazardous Waste Bureau (HWB), although NMED announced its withdrawal from active participation with the BCT in 2002.

The FWDA Project Team consists of the BCT and additional stakeholders/individuals whom the BCT selects to assist in the environmental restoration process at the FWDA. The Project Team is led by the BEC. The Project Team includes representatives from the U.S. Department of Interior (DOI), the Navajo Nation, and the Pueblo of Zuni.

BCT/Project Team meetings have been held quarterly since 1993, with occasional cancellations because of schedule conflicts or lack of new business to discuss (during the period of regulatory evolution).

Table 1 identifies the current BCT and Project Team members. BCT and Project Team members may consult/coordinate with additional staff as necessary.
1.5 INSTALLATION DESCRIPTION AND HISTORY

This section provides a general description and historical summary of FWDA.

1.5.1 General Property Description

FWDA is an inactive U.S. Army depot whose former mission was to store, ship, and receive material and to dispose of obsolete or deteriorated explosives and military munitions. Since 1975, the installation has been under the administrative command of the TEAD, in Tooele, Utah. The active mission of FWDA ceased and the installation closed in January 1993, as a result of the Defense Authorization Amendments and Base Realignment and Closure Act of 1988. As described above, FWDA was assigned to BRACD in 2002. The functions of BRACD are to: provide policy guidance for the execution of the BRAC Program; formulate, defend, and execute BRAC budgets; coordinate with DOD, government agencies and Local Reuse Authorities (LRA) for the disposal and reuse of Army property; and coordinate environmental cleanup and military construction projects. Although administrative command remains with TEAD, the environmental restoration and property transfer/reuse responsibilities are lodged with BRACD.

FWDA is situated in northwestern New Mexico, in McKinley County. The installation is located 8 miles east of Gallup, and approximately 130 miles west of Albuquerque along Interstate 40 (Figure 1). Prior to installation closure in 1993, FWDA occupied approximately 22,120 acres of land. The installation can be divided into several areas based upon location and historical land use (Figure 2). These major land-use areas include:

- The Administration Area - located in the northern portion of the installation and encompassing approximately 800 acres; contains former office facilities, housing, equipment maintenance facilities, warehouse buildings, and utility support facilities;

- The Workshop Area - located south of the Administration Area and encompassing approximately 700 acres; consisting of an industrial area containing former ammunition maintenance and renovation facilities;

- The Magazine (Igloo) Area - covering approximately 7,400 acres in the central portion of the installation and encompassing ten Igloo Blocks (A through H, J and K) consisting of 732 earth-covered magazines (igloos) and 241 earthen revetments previously used for storage of munitions;

- Protection and Buffer Areas - encompassing approximately 4,050 acres consisting of buffer zones surrounding the former magazine and demolition areas; these areas are located adjacent to the eastern, northern, and western boundaries of the installation; and

- The OB/OD Area - located within the west central portion of the installation; the OB/OD Area can be separated into two subareas based on period of operation, the Closed OB/OD Area and the Current OB/OD Area.
FWDA has been undergoing final environmental restoration prior to property transfer/reuse. As part of planned property transfer to DOI, the installation was divided into 25 reuse parcels (Figure 3). Parcels transferred to date include Parcels 1, 15, and 17. Reuse parcels and property transfers are discussed further in Section 2.0.

The installation is almost entirely surrounded by federally owned or administered lands, including both national forest and tribal lands (Figure 3). North and west of FWDA are Navajo tribal trust and allotted lands. East of FWDA are Federally-owned, Bureau of Indian Affairs (BIA) administered lands. Development north of FWDA includes Red Rock State Park, a Zuni railroad siding, an El Paso Natural Gas fractioning plant and housing area, the small Navajo community of Church Rock, and transportation corridors for Interstate 40, U.S. Highway 66, and the Burlington, Northern, and Santa Fe Railroad. The town of Fort Wingate, located immediately to the east of FWDA on BIA administered land, was the original Fort Wingate headquarters site. To the south and southeast is the largely undeveloped Cibola National Forest. The land to the west is mostly undeveloped and is tribal trust and allotment land administered by the BIA, Navajo Nation, and individual Native American allottees. Information for land surrounding FWDA is shown in Figure 3.

1.5.2 History of FWDA

The first post was established 22 July 1850 east of the current FWDA site at Bear Springs. In 1870, when President Grant announced plans for a 10-square-mile reservation, plans for the fort were approved and permanent buildings were erected, at the location east of FWDA now known as the town of Fort Wingate. During the 1910s, a portion of Fort Wingate property east of the current FWDA was made into the Zuni District of the Manzano National Forest (now Cibola National Forest). As World War I was ending, the War Department selected Fort Wingate to store munitions. Around 1919, the installation, then known as Wingate Ordnance Depot (WOD), became the largest installation storing high explosives in the world, with approximately 163 wooden magazines. Other buildings included personnel quarters, shipping and receiving facilities, and equipment storage and maintenance facilities. A map showing the layout of WOD is included in Appendix A. In general, WOD occupied the northern portion of FWDA, extending as far south as current Igloo Block E.

Early in 1941, an extensive construction program started at FWDA, including the construction of permanent buildings and underground, reinforced concrete storage magazines. The reconstructed depot was formally opened in 1942. During World War II, the primary depot mission was the shipment of munitions to support the war. Following the end of World War II, the depot began receiving munitions from production lines and returns from overseas, and the mission evolved into that described previously: a storage activity providing for the care, preservation, and minor maintenance of assigned commodities, primarily conventional military munitions. The installation mission also included the disassembly and demilitarization of unserviceable and obsolete military munitions.
Between 1960 and 1967, portions of FWDA were used by the Army to test the performance of several ballistic missile systems, including the launching of ballistic missiles from FWDA.

In July 1971, the FWDA was placed in Reserve Status under the command of the Pueblo Army Depot, Colorado, and redesignated the Fort Wingate Depot Activity. In 1975, the U.S. Army Materiel Command reassigned the FWDA to the Tooele Army Depot, Utah.

The active mission of the installation ceased in January 1993, and the installation is currently under caretaker status. A number of tenant operations are currently being maintained at FWDA. Access to the installation is currently maintained by on-site Caretakers. Tenant operations are discussed further in Section 1.6.

1.6 TENANTS

In addition to the active mission, FWDA has hosted the following tenants/entities: the U.S. Army Reserve, the New Mexico Army National Guard, the U.S. Department of Agriculture (USDA), and the U.S. Department of Energy (DOE). The tenant activities were not directly related to the primary FWDA mission, and some tenant activities have continued following FWDA closure in 1993. In 1994, TPL, Inc. (TPL) became a tenant. In 1995, a large portion of the installation lands were reprogrammed by the DOD for use by the Missile Defense Agency [MDA, formerly known as the Ballistic Missile Defense Organization (BMDO)] to conduct Theater Missile Defense (TMD) Program testing.

The tenants/entities currently occupying portions of the FWDA property include the USDA, TPL, and MDA. Caretakers continue to occupy and perform maintenance activities at remaining areas of the installation.

1.6.1 USDA

The USDA, Food and Consumer Service was granted a permit (No. DACA63-4-98-0560) by the Army to use Buildings 12 and 13 and associated land in the Administration Area for the storage of packaged food items. The USDA obtained the permit for the benefit of the Navajo Nation. The initial permit was granted in 1994 and reissued with a new permit in April 1998 that expired March 2003. At the present time, the USDA has been allowed to continue with the use of the buildings and grounds under the specifications and requirements of the expired permit.

1.6.2 TPL, Inc.

TPL has held an Industrial Operations Command Facilities Contract (DAAA09-94-E-0014) for several buildings at the Administration Area, igloos in Igloo Block B, most Workshop Area buildings, grounds, and support systems since 1994. The facilities use contract also included igloos in Igloo Block D; these were returned to Army control in 2005.

TPL performs demilitarization of conventional munitions to recover/recycle explosives and other components. The most recent TPL contract
amendment/modification was signed in July 2002 and extends the former contract until December 2006 or until transfer of the installation land to the DOI, whichever occurs first.

TPL is not a hazardous waste treatment, storage, or disposal facility and does not require RCRA permits. TPL does have a valid Notice of Intent for air emissions with the NMED to cover product testing (burning and blasting) at FWDA. TPL is a Large Quantity Generator (NMR000000216) of hazardous wastes consisting of fuzes and fin assemblies that are temporarily stored onsite in a less than 90-day RCRA storage area consisting of Igloo B1019 (explosives) and Magazine B551 (other hazardous wastes).

1.6.3 MDA

MDA has been permitted to use 6,460 acres of FWDA lands retained by the DOD through a Memorandum of Understanding (MOU) and Long-Term Permit. The current agreement began in June 2000 and provides the MDA with the option to extend for additional five-year periods beginning June 2005; the agreement was extended in June 2005.

MDA is currently using portions of FWDA for target missile launch and instrumentation facilities associated with the Theater Missile Defense Program. The MDA currently occupies Parcels 2, 9, 19, and 20 (Figure 3); together, these lands are referred to as the Fort Wingate Launch Complex (FWLC). The FWLC occupies two non-contiguous areas that consist of the northern area (Parcel 9) referred to as Instrumentation Area A and the southern area (Parcels 2, 19, and 20) referred to as the Launch and Control Area. Through the use of the instrumentation and launch facilities and associated infrastructure of the FWLC, the MDA launches target missiles that are part of missile defense test programs. The FWLC has been an active missile launch site since 1996, with a total of 11 launches to date. The solid-fuel target missiles are transported to the FWLC, erected at the launch facility, and launched shortly thereafter. No major maintenance or fueling activities are performed at the FWLC.

1.7 ENVIRONMENTAL SETTING

Topographically, FWDA may be divided into three areas: the rugged north-to-south trending Hogback along the western and the southwestern boundaries; the northern foothills of the Zuni Mountain Range in the southern portion; and the alluvial plains marked by bedrock remnants in the northern portion of the installation. The elevation of the installation ranges from approximately 7,900 feet above mean sea level (AMSL) in the south to 6,660 feet AMSL in the north.

The majority of FWDA is underlain by the Chinle Formation. It consists primarily of calcareous mudstone, with minor amounts of fine-grained calcareous sandstone. The San Andres-Glorieta aquifer, which constitutes the primary groundwater source for FWDA, outcrops near the installation’s southern boundary and dips to the north. The top of the aquifer lies approximately 1,100 feet below land surface near the Administration Area. At this location, the aquifer is approximately 200 feet thick and under artesian pressure. Snowmelt and
precipitation furnish much of the recharge water to the aquifer. It is assumed that
1 inch of precipitation per year infiltrates the San Andres-Glorieta aquifer at
FWDA, and that about 2,300 acre-feet per year is obtained from annual
recharge. Currently, one deep artesian well (FW 36), located at Building 69,
supplies FWDA water. A geologic map of FWDA is included in Appendix A.

Surface water resources at FWDA currently include Lake Knudson (20 acres),
located in the northern east-central portion of the installation and a small pond
fed by a well is used for watering livestock that is located along Eastern Patrol
Road. The main ephemeral drainages are the south fork of the Puerco River and
its tributaries, Milk Ranch Canyon, and Fenced-Up Horse Canyon. All drainages
in this area are intermittent (Figure 3). The drainages generally flow toward the
north until the South Fork of the Puerco River is encountered.
2.0 PROPERTY DISPOSAL AND REUSE PLAN

This section describes the status of the disposal planning process at FWDA and the relationship between the disposal process and environmental programs at the installation.

2.1 STATUS OF DISPOSAL PLANNING PROCESS

In 1988, BRAC I identified FWDA for closure. Closure was legislated to begin 30 September 1991 and be completed by 30 September 1995. The Army has initiated the disposal process for the portions of the installation that are available for disposal (all FWDA lands with the exception of those occupied by MDA and the OB/OD Area). This process involves three interrelated activities: development of a reuse plan, the disposal process, and the National Environmental Policy Act (NEPA) process. This process is designed to integrate goals of the Army, the local community, and other federal agencies with interest in the property, in order to provide for the efficient transfer of FWDA property and minimize the impact of closure on the community. The progress of each of these activities is outlined below.

2.1.1 Reuse Plan

A Reuse Planning Committee MOU was signed on 1 March 1994 by the Navajo Nation, Pueblo of Zuni, McKinley County, and the City of Gallup. A copy of the MOU is provided in Appendix C. The Navajo Nation requested the entire FWDA be transferred at no cost to the Bureau of Indian Affairs to be held in trust for the Navajo Nation. On April 20, 1994 the Bureau of Indian Affairs submitted a Request for Transfer of Excess Real and Related Personal Property, GSA Form 1334, for the acquisition of the entire FWDA. A community reuse plan was formulated by the Navajo Nation in May 1994 (ASCG, 1994). The plan identified 19 separate parcels, proposed land uses for the parcels, identified environmental contamination issues, and presented economic reuse analyses. This reuse plan, with endorsement by the Pueblo of Zuni, was adopted by the DOI for FWDA properties in 1998. The Pueblo of Zuni endorsed this reuse plan for the northern joint use areas only as it had separate reuse plans for the southern parcel (Parcel 1).

In June 1995, the Assistant Secretary of Defense for Economic Security approved the request for the Army to retain jurisdiction and accountability of a large portion of the FWDA installation for use by the MDA (then BMDO) for use as a missile launch site in support of MDA’s TMD Program. As described in Section 1.6.3, MDA occupies a portion of the FWDA lands under an MOU and long-term permit with options to extend every five years. As a result, the lands now occupied by MDA (Parcels 2, 9, 19, and 20) are not currently available for disposal by transfer, and may not be until 2020 or later unless the Army decides otherwise. However, DOI has proposed to accept the MDA parcels from the Army (following the completion of environmental restoration activities) and then lease the lands to MDA. This would allow the MDA to complete the TMD testing program. This effort is ongoing.
In addition, the parcel containing the OB/OD Area RCRA unit (Parcel 3) will be retained by the Army for the facilitation of cleanup and future monitoring activities and to prevent unauthorized human access and exposure to potential munitions and explosives of concern (MEC), including unexploded ordnance (UXO).

As a result, a sizeable amount of FWDA land that was previously thought to be available for disposal and transfer and therefore incorporated into the original 1994 reuse plan cannot be considered for reuse in the near term. Additional factors affecting the original reuse plan included the modification of the earlier parcel boundaries to realistically address environmental conditions at specific areas, the current and future presence of MDA and TPL, and other changes that have occurred at the installation such as the demolition and removal of various buildings.

The establishment of current reuse parcel boundaries was a collective effort by the Army and DOI that resulted in 25 separate reuse parcels as shown in Figure 3. Several of the parcels were proposed for subdivision by DOI into smaller parcels (e.g., Parcels 4A and 4B, 5A and 5B, and 10A and 10B) in an attempt to facilitate transfer of property that has not been used for FWDA operations. These A and B subdivisions have not been formalized and are not reflected in the schedule presented in the Permit (NMED, 2005).

The Pueblo of Zuni prepared a separate land use plan in 2004 (POZ, 2004). This reuse plan reflected the 25 reuse parcels as shown in Figure 3, and contained a mix of industrial, commercial, institutional, mixed, and holding zone reuses.

The DOI released an updated reuse plan for the 25 parcels on 31 August 2005, incorporating information from both the 1994 and 2004 reuse plans. A copy of the DOI reuse plan is included in Appendix B.

2.1.2 Disposal Process

The disposal process incorporates the Army BRAC disposal hierarchy requirements established by Public Law (P.L.) 100-526 and the Federal Property and Administration Services Act. This hierarchy includes the following in the sequence provided:

1. Offer facility to DOD agencies for use;
2. Offer facility to other federal agencies;
3. Offer facility under Section 501 of the McKinney Act (excluding property taken by DOD agencies) to sponsoring organizations for the homeless;
4. Offer facility to state and local government agencies; and
5. Offer the property through competitive bid to the private sector.

Because FWDA property is withdrawn public domain land, under screening step 2, DOI has the right of first refusal to the property. The Base Closure Community
Redevelopment and Homeless Assistance Act of 1994 and the 1995 Defense Authorization Act amended this process as it pertains to homeless, state and local screening. These pieces of legislation exempt BRAC properties from screening under McKinney Act provisions. They do, however, require that the needs of the homeless be considered during the reuse planning process and be balanced with the need for further economic redevelopment. To accomplish this, the new process requires that screening for state, local, and homeless assistance be done at the local level by the local redevelopment authority.

The Army has completed DOD and federal screening. All FWDA lands available for disposal by transfer are planned to be accepted by the DOI. As previously discussed the FWDA property was divided into 25 individual parcels (Figure 2-1). Three parcels (Parcels 1, 15, and 17) have already been accepted for transfer by the DOI. Parcel 1 was transferred to DOI on June 20, 2000. Parcels 15 and 17 were transferred to DOI on August 24, 2001. There have been no property transfers since 2001.

In the event that FWDA properties are not accepted by DOI or other federal agencies, property disposal would be accomplished through other property transfer methods such as no-cost public benefit conveyance, negotiated sale, competitive public sale, widening of public highways, and donated property.

As discussed previously, the Army has existing permits/contracts with the USDA and TPL, Inc. and has permitted MDA through a Memorandum of Understanding and Long-Term Permit to use installation lands. There are no other leases that are currently being considered for the interim period between now and disposal of the remaining FWDA properties. If the Army is able to relinquish Parcels 6 and 22 (TPL contract parcels) before the expiration of the TPL Facilities Contract, the DOI has indicated it would formulate a lease agreement with TPL prior to or at the time of transfer that would allow TPL to continue operations at those properties. Similarly, if the Army was able and wished to relinquish the FWLC (Parcels 2, 9, 19, 20) prior to the completion of the TMD testing program, the DOI has indicated it would accept the parcels and lease those properties to MDA.

2.1.3 National Environmental Policy Act (NEPA) Documentation

The Final BRAC Closure Environmental Impact Statement (EIS) for FWDA was completed in 30 September 1991 (USACE, 1991). The BRAC EIS assessed the impacts of the proposed closure of FWDA and other BRAC I realignment and closure activities at Navajo Depot Activity, Umatilla Depot Activity, and the Hawthorne Army Ammunition Plant. Environmental factors including land and airspace use, socioeconomics, energy usage, hazardous waste disposal, solid waste disposal, wastewater disposal, air quality, water resources, climate, geographic setting, geology, biological environment, noise, cultural resources, Native American concerns, and transportation were evaluated in the EIS. No adverse impacts of the closure actions at FWDA were considered significant.

A Final EIS (USASSDC, 1994) was prepared by the U.S. Army Space and Strategic Defense Command along with MDA (then BMDO). The EIS was
developed for a proposed Theater Missile Defense Extended Test Range program. This EIS specifically addressed the impacts of the reuse of FWDA by MDA (then BMDO). Environmental factors such as air quality, air space, biological resources, cultural resources, geology/soils, hazardous materials and waste, health and safety, land use, noise, socioeconomics, infrastructure/transportation, and water resources were evaluated in the EIS. There were no significant impacts identified for FWDA. Mitigation measures for minor impacts were proposed.

### 2.2 RELATIONSHIP TO ENVIRONMENTAL PROGRAMS

Disposal and reuse activities at FWDA are intimately linked to environmental investigations, restoration, and compliance activities. In the previous BCP update (Earth Tech, 1995), this section included text regarding CERCLA and its relationship to the Army BRAC program in general and FWDA in specific. In general, the Army BRAC environmental program has followed a process modeled after the CERCLA process, and many past investigations and assessments at FWDA have been conducted under a CERCLA framework. However, because the environmental restoration program at FWDA is now proceeding under NMED's implementation of the RCRA program, discussions related to CERCLA herein will be limited to information needed to explain the evolution of the environmental restoration program at FWDA.

One premise of the CERCLA process that the Army anticipated following in the environmental restoration of FWDA property is that of risk-based reuse for a “like” future use. As presented in the numerous environmental characterization reports discussed in Section 3.0, portions of the property at FWDA have been impacted by past releases from industrial operations. Because portions of the property were used for industrial operations and have industrial infrastructure (e.g., buildings, roads, and railroads), the Army believes that those lands should have an industrial future reuse, with industrial exposure pathways and cleanup levels evaluated during risk assessment efforts. For example, buildings (igloos and magazines) used to store non-food commodities in the past would be available for a like future use, but these buildings would not be remediated to allow storage of foods or for use as a residence. Likewise, lands surrounding a building used for industrial operations would be available for like future use, but these lands would not be remediated to allow unrestricted use.

Under this scenario, the presence of residual contamination at FWDA would be considered in the development of real estate transfer documentation. The Army would not transfer land until remediation is complete, or would transfer the land with a Statement of Condition, specifying that remediation activities are underway, the expected timeframe of completion, and limits on reuse of part of the land. Reuse plans discussed in Section 2.1.1 generally reflect a mix of land use consistent with the concept of like future use.

At this time, the State of New Mexico does not have a regulatory pathway allowing NMED to approve No Further Action (NFA) status on any site not meeting residential standards, so the ability of the Army to employ the concept of
risk-based reuse remains to be seen. As described in Attachment 7 to the Permit (NMED, 2005):

“All soil cleanup levels shall be based on a residential land use scenario unless the Secretary determines that an alternate land use is appropriate (e.g. subsistence farming, cultural, or industrial). The Permittee may only propose an alternate land use with higher cleanup levels (e.g. industrial) if NMED or EPA can legally and practicably enforce the institutional controls limiting the land use. If an alternate land use for which NMED or EPA has not established soil cleanup levels is determined to be the current and reasonably foreseeable future land use, then the Permittee may propose cleanup levels based on a risk assessment using a target excess cancer risk level of $10^{-5}$ for carcinogenic hazardous waste or hazardous constituent or, for noncarcinogenic hazardous waste or hazardous constituent, a HI of one (1.0).”

The Army believes that risk-based reuse is an effective and protective strategy to return as much land for beneficial use as soon as possible. A complete restoration to residential standards may not be possible, and attempts to achieve this objective may delay transfer of lands indefinitely. This issue will be discussed further as the Corrective Action process begins.
This section provides a summary of the major environmental investigations conducted at FWDA, and a discussion of all restoration activities associated with the installation. This section is generally presented in chronological order, from the early, installation-wide investigation programs to the more focused, site by site investigations and remedial measures.

It is beyond the scope of this BCP document to provide a comprehensive summary of all environmental investigations conducted at FWDA to date. Because the closure and corrective action processes specified in the Permit requires the preparation and submittal of numerous plans and documents, on a parcel by parcel basis, the findings of previous investigations will be discussed in detail in those plans and documents. The discussion below is limited to major highlights necessary to discuss how the environmental investigation and restoration process has progressed. The majority of the documents referenced below can be located in the FWDA Information Repository; documents referenced that are not currently in the FWDA Information Repository will be provided at a later date.

Because of the inactive status of FWDA, the Tooele Army Depot Commander is responsible for administrative control of the FWDA property, and until 2002 was responsible for establishing and maintaining all environmental programs, compliance matters, and remediation efforts at FWDA. Since 2002, environmental programs, compliance, and remediation have been the responsibility of BRACD.

As noted in the Sections below, the environmental characterization and restoration of FWDA has been underway for some time for those sites identified prior to issuance of the Draft Permit in 2004. The September 2004 Draft Permit contained a greatly increased number of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), the number of which were reduced by either combination/grouping of sites or elimination of sites based on comments and/or supplemental information submittals. The final Permit (NMED, 2005) lists a total of 93 SWMUs and AOCs, as shown in Figure 4. Summary information regarding the characterization status of each of these SWMUs and AOCs is included in Table 2. Where applicable, discussion in the sections below references the appropriate SWMU/AOC number from the Permit; previous/historic SWMU/AOC numbers from previous documents have purposely been omitted to reduce confusion.

In general, the number of SWMUs and AOCs in each remaining FWDA parcel is summarized below, presented in the order that the Permit requires them to be addressed:

- Parcel 21 - Five SWMUs (SWMUs 1, 2, 7, 19 and 72) and 11 AOCs (AOCs 60, 62, 63, 64, 65, 66, 67, 68, 71, 86, and 87);
• Parcel 11 - Nine SWMUs (SWMUs 3, 5, 6, 10, 23, 24, 37, 45, and 50), part of one SWMU (SWMU 40), and six AOCs (AOCs 46, 47, 48, 49, 51, and 52);

• Parcel 22 - Three SWMUs (SWMUs 12, 27, and 70), two AOCs (AOCs 69 and 88); and part of one AOC (AOC 30);

• Parcel 6 - Three SWMUs (SWMUs 4, 8, and 11), part of one SWMU (SWMU 40), and eight AOCs (AOCs 28, 42, 61, 79, 80, 81, 83, and 84);

• Parcel 4 - Part of three AOCs (AOCs 29, 78, and 82);

• Parcel 23 - One SWMU (SWMU 21), one AOC (AOC 73), and part of one AOC (AOC 29);

• Parcel 10 - One SWMU (SWMU 26) and one AOC (AOC 44);

• Parcel 5 - Part of two AOCs (AOCs 78 and 82);

• Parcel 8 - No SWMUs or AOCs at this time (may contain six “pre-1940s magazines);

• Parcel 16 - One SWMU (SWMU 16) and one AOC (AOC 41);

• Parcel 13 - Five AOCs (AOCs 53, 54, 55, 56, and 57);

• Parcel 18 – One SWMU (SWMU 13);

• Parcel 12 - No SWMUs or AOCs at this time (possibly part of AOC 93, as discussed below);

• Parcel 14 - No SWMUs or AOCs at this time (possibly part of AOC 93, as discussed below);

• Parcel 7 - Three SWMUs (SWMUs 9, 20, and 25), part of one SWMU (SWMU 40), one AOC (AOC 43), and part of one AOC (AOC 85);

• Parcel 24 - Part of one AOC (AOC 18);

• Parcel 25 - No SWMUs or AOCs at this time;

• Parcel 20 - One SWMU (SWMU 38);

• Parcel 2 - Two SWMUs (SWMUs 17 and 22), four AOCs (AOCs 35, 36, 76, and 77), and part of another AOC (AOC 29);

• Parcel 19 - One SWMU (SWMU 39), five AOCs (AOCs 31, 32, 34, 58, and 59), and part of one AOC (AOC 30);

• Parcel 9 - Part of two AOCs (AOCs 18 and 85); and

• Parcel 3 – Four SWMUs (SWMUs 14, 15, 33, and 74) and four AOCs (AOCs 89, 90, 91, and 92), plus the OB/OD Unit.
Two AOCs (not noted above) are or may be located in more than one parcel. AOC 75 represents former or existing electrical transformer locations. AOC 93 represents an area used by the New Mexico Army National Guard as a training area. Although an outline for this area is shown in Figure 4, it represents a legal description (metes and bounds) for the entire portion of FWDA available for Army National Guard use; the approximate location(s) of training activities within this area is not known at this time.

3.1 SUMMARY OF INSTALLATION-WIDE ENVIRONMENTAL INVESTIGATIONS

In 1981, prior to installation closure, an Environmental Survey of FWDA (ESE, 1981) was conducted to determine the potential presence and extent of contamination caused by activities related to munitions storage, recycling, and treatment. Samples were collected from areas with the highest potential for contamination. Soil contamination was found in the Ammunition Workshop and in the Demolition Area. A limited number of ground water and surface water samples were not found to contain detectable quantities of munitions-related compounds.

An Enhanced Preliminary Assessment (Enhanced PA) conducted in 1990 (ANL, 1990) identified 20 areas requiring environmental evaluation (AREEs). A RCRA Facility Assessment (RFA) was conducted in 1990 (PRC, 1990) by USEPA Region 6 to establish the current facility operating status, to identify existing SWMUs, to assess the regulatory compliance of these units, and to assess the need for further action under RCRA. This investigation identified 19 SWMUs and 2 AOCs, including 6 active underground storage tanks (USTs). In general, the majority of these SWMUs and AOCs had been identified as AREEs in the Enhanced PA. Fourteen sites were determined to require further investigation.

The findings of the Enhanced PA and the RFA were used as the basis for 1992 work plans for the Environmental Investigation (EI) at FWDA (M&E, 1992). As described in those work plans, a total of 50 sites/issues were to be investigated for evidence of releases from FWDA operations. These work plans were approved by both USEPA Region 6 and NMED, and were implemented in a CERCLA-based Remedial Investigation (RI).

Between November 1992 and May 1993, an RI was conducted at FWDA according to the approved Technical Work Plan approved by the State of New Mexico and USEPA, Region VI. The Draft RI/Feasibility Study (FS) Report was completed in November 1993 (ERM, 1993). A Draft Final RI/FS Report was issued in January 1994 (ERM, 1994a), and a Revised Draft RI/FS was issued in April 1995 (ERM, 1995). It was in this timeframe that New Mexico received RCRA primacy from USEPA and assumed the position of lead regulatory agency. At the request of NMED, the RI/FS was finalized in November 1997 (ERM PMC, 1997).

As part of the RI, a baseline human health risk assessment and ecological risk assessment was conducted. The risk assessments evaluated the potential for adverse effects to current and future populations at and adjacent to FWDA as a result of exposure to hazardous substances present at the installation. One of
the sites, the OB/OD Area, was not addressed in the RI risk assessment because this site was being managed under the RCRA Closure/Post-Closure program. An exposure pathway analysis was completed as part of the RI to determine current and future potential risk to receptors. At the time of the RI risk assessment, there was essentially no use of the majority of FWDA lands. Future populations that could be receptors included on-site and off-site children and adult residents and on-site workers.

Results of the RI risk assessment indicated that only four sites (Building 5, TNT Leaching Beds Area, Pistol Range, and PCB-impacted soils at either Building 536 or 537) were determined to have unacceptable risks for exposure and required remedial alternatives analysis in the FS and/or further characterization. As discussed in Section 3.7, Interim Remedial Measures (IRM) were implemented at Building 5, Pistol Range, Building 537, and Building 536. Additional characterization was performed at the TNT Leaching Beds Area, as described in Section 3.2.

Results of the RI risk assessment indicated that no further remedial actions were necessary for 32 sites.

The remaining sites were categorized as building interior decontamination issues and/or compliance issues [e.g., asbestos-containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), landfill closures, and UST closures]. IRM/compliance activities have been performed at these sites as described in Section 3.10.

A Community Environmental Response Facilitation Act (CERFA) Investigation was conducted in conjunction with the RI. The CERFA Report was submitted to the State of New Mexico for review in December 1993 and finalized in April 1994 (ERM, 1994b). This report is further described in Section 4.0.

Following extensive meetings and consultation with NMED, USEPA Region 6, and Navajo and Zuni tribal representatives, a strategy for a more detailed site-wide risk assessment was developed, resulting in the Final Risk Assessment Work Plan (RAWP; PMC, 2000a). Implementation of the RAWP was put on hold awaiting finalization of the regulatory pathway for the environmental restoration of FWDA.

3.2 TNT LEACHING BEDS AREA/ADMINISTRATION AREA INVESTIGATIONS

A series of field investigations were conducted in the area of the TNT Leaching Beds from 1992 to 2003. The objectives of these investigations were to characterize the hydrogeologic setting and potential impacts to the environment caused by the former washout operations, identify potential migration paths and receptors, and identify remedial options for the impacted media.

The initial phase of field investigation was conducted in 1992 as part of the RI described previously, and included collection of surface and subsurface soils, sediment, and ground water samples. The presence of surface and subsurface soil contamination, and potential impacts to ground water were identified.
In 1996, drilling and sampling of soil borings was conducted to further define the vertical extent of soil contamination within the TNT Leaching Beds and to characterize the geotechnical properties of these soils. Four monitoring wells were drilled and ground water samples collected to characterize potential ground water impacts. Ground water in all four wells, including the upgradient well, contained explosives or elevated concentrations of nitrate/nitrite.

A ground water characterization investigation was conducted at the TNT Leaching Beds Area in 1997. Pilot borings were drilled and grab samples of ground water were collected and analyzed to define the distribution of ground water contamination. Additional information concerning the vertical and horizontal distribution of explosives and nitrate/nitrite concentrations was obtained.

In 1998, additional pilot borings were drilled and sampled, and a monitoring well network was installed in the TNT Leaching Beds Area and around the Administration Area. The extent of elevated nitrate/nitrite was further identified in the northern direction using pilot borings and ground water grab samples. Ground water data from the monitoring wells was consistent with the lateral and vertical extent of explosives and nitrate/nitrite, as previously identified.

In 1999 and 2000, ground water sampling was conducted for six additional quarters. Chemical data from this sampling program were consistent with the lateral and vertical extent of explosives and elevated nitrate/nitrite in ground water previously identified.

In 2000 and 2001, monitoring wells were installed in and around Buildings 542 and 600 in the Workshop Area to determine if releases from FWDA operations at these buildings were the source of explosives in ground water samples collected from one of the previously installed monitoring wells (TMW11). Additionally, borings were completed in areas associated with the buildings to further characterize soil in these areas. Explosives were identified on the loading docks and in soils at Building 542. Explosives were not identified in the soil samples collected at Building 600. Explosives were not detected in ground water samples collected from the newly installed wells in around Buildings 542 and 600.

The investigations described above are discussed in detail in the Final RCRA Facility Investigation Report for the TNT Leaching Beds Area (PMC, 2001a).

Perchlorate characterization of ground water was conducted in CY 2002 at the Workshop Area of FWDA (PMC, 2003a). The objective of the sampling was to characterize perchlorate concentrations in ground water in the Workshop Area, and confirm previous sampling results obtained by NMED personnel. Ground water samples were collected for perchlorate analysis from 38 existing monitoring wells in the northern portion of FWDA and two off-site, inactive Navajo Nation water supply wells as part of a comprehensive ground water characterization project that was completed during October and November 2002.
Four of the five southern-most monitoring wells screened within the first unconsolidated water-bearing zone (TMW01, TMW11, TMW13, and TMW15) also had detections of perchlorate in ground water samples collected from these wells. Perchlorate was not detected in any ground water samples collected from monitoring wells located hydraulically downgradient of the TNT Leaching Beds. This information indicates that multiple water-bearing zones have been affected by perchlorate contamination emanating from a source area hydraulically upgradient of the TNT Leaching Beds.

Based on BCT discussions of and USEPA comments on the TNT Leaching Beds RCRA Facility Investigation (RFI) Report, in 2002 and 2003 nine additional monitoring wells were installed in and around the Administration and TNT Leaching Beds Areas to further identify the lateral extent of explosives and elevated nitrate/nitrite in ground water in the first unconsolidated water-bearing zone emanating from the TNT Leaching Beds Area and confirm the presence/absence of a chlorinated solvent plume in the Administration Area. Explosives were detected in ground water samples from three of the newly installed wells. Nitrate/nitrite was detected in ground water samples collected from five newly installed wells to the north and west of the TNT Leaching Beds Area. Chlorinated volatile organic compounds were detected in ground water samples collected from six existing wells within the Administration Area. Submittal of a report to document the findings of this investigation was placed on hold while the Army awaited the Draft Permit and then prepared comments to and conducted negotiations regarding the Draft Permit. The findings of the 2002 and 2003 investigation are documented in a report entitled Supplemental Ground Water Investigation – Administration and TNT Leaching Beds Areas (TPMC, 2006).

3.3 RELEASE ASSESSMENTS

In 2000, release assessments were conducted at 13 sites (TtNUS, 2000a). The objective of the release assessments was to gather data to be used in future risk assessments and/or IRM planning. Samples were collected at the following sites:

- Building 5 (SWMU 5);
- Building 8 (part of SWMU 23);
- Building 9 (SWMU 37);
- Building 15 (SWMU 24);
- Building 29 (part of SWMU 40);
- Building 530 (SWMU 72);
- Building 537 (SWMU 8);
- Surface soils throughout the Administration Area;
• Fire Training Ground (SWMU 7);
• Group C Landfill (SWMU 22);
• Septic Tanks and Cesspools at Buildings 536, 537, and the Sewage Treatment Plant; and
• Coal Tar Storage Area (part of SWMU 40).

The Release Assessment data for Building 537 were used to guide the IRM described in Section 3.7. The remaining data will be used in the Corrective Action process as specified in the Permit.

### 3.4 EASTERN LANDFILL INVESTIGATIONS

As a follow-on to the geophysical survey and sampling program completed for the Eastern Landfill (SWMU 13) during the RI (then known as the “Old Landfill”), an investigation was performed in 2000 to confirm the extents of the landfill cells and generally confirm the types of materials buried in this location (TtNUS, 2000b); additional sampling was not performed. In 2004, four ground water monitoring wells were installed around the Eastern Landfill (TtNUS, 2005). The results of these investigations will be used in the Corrective Action process as specified in the Permit.

### 3.5 FUNCTIONAL TEST RANGE 1 INVESTIGATIONS

Because MEC clearance efforts had not been completed at Functional Test Range 1 (FTR 1, SWMU 38) at the time of the RI, a follow-on sampling effort was conducted in 1998. The results of the 1998 investigation were used to guide further investigations in 1999. The results of both the 1998 investigation and 1999 investigation were presented in a document entitled Investigation Report, Further Site Characterization, Functional Test Range 1, Fort Wingate Depot Activity (TtNUS, 2000c). The results of these investigations will be used in the Corrective Action process as specified in the Permit, as finalized.

### 3.6 PERCHLORATE IMPACTED SOIL INVESTIGATIONS

NMED conducted a sampling event to determine the presence or absence of perchlorate in soils and ground water at FWDA in 2000 (NMED, 2002). FWDA has addressed perchlorate in ground water as part of the ground water investigations at impacted sites, discussed in other sections herein. FWDA conducted a follow-on sampling event in 2002 to confirm NMED findings and further delineate the extent of perchlorate impacted soils. The results of this investigation were documented in a letter report (PMC, 2003a).

Twenty-nine surface soil samples were collected and analyzed for perchlorate from the area surrounding Buildings 550 and 551 and a total of nine surface soil samples were collected and analyzed for perchlorate from the TNT Leaching Beds.
The results of the perchlorate characterization identified surface soils in the Buildings 550 and 551 area and in the pre-1962 TNT Leaching Bed with confirmed detections of perchlorate. Detections of perchlorate in soil immediately surrounding Buildings 550 and 551 are widespread, with 65% percent of the samples collected having concentrations exceeding the study screening value. This indicates that leaching of perchlorate from soil to ground water may be of concern. The presence of at least one sandstone outcrop near Buildings 550 and 551, and the detection of perchlorate at a relatively high level in the nearest downgradient well screened within the second sandstone water-bearing zone (TMW05) strongly suggest that leaching of perchlorate from surface bedrock outcrops and soil in this area may be occurring.

3.7 **INTERIM REMEDIAL MEASURES AT CORRECTIVE ACTION SITES**

IRMs have been implemented at many FWDA sites that have been included in the Corrective Action portion of the Permit, as well as at several locations not included in the Permit. A brief summary of each IRM is presented below. Where applicable, the appropriate SWMU/AOC number from the Permit has been referenced.

3.7.1 **Building 5 Pesticide-Impacted Soil Removal**

The RI found unacceptable levels of pesticides in soil within a grassy area with mature fruit trees on the east side of Building 5 (SWMU 5). Although the impacts were from lawful application of pesticides around the fruit trees, the volume of soil presenting an unacceptable risk was relatively small and FWDA elected to remove the soil. In 1998, approximately 127 cubic yards (CY) (253.31 tons) of pesticide-impacted soil were removed and disposed in a chemical waste landfill (CCC Group, 1998). The site was backfilled with clean soil and restored.

3.7.2 **Pistol Range Lead-Impacted Soil Removal**

The RI found unacceptable levels of lead in soil within the target backstop berm at the Pistol Range (SWMU 39); FWDA elected to remove the soil. In 1999, approximately 250 CY of lead-impacted soil and one truckload of lead-impacted timbers were removed and disposed in a chemical waste landfill (CCC Group, 1999). Confirmation samples in the former backstop and surface runoff pathways did not detect lead exceeding 400 mg/kg.

3.7.3 **Building 537 PCB-Impacted Soil Removal**

Based on the possible detection of PCBs in the soil underneath the former transformer platform to the north of Building 537 (part of AOC 75), FWDA elected to implement a performance-based remedial action to remove soils containing PCBs greater than the most conservative Toxic Substances Control Act (TSCA) cleanup level of 1 microgram per gram (ug/g) or part per million.

In 1996, approximately 45 cubic yards of soils from underneath the former transformer platform were removed (CCC Group, 1996). However, Aroclor 1260 was detected in excavation post-removal samples. In 1997, FWDA performed additional soil sampling for PCBs at the former transformer platform (USACE,
FWDA concluded that subsurface soils under the former transformer platform contained PCBs at concentrations greater than the most conservative TSCA cleanup level of 1 ug/g, and that additional excavation was warranted. In 1998, FWDA removed an additional 245 CY of PCB-impacted soils from the former transformer platform area (CCC Group, 1998). PCBs were not detected in any of the confirmatory samples and the site was backfilled with clean soil.

As noted in Section 3.3, in 2000 supplemental sampling was performed in areas adjacent to Building 537 (SWMU 8) to further evaluate potential environmental impacts from past operations, focusing on both the pesticide storage and mixing operations and field battery shop operations (TtNUS, 2000). Aroclor 1260 was detected at four locations (water valve box, small foundation slab, near the southeast access door, and in the septic tank sediment) around Building 537. The source of PCBs in soil at these locations was not documented. The pesticides detected in soils around Building 537 likely were the result of the storage, handling and mixing of pesticides at this facility.

In 2003, approximately 100 CY (187 tons) of PCB-impacted soil and 21.3 tons of concrete were removed and disposed in a chemical waste landfill (PMC, 2004a). This was a focused “hot spot” removal action, with excavation depths ranging from 1 to 7 feet bgs. PCBs were not detected exceeding 1 ug/g in any of the confirmatory samples and the site was backfilled with clean soil. Interim measures (straw bales) have been maintained around the remediated area to prevent recontamination. Approximately 260 CY of PCB-impacted soil remain in place at Building 537; further IRM implementation was placed on hold awaiting issuance of the Permit.

**3.7.4 Building 536 PCB-Impacted Soil Removal**

Following the same performance-based remedial action implemented at Building 537, a soils removal was conducted underneath the utility pole southeast of Building 536 (part of AOC 75) to remove soils containing PCBs greater than the most conservative TSCA cleanup level of 1 ug/g.

The removal action was conducted concurrently with the Building 537 activities in 1996. Approximately 6 cubic yards of soils from underneath the utility pole were removed (CCC Group, 1996). As noted above for Building 537, PCBs were detected in post-removal samples (Aroclor 1254) at Building 536.

In 1997, FWDA performed additional soil sampling for PCBs at the former utility pole area near Building 536 (USACE, 1997). FWDA concluded that subsurface soils at the utility pole area contained PCBs at concentrations greater than the most conservative TSCA cleanup level of 1 ug/g, and that additional excavation was warranted. In 1998, FWDA removed an additional 178 CY of PCB-impacted soils from the utility pole area (CCC Group, 1998). PCBs were not detected above 1 ug/g in any of the confirmatory samples and the site was backfilled with clean soil.
3.7.5  **Building 503 Demolition and Removal**

Because Building 503 (TNT Washout and Flaker Building, part of SWMU 1) had been inactive since 1967, was in poor condition and had been contaminated with explosives residues, a decision was made to demolish the building. The demolition and removal was completed in 1998 (USACE, 2003a). The site was graded and revegetated following building demolition and removal.

3.7.6  **Building 501 Demolition and Removal**

Because Building 501 (Workshops Area Boiler House, SWMU 19) was inactive and was in poor condition, a decision was made to demolish the building. The demolition and removal was completed in 1998 (USACE, 2003b). The site was graded and revegetated following building removal. PCB-impacted soils exceeding the most conservative TSCA cleanup level of 1 ug/g remain around the former building location; a draft work plan to delineate the extent of PCB-impacted soil has been prepared (PMC, 2003b), but implementation was placed on hold awaiting issuance of the Permit.

3.7.7  **Building 11 Demolition and Removal**

Because Building 11 (Former Locomotive Shop and electrical substation/emergency generator location, SWMU 6) was found to have PCB impacts from past operations, a decision was made to remediate and demolish the building. The demolition and remediation of PCB-impacted interior surfaces and soil was completed in 2002 (Weston, 2002). The site was backfilled with clean soil and graded; only the decontaminated floor slab remains. During the building demolition, one aboveground storage tank (AST) (Structure T-65) that stored diesel fuel for emergency power generation was removed.

Additional PCB-impacted soil exceeding the most conservative TSCA cleanup level of 1 ug/g was removed in 2003 (PMC, 2004b). In a letter dated February 2004, USEPA Region 6 stated that “EPA finds successful completion of the TSCA PCB cleanup and disposal for Building 11 performed under 40 SCFR 761.61(a)” (USEPA, 2004).

3.7.8  **Coal Tar Storage Tank Removal**

In 1999, three ASTs were removed from the Coal Tar Storage Area (part of SWMU 40) (CCC Group, 1999). The three ASTs were Structures 58, 59, and 60 on FWDA facility inventories. Two of the ASTs (Structures 58 and 59) contained several inches of hardened road oil/asphalt; the third AST (Structure 60) was clean and dry. The three ASTs were removed and recycled as scrap. After the tanks were removed, a paved parking/turnaround area (180 feet by 60 feet by 6 inches thick) adjacent to the former ASTs was removed; approximately 667 CY of hardened asphalt pavement and disposed off-site. As noted in Section 3.3, additional samples following IRM completion were collected as part of the Release Assessments (TtNUS, 2000).
3.7.9 **Building 29 Demolition and Removal**

Because Building 29 (part of SWMU 40) was inactive and in poor condition, a decision was made to demolish the building. The demolition and removal was completed in 1999. As noted in Section 3.3, additional samples following IRM completion were collected as part of the Release Assessments (TtNUS, 2000).

3.7.10 **Group C Landfill and Central Landfill Removal**

In 1999, waste and debris were removed from the Group C Landfill (SWMU 22) and Central Landfill (SWMU 21). Approximately 24,140 tons of waste, debris, and soil were excavated from the two landfills and disposed of off-site. Confirmation soil samples were collected and the sites were backfilled (as necessary), regraded, and revegetated. As noted in Section 3.3, additional samples following IRM completion were collected as part of the Release Assessments (TtNUS, 2000).

3.7.11 **Western Landfill Removal**

In 2001, waste and debris were removed from the Western Landfill (part of SWMU 20). Approximately 12,800 CY of debris and soil were excavated and disposed of off-site (USACE, 2005). No live MEC items were recovered during removal activities; approximately 186 tons of MEC-related scrap and metal debris were recovered and recycled. Confirmation soil samples were collected and the site was backfilled with clean soil, regraded, and revegetated.

3.8 **INTERIM REMEDIAL MEASURES AT OTHER SITES**

3.8.1 **Installation-Wide Removal of Debris from Watercourses**

In 1999, a field location survey to map and describe all refuse/debris in or near a watercourse (arroyo) within FWDA boundaries was performed (USACE, 1999). Later in 1999, all previously located refuse/debris in or near a watercourse within FWDA boundaries was removed (SEI, 1999). Approximately 119 CY of scrap metal, 90 CY of solid waste/debris, 132 linear feet (LF) of steel pipe, 1,000 LF of steel guy wire, 20 LF of steel I-beams, and one car body were removed from in or near FWDA watercourses.

3.8.2 **Workshop Area Ash Pile Removal**

An area of ash/slag on the ground surface on the ridge north of Building 530 was brought to FWDA’s attention following a site visit by NMED in July 2000. Following this informal identification, the materials were sampled in 2000 and found to be non-hazardous and non-regulated materials.

This site was then identified by NMED as an “ash/slag disposal area”, AOC 118 in the September 2004 Draft Permit. In 2005, as part of the Stakeholder discussions led by NMED, agreement was reached among all Stakeholders that this site would be deleted as an AOC from the Draft Permit following removal and proper disposal of the materials by FWDA.
In July 2005, approximately 89 tons of ash/slag, soil, vegetation, and debris were removed, and documentation provided to NMED (TPMC, 2005). This site is not included in the Permit.

3.9 OB/OD AREA CLOSURE INVESTIGATIONS

Investigations relating to the closure of the OB/OD Area and SWMUs located within the general area have been detailed in previous reports. As of 1996, FWDA was proceeding with closure of the OB/OD Area under a three phase Closure Field Program (CFP) as approved/specified by NMED. The three phases of the CFP were:

• Phase I – Characterization and Assessment of Site Conditions;
• Phase II – Description, Evaluation, and Recommendation of Closure-Remedial Options; and
• Phase III – Design, Construction, and Operation of Selected Closure Option.

Major efforts to characterize wastes and soils were performed in 1996, and were documented in the document entitled Final Open Burning/Open Detonation Area RCRA Interim Status Closure Plan, Phase 1A – Characterization of the Soil/Solid Matrix (PMC, 1999a). Ground water characterization efforts were performed during Calendar Years 1996-1999 and documented in the document entitled Final Open Burning/Open Detonation Area RCRA Interim Status Closure Plan, Phase 1B – Characterization and Assessment of Site Conditions for the Ground Water Matrix (PMC, 1999b), and quarterly sampling of OB/OD Area ground water was performed from 1996 to January 1999 and from April 2000 until April 2003. Quarterly sampling results up to January 1999 were included in the Phase 1B Report, while results from later rounds have been documented in other submittals (PMC, 2001; PMC, 2002; and PMC, 2003c). Ground water sampling was performed in August 2005; results are not available at the time of this BCP update.

Further investigations related to closure of the OB/OD Unit and nearby SWMUs and AOCs will follow the process proscribed in the Permit, as finalized.

3.10 COMPLIANCE ACTIVITIES

Compliance activities at FWDA are being conducted in coordination with environmental restoration activities under the BRAC program. Environmental compliance programs at FWDA are conducted in compliance with applicable Department of the Army (DA) and DOD regulations, state and federal regulatory programs including those administered under the Clean Air Act (CAA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), RCRA, TSCA, and SARA.

Several closure-related compliance projects, conducted specifically as a result of environmental compliance and restoration activities related to BRAC closure and property disposal, have been completed at FWDA. The various programs used to manage compliance activities at FWDA are described in the following subsections. There are no oil/water separators, radioactive materials requiring an
NRC license, mixed wastes, or medical wastes at FWDA; therefore, they are not discussed in the following subsections.

3.10.1 **Storm Water**

FWDA maintains a National Pollutant Discharge Elimination System (NPDES), Storm Water Multi-Sector General Permit (MSGP), Permit Number NMR05B063. Because NMED does not have CWA authority at this time, USEPA Region 6 is the implementing agency. FWDA prepared and has followed a Storm Water Pollution Prevention Plan (SWPPP; TEAD, 2004) to meet the requirements of the MSGP. Discharge Monitoring Reports (DMR) are submitted to USEPA Region 6 and the USEPA Water Permits Division.

3.10.2 **Storage Tanks**

USTs and ASTs were used at FWDA for the storage of petroleum products for heating, vehicle fueling, emergency power generation, and roadway maintenance. Compliance and environmental restoration activities related to these storage tanks are described in this section.

3.10.2.1 **Underground Storage Tanks**

Seven former USTs have been identified at the installation. All seven USTs stored petroleum fuels for on-site use in vehicles/equipment or heating units. USTs #1 through #4 were located at the fueling station (Building 6, SWMU 45), and stored gasoline (two tanks), diesel fuel and kerosene (one tank each). UST #5 was located at the Administration Area Heating Plant (Building 36) and stored diesel/heating oil. UST #6 was located at the Inspectors Workshop Heating Plant (Building 535) and stored diesel/heating oil. UST #7 was located at the Water Pump House (Building 45) and stored gasoline to fuel an emergency water pump.

Six USTs (USTs #1 through #6) were removed in January 1993 and the seventh UST (UST #7) was removed in February 1995 as early actions.

During the UST removal at Building 6 (USTs #1 through #4), petroleum impacted soils were encountered. In May 1993, the U.S. Army Corps of Engineers (USACE) conducted a soil boring investigation at this area (USACE, 1993). The results of this investigation indicated that the vertical extent of soil contamination appeared to be limited to a continuous clay layer at about 40 feet below grade. The horizontal extent of soil contamination appeared to be limited to within 250 feet downgradient of the UST locations. A draft report was submitted to NMED UST Bureau (USTB) on 7 June 1993. NMED USTB reviewed the report and requested additional investigation, including installation of ground water monitoring wells, to better define the vertical and horizontal extent of contamination and to determine if fuel products significantly contaminated the shallow alluvial aquifer. Additional investigation revealed that contamination was below action levels. NMED USTB requested that FWDA conduct quarterly monitoring sampling of the ground water for 2 years. Monitoring was conducted in 1995, 1997, and 1998. NMED USTB approved an NFA request by FWDA in
January 1999. However, these former USTs have been included in the Permit for further evaluation (USTs #1 through 4, part of SWMU 45).

No significant indications of impacts to soils or deterioration of the tanks were observed during removal of the USTs at Building 36 (UST #5) and Building 535 (UST #6). NMED USTB did not require further investigations at these areas. However, former UST #5 has been included in the Permit (part of SWMU 40) for further evaluation.

The UST removed at Building 45 (UST #7) in February 1995 was found to be in a deteriorated condition and underlying soils were visibly impacted. An investigation of soils (borings) and ground water (monitoring wells) was conducted and concluded that soil impacts were localized and contaminant levels found in both soil and ground water were below NMED action levels and Safe Drinking Water Standards. NMED USTB approved a No Further Actions request by FWDA in January 1999. However, this site (SWMU 50) has been included in the Permit for further evaluation.

A possible eighth UST, located at Building 11 and providing diesel fuel for emergency power generation, was identified in historical records and included in the Permit (AOC 51). There is no removal documentation for this possible tank, and its existence and status will be evaluated as part of the Corrective Action process.

### 3.10.2.2 Aboveground Storage Tanks

Seven ASTs were located at FWDA. These tanks contained petroleum products for use in roadway maintenance, heating, or emergency power generation.

Three ASTs were used for asphalt/coal tar storage for use in road maintenance. These tanks were removed in 1999, as described in Section 3.7.8.

Two ASTs were used to store diesel/heating oil used to heat the Deactivation Furnace at Building 530 (SWMU 72). These ASTs were removed sometime in the early 1990s; the former AST location was included as a SWMU/AOC in earlier versions of Draft Permits. In July 2005, a site characterization was performed to demonstrate that there is no evidence of a release at this location, and the site has been removed from the Permit.

One AST was used to store diesel fuel for use in the emergency generator located in Building 11. As noted in Section 3.7.7, this AST was removed during the demolition of Building 11. Although historical photographs show that this tank was located on concrete, surrounded by asphalt pavement on three sides and Building 11 on the fourth side, and showed no visible staining, this AST location has been included in the Permit as AOC 46.

One AST was used to store diesel/heating oil used to heat the OB/OD Area Break Room (Building 601). This AST was removed sometime in the early 1990s; the former AST location was included as a SWMU/AOC in earlier versions of Draft Permits. In June 2005, a site walkover with NMED and other Stakeholder representatives was performed to demonstrate that there is no
evidence of a release at this location, and the site has been removed from the Permit.

3.10.3 **Hazardous Substance Management**

Currently, the only hazardous materials on the installation are very small quantities of paints and cleaning materials used by the caretakers. The quantities are well below the thresholds that would require Emergency Planning and Community Right-To-Know reporting. Hazardous substances at FWDA will continue to be managed in compliance with federal requirements outlined in the SARA Title III regulations, NMED regulations, AR 200-1, and other applicable federal, state, and local regulations. Because of the very limited quantities of hazardous substances remaining on-site, the impact of the above regulations is minimal.

3.10.4 **Hazardous Waste Management**

Currently, only a few caretaker personnel perform limited activities that might involve handling of hazardous substances and generation of wastes (e.g., paint wastes). All wastes are now handled through TEAD for proper disposal. One less-than-90-day storage area remains at FWDA, within Building 5 (SWMU 5).

There are very limited quantities of hazardous waste generated at FWDA. These wastes will continue to be managed in compliance with federal, state, and Army regulations. Any investigation-derived or restoration-derived hazardous wastes will also be managed in accordance with applicable state and USEPA requirements for handling, storage, transportation, and ultimate disposal. In addition, all applicable Occupational Safety and Health Administration (OSHA) requirements will be met during the waste handling process. Manifests for off-site disposal of hazardous wastes will be retained by TEAD and/or the BEC.

3.10.5 **Solid Waste Management**

Currently, solid waste generated by FWDA is transported off post for disposal by a local refuse hauler. All existing FWDA landfills are currently closed and are being addressed under the BRAC program, as noted in Sections 3.4 and 3.7. It is anticipated that non-hazardous solid waste will be generated at FWDA as a result of restoration activities. This waste will be collected for disposal at a permitted landfill.

3.10.6 **Polychlorinated Biphenyls**

3.10.6.1 *PCBs in Electrical Equipment*

An installation-wide program to remove all PCB containing electrical equipment was initiated in 1990. In conjunction with the RI activities, a visual survey was conducted to determine the presence or absence of PCB transformers and other PCB-containing equipment. The majority of PCB transformers were removed from FWDA in 1993.
Two remaining PCB-containing transformers in Building 501 were removed and disposed in accordance with TSCA regulations in the Spring of 1995. All manifests for the transformer and PCB disposal were retained by TEAD.

3.10.6.2 PCBs Released to the Environment

As noted in Section 3.7, IRMs have been implemented at sites impacted by PCBs. Other sites where PCBs could have been released to the environment will be addressed as necessary under the Corrective Action process as specified in the Permit.

3.10.6.3 PCBs in Paint

During characterization activities at Building 11 in 1997, it was discovered that paint on the walls of the building contained PCBs. Painted surfaces containing PCBs were also documented in Building 503 during pre-demolition activities. No further characterization of painted surfaces for PCB content has been performed.

3.10.7 Lead-Based Paint

All buildings at FWDA were constructed prior to 1960. During the December 1992 RI, a visual building inspection indicated 93 of the 147 buildings and structures contained confirmed or suspect LBP (ERM, 1995). The condition of the lead-based paint varied in the evaluated structures. The paint was generally in fair to poor condition and much of the material was chipping, peeling, cracking, and chalking. The December 1992 evaluation concluded that lead-based paint is a concern at FWDA.

In 1996, a LBP survey was performed for ten existing buildings (Buildings 1, 2, 3, 4, 14, 15, T-16, T-27, T-28, and T-44) thought to have the highest reuse/exposure potential (ERM, 1996). The survey confirmed LBP on various painted exterior and interior surfaces in all ten buildings.

LBP was also confirmed at Building 11 as part of pre-demolition activities (Weston, 2002). No further characterization or abatement of LBP has been performed.

3.10.8 Asbestos

A comprehensive installation-wide asbestos survey of FWDA was completed in November 1990 (Pickering, 1990). The purpose of the survey was to identify friable and nonfriable ACM; provide options for abatement of ACM provide cost estimates for both abatement and operation and maintenance costs; and identify situations requiring immediate action.

Since that time, additional sampling and abatement activities have been performed. Friable ACM in a number of buildings were properly removed and disposed during efforts in 1999 (ICE, 1999) and 2001 (USACE, 2002). ACM in Buildings 11, 41, 501, 503 were properly removed and disposed prior to the demolition of these buildings; these activities are documented within individual reports for each building demolition. ACM on the ground surface near Building
528 was also properly removed and disposed during the 2001 abatement effort (USACE, 2002).

A Summary of Asbestos Abatement at FWDA prepared in March 2004 identifies the remaining buildings containing ACM or suspected ACM materials, types and quantities of ACM, and abatement status. A copy of the summary is provided in Appendix C. As can be seen in the summary, most friable asbestos (e.g., pipe insulation and pipe wrap) has been removed from within the buildings and what remains are primarily non-friable materials (e.g. floor tile, ceiling tile, exterior siding, roofing material, etc.).

The Permit contains language requiring an asbestos evaluation in conjunction with the preparation of RFI Work Plans for each parcel to address sites where there may be potential for asbestos contamination in soil. Examples of sites with the potential for asbestos in soil would include the ground surface under exterior piping insulated with asbestos (e.g., aboveground steam piping) and locations of demolished buildings which contained asbestos (and for which proper asbestos handling/removal cannot be documented). This will be addressed as required by the Permit.

3.10.9 Radon

Radon gas measurements were taken in 12 normally occupied buildings at FWDA during 1990 and 1991. The clinic, quarters, fire station, security, and headquarters buildings were included in the survey. The tests were conducted by the fire department under the direction of TEAD. The 90-day detectors and the 1-year detectors measured less than 4 picocuries per liter, which is below the USEPA-recommended action level. Based upon these results, radon gas is not considered a concern at FWDA.

3.10.10 Wastewater Discharges

FWDA previously held a temporary NPDES permit between 1975 to 1977 for a sanitary wastewater discharge to the South Fork of the Puerco River due to mechanical problems at the treatment plant. Under normal treatment plant operations, a NPDES permit was not necessary because the evaporation rate from the wastewater basins was higher than the discharge rate from the treatment plant. This remains the case today.

In 1992, FWDA submitted a Notice of Intent to comply with a NPDES General Stormwater Permit (NMROOAO37) for stormwater discharges associated with industrial activity. The discharge is managed in compliance with permit requirements and statutory requirements of the Federal Water Pollution Control Act and the CWA. FWDA will continue to comply with these requirements, which include semi-annual sampling and analysis. Any remedial activities that include discharge of treated wastewaters to surface waters will require an additional NPDES permit. As remedial designs are finalized, FWDA will apply for NPDES permits, if required.
3.10.11 Pollution Prevention

Because FWDA has closed, waste generation at the facility is limited. Pollution prevention elements will be included in future work plans for investigation and remediation activities. The possibility of recycling any materials during remedial activities will be considered during the design phase.

3.10.12 Radiation

Five igloos at FWDA were suspected of housing uranium used by the Department of Energy. FWDA conducted a radiation survey in 1998 and 1999; the results of this survey indicated there was no radioactive contamination in these igloos (USACHPPM, 1999). There is no evidence that any other radioactive material was ever stored or generated at FWDA.

3.11 MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) ACTIVITIES

The purpose of this section is to summarize efforts to locate, identify, and remove MEC from various locations at FWDA. Because terminology regarding military munitions is evolving, and because the time period of military munitions response actions at FWDA spans more than 11 years, many terms have been used in this section to describe the various activities.

The term “ordnance and explosive waste” (OEW) was originally used by the Army within CERCLA-like response actions. However, the use of “waste” was unclear with respect to regulatory definitions, and was therefore dropped by the Army, being replaced with simply “ordnance and explosives” (OE). The Army defined both OEW and OE as follows:

- Ammunition, ammunition components, or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried or fired; or
- Explosive soil.

When the Military Munitions Response Program (MMRP) was established in 2001 and applied to all the DOD services, there was a need for a term that all the services could use. The term “munitions and explosives of concern” (MEC) was chosen by DOD, and was adopted by the Army to replace OE. MEC are any of the following:

- Military munitions that are UXO, abandoned or discarded;
- Soil with a high enough concentration of explosives to present an explosive hazard; or
- Facilities, equipment, or other materials contaminated with a high enough concentration of explosives such that it presents an explosive hazard.

UXO has always been a specific subset within the other, broader definitions. UXO is defined as military munitions that have been primed, fuzed, armed, or
otherwise prepared for action, and that has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material, and that remains unexploded by malfunction, design, or any other cause.

MEC activities (i.e., surveys and clearance) have been undertaken at various areas of FWDA including FTR 1 (SWMU 38), FTR 2/3 (SWMU 16), Group C Landfill (SWMU 22), Building 530 (SWMU 72), the Document Incinerator at the Sewage Treatment Plant (SWMU 10), Igloo Block B (AOC 28), the Ballistic Missile Test Site at the former Southern Property, and the OB/OD Area. These activities have been conducted to determine the extent of MEC contamination that constituted an imminent and substantial endangerment to the local populace and site personnel, to support the ongoing environmental investigations and RCRA CFP, and for various construction purposes. Additional MEC activities have included avoidance and removal and demolition support during environmental investigation and characterization efforts as well as during building demolition activities.

MEC characterization activities initially began at FWDA in the Fall of 1992. These activities consisted of MEC surveys conducted to support the planned EI activities at areas that had been identified as potentially impacted by MEC. The survey activities were limited in nature and did not constitute comprehensive and fully documented clearance and removal efforts.

Under the requirements of CERCLA for DA OEW remediations, an Archive Search Report (ASR) detailing ordnance contamination was prepared for FWDA by USACE, St. Louis District in July, 1995 (USACE, 1995). The ASR compiled information obtained through historical research at various archives and records-holding facilities, interviews with persons associated with the site or its operations, review of environmental reports, aerial photographs, and maps, and personal visits to the site. The investigation centered on identifying the exact location of potential environmental contamination from the past OEW demilitarization activities occurring on FWDA. A total of 19 numbered sites and two additional locations were identified as Specific Areas of Concern and were further investigated during the site visits. Additional investigation/work was recommended for more than half of the sites.

An Explosive Safety Submission (ESS) (TEAD, 1995) was prepared and addressed the identification and cleanup of MEC including on-site UXO and OEW based on the completed ASR and other data regarding known or potential UXO/OEW locations. The areas identified for additional UXO/OEW identification and clearance in the ESS included the Document Incinerator area (Sewage Treatment Plant), Building 530 (Deactivation Furnace) and surrounding area, FTR 1, FTR 2/3, and Group C Disposal Area. Building 536 (Surveillance Workshop) and Building 528 (ammunition maintenance building) as well as their surrounding areas were also identified for visual inspections for OE. The ESS indicated that OE removal actions for Building 503 (TNT Washout Plant) would be addressed in a separate addendum to the ESS. No removal actions were planned for the sites within the OB/OD Area because the Army planned to retain ownership and control of this property.
The clearance activities identified in the ESS, with some modifications, were completed by CMS Environmental, Inc. (CMS) from 1996 through 1998 and are further discussed below in Section 3.11.4. A Statement of Clearance associated with these efforts was issued by the Huntsville Engineering and Support Center of the USACE in December, 1999. The sites addressed by the Statement of Clearance include the Document Incinerator (Sewage Treatment Plant), FTR 1, FTR 2/3, Current OB/OD Detonating Grounds, Group C Disposal Area, Deactivation Furnace Area, and the Ballistic Missile Test Site. The statement recommends use of the cleared areas for any purpose for which the lands are suited (with the exception of a portion of FTR 1, for which more clearance was recommended). A copy of the Statement of Clearance is provided in Appendix D.

MEC efforts to date are summarized below. The areas where the MEC activities have taken place are shown in Figures 5 and 6.

All of the MEC items encountered to date were either detonated in place or removed from the investigated areas and stockpiled until either being treated in existing detonation craters in the Current OB/OD Area or certified as scrap.

3.11.1 UXO Survey, 1992-1993

A UXO survey was performed by UXB International (UXB) beginning in November 1992 and ending in December 1993 (ERM, 1994b). The survey included FTR 1, FTR 2/3, Group C Landfill/Disposal Area, the Deactivation Furnace at the Workshop Area, the Document Incinerator at the Sewage Treatment Plant, Igloo Block B (possible bomb burial storage test areas), the Ballistic Missile Test Site in the former Southern Property, the OB/OD Area, and several other suspect areas. The UXO survey was conducted to investigate and characterize the extent of potential UXO contamination at FWDA in support of the planned EI Program activities.

The surveyed areas are shown in Figures 5 and 6. A summary of ordnance items recovered during the survey is provided in the report (ERM, 1994b).

3.11.2 UXO Surface Clearance and Sampling Project, 1995

A 250-acre area located to the west of the OB/OD Areas outside the FWDA western property boundary was cleared to a depth of 1 foot bgs in 1995 (UXB, 1995). This area consisted of off-site property identified as being contaminated with surficial OEW and OEW scrap from historical OB/OD Area operations ("kick-out") during a site survey conducted by USACE, Huntsville Division. The surveyed work area is shown in Figure 5 and 6. MEC items found during the clearance effort are identified in the report (UXB, 1995).

3.11.3 UXO Activities in Support of OB/OD Area Environmental Investigations, 1995-2000

MEC activities have been performed in the OB/OD Area to support environmental characterization efforts. These efforts were performed by UXB from 1995-1996 and by Safe Environment, Inc. (SEI) from 1997-2000. These
activities were focused on providing safe access for environmental characterization in specific areas. Items found during MEC activities in support of environmental investigations are identified in the Phase 1A Report (PMC, 1999a).

Various site walkover, geophysical surveys, and preliminary environmental sampling events were conducted during 1995 to support preparation of RCRA CFP work plans. Numerous MEC items were encountered, including UXO.

The implementation of the RCRA CFP work plans in 1996 included excavation of investigation trenches through previously identified geophysical anomalies, OERelated debris/residue areas, and detonation craters to characterize environmental impacts of historic disposal activities. Locations of geophysical anomalies, debris/residue areas, and detonation craters are shown in Figure 6. Numerous MEC items were encountered, including UXO.

3.11.4 Clearance, Sampling, Avoidance, and Removal/Demolition Support, 1996-1998

MEC activities were performed by CMS Environmental, Inc. (CMS) from 1996 to 1998 (CMS, 1998a). CMS performed clearance and sampling activities at seven specified sites in 1996 including the Document Incinerator (Sewage Treatment Plant), FTR 1, FTR 2/3, Current OB/OD Area (stockpiled MEC-related materials only), Group C Landfill/Disposal Area, Deactivation Furnace Area, and the Ballistic Missile Site (Southern Property). Additional MEC activities conducted by CMS at the OB/OD Area included clearance along five seismic survey lines (1997), clearance along a survey line for a proposed southern fence line (1998), and clearance of a suspected kick-out area outside the eastern fence line designated the OB/OD Area Buffer Zone (1998).

The areas cleared by CMS are shown in Figures 5 and 6. The recovered MEC items are summarized in the report (CMS, 1998a).

CMS also provided OE avoidance and OE removal and demolition support during environmental characterization of the Group C Landfill/Disposal Area, the Western Landfill, and the OB/OD Area from 1996 through 1998.

As discussed above and shown in Figure 6, a 25-foot wide corridor for a security fence line located south of the Current OB/OD Area and the Buffer Zone located east of the Current OB/OD Area security fence line were cleared by CMS in 1998. These clearance actions included surface and subsurface clearance to a depth of 4 feet. It was hoped that these actions would establish a southern and eastern boundary of the parcel that needed to be retained by the Army, and clear a small "buffer" zone outside that boundary. However, submunitions and other OE were found at these areas suggesting additional work should be performed. This led to the next major phase of MEC activities at the OB/OD Area that is discussed below in Section 3.11.6.
3.11.5 **RDAS West Access Road Clearance, 1997**

MEC activities associated with construction of the MDA FWLC were conducted near the northeastern OB/OD Area boundary extending from Demil Road. The MEC activities included the clearance of an RDAS (Rocket Data Acquisition Summary) equipment site access road and related features including a vehicle turnaround, pad site, and what is described as the inlet area of roadway pipes (or culvert). The clearance was performed by CMS in 1997 (CMS, 1998b). The surveyed work area is shown in Figure 6. MEC items found during the clearance are summarized in the report (CMS, 1998b).

3.11.6 **Proposed Fence Line and Other Area Clearance, 1998-1999**

Additional MEC activities were performed by Environmental Hazards Specialists International (EHSI) during late 1998 and 1999 (EHSI, 2000). This effort resulted in the clearance of OB/OD Area lands to the east of the Current OB/OD Area, a small portion of what was originally scoped along the northern fence line (two grids), Area 16 (SWMU 74, identified in the ASR as Site #16, Proposed Burning Ground), and 21 search routes extending radially from a proposed fence line at the southern half of the Current OB/OD Area. The findings of these efforts were detailed in the *Final OE Location and Removal Report, Fort Wingate Depot Activity, New Mexico* (EHSI, 2000). The areas cleared by EHSI are shown in Figure 6, and the MEC items recovered are summarized in the report (EHSI, 2000).

The Army originally intended to minimize the size of the OB/OD Area parcel to be retained by the Army, in order to release the maximum area possible for beneficial reuse. To serve that purpose, the original scope of the EHSI effort was to clear areas outside the original proposed OB/OD Area parcel boundary. The removal action was initially scoped to clear approximately 339 acres, as well as a 25-foot wide corridor for an additional southern parcel boundary fence. As shown in Figure 6, grids totaling approximately 82 acres along the eastern side of the OB/OD Area were cleared to varying depths before the removal action was stopped as a result of the amount of MEC-related scrap being found.

A new approach, employing predetermined search routes (transects) to establish the presence or absence of ordnance and ordnance-related scrap, was established by USACE, Huntsville. This resulted in 21 linear transects projecting radially (to the east and south) from the previously proposed fence line, as shown in Figure 6. The searches consisted of visual surface sweeps along the transect bearing until no MEC or MEC-related materials or scrap were observed. Magnetometers were then used to investigate for subsurface anomalies. When neither surface nor subsurface anomalies were detected, the spot was marked and surveyed; these end points are shown in Figure 6 as the end of each transect farthest from the OB/OD Area. An additional 100 feet beyond the end point of each transect was then checked for surface and/or subsurface anomalies. Only three MEC items were recovered during the transect searches; all three items were found on Lane #1. No MEC items were found on the remaining transects.
The findings of this effort may be used to establish the extent of the “Kickout Area” in the southern and southeastern portions of the OB/OD Area.

3.11.7 **OB/OD Area Western Boundary Fence Line Clearance, 2001**

USA Environmental, Inc. (USA) performed construction support clearance and removal activities associated with the replacement of the existing 13,000-foot boundary fence line along the western side of the OB/OD Area in the Fall of 2001 (USA, 2002). USA investigated 1,173 anomalies and located one UXO item requiring demolition. The fence line work area is shown in Figure 6. MEC items found during the clearance are summarized in the report (USA, 2002).

3.11.8 **Building 503 Remediation and Demolition, 1998**

The Building 503 remediation and demolition work (described in Section 3.7.5) was conducted by Scientech, Inc. from June through December, 1998 (USACE, 2003a).

Building 503 (TNT Washout and Flaker Building) was previously identified in the ASR (Site #2) as an AOC for explosives contamination. The building was investigated in 1993 during the RI activities resulting in the confirmation of explosives contaminated equipment and building components, PCB contamination, asbestos containing materials, and lead-based paint. An evaluation of remedial alternatives was conducted by the USACE, Ft. Worth District. The selected remediation alternative, with respect to explosives contamination, included steam cleaning the interior of the building to remove TNT dust, disassembly and removal of TNT process equipment from the building, flash flaming the process equipment and associated piping to destroy remaining explosive residues (conducted at the site), demolition of the building, destruction of remaining potentially explosive residues accumulated in expansion joints and cracks in the building floor slab, removal of the floor slab, removal of the discharge trough, removal of the north and south settling basins, and backfilling and grading of resulting excavations to final elevations.

Building materials, process equipment, and contained media (waters and sediments) were inspected and sampled for characterization and off-site disposal. Soils underlying the building slab, discharge trough, and settling basins were sampled to confirm the absence of explosives and related contaminants.

3.12 **BUILDING INTERIOR DECONTAMINATION**

As noted in previous sections, some remedial activities have been performed inside various FWDA buildings. The activities have been driven by Army compliance policies for issues with regulatory programs/guidelines (e.g., LBP and ACM, discussed previously), or other Army programs (e.g., explosives safety policies). Because RCRA Corrective Action authorities generally do not extend to the interior of buildings unless there is evidence of a release to the environment from contamination within a building, it is not known at this time what effect the Permit will have on building interior decontamination requirements.
3.12.1 **Building 503**

Explosive residues were present in samples collected inside Building 503 during the RI (PMC, 1997). Building 503 and associated structures were remediated, demolished, and appropriately disposed offsite in 1998 as discussed above in Sections 3.7.5 and 3.11.8.

3.12.2 **Igloos**

3.12.2.1 **Residual Contaminant Removal Investigation**

Explosive residues were detected in wipe samples from 11 of the 62 munitions storage igloos sampled during the RI (PMC, 1997). The risk assessment for the igloos presented in the RI/FS report (PMC, 1997) indicated there was no unacceptable risk to human health or ecological receptors under a like use (storage of non-food commodities) scenario. The number of igloos sampled (62 of 732, or approximately 8.5%) during the RI has been regarded as insufficient by stakeholders, particularly DOI. DOI has requested that a minimum of 20% of igloos be sampled.

In 1997 USACE Fort Worth District performed a pilot program to determine the feasibility and cost to decontaminate the igloos to allow unrestricted use (SAIC, 1997). Interior surfaces in eight of the 11 igloos where explosives were detected in the RI were decontaminated using a high-pressure hot water wash to remove explosives from the concrete surface. Wash water was collected, treated, and reused. Although explosives were not detected in post-wash wipe samples, one explosive (TNT) was detected in post-wash wall rinsate and concrete chip samples. There are no current regulatory limits or acceptable exposure standards for residual explosives on surfaces, interior or exterior, and the RI risk assessment for residual explosives contamination within the igloos has not been commented upon by NMED or USEPA.

Detections of RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) in wash water led to collection of wipe samples for metals analysis from unwashed surfaces in five igloos. Lead, arsenic, barium, and chromium were detected in each unwashed igloo sampled. A preliminary data review indicated that lead concentrations in the unwashed igloos sampled exceeded guidelines for residential housing. No post-wash samples were collected for metals analysis.

Absent an appropriate regulatory driver, the future status of igloo decontamination activities is not known at this time.

3.12.2.2 **Explosive Safety Inspections**

To comply with Army safety requirements, buildings and structures with potential to contain explosive residues must be evaluated prior to property transfer. This inspection was performed in 2000 by Army personnel (TEAD, 2000). Of the 732 igloos, 575 were inspected. Eight igloos being used by MDA and igloos under TPL’s contract were not inspected. One igloo had a broken door hinge and could not be opened for inspection. One igloo (C-1103) contains MEC items recovered.
during IRM implementation at the Group C and Central Landfills. The 575 igloos inspected were determined to pose no explosive safety hazard and “are safe for welding, drilling, sawing, etc., and sale to the general public.” Following inspection of each of the 575 igloos, a numbered seal was installed to prevent access.

In 2005, 53 igloos used by TPL under their facility use contract were returned to FWDA control. These igloos were inspected, determined to pose no explosive safety hazard, and numbered seals were installed to prevent access (TEAD, 2005).

3.13 NATURAL AND CULTURAL RESOURCES PROGRAMS

FWDA is part of a Historical Resources Memorandum of Agreement (MOA) with local interested parties that requires the Army to consult with them before any remediation or transfer of any property that might have historical significance occurs. Natural and cultural resource identification may be required prior to economic redevelopment and property reuse and is also considered during the environmental restoration remedy selection process so that accidental impacts to these resources can be prevented.

This section describes the current status of the natural and cultural resource program established at FWDA, including identification and management of vegetation, wildlife, wetlands, and other preservation areas; rare, threatened and endangered species; and cultural resources. The information below is based on the BRAC EIS conducted in 1991 and discussions with the USACE archaeologist responsible for FWDA.

3.13.1 Vegetation

Three major biotic communities are found within McKinley County: Rocky Mountain (Petran) and Madrean Montane Conifer Forests; the Great Basin Conifer Woodland; and the Great Basin Desertscrub. The varied soil types and elevational differences within FWDA allow for considerable plant and animal diversity. Although the low-lying scrubland has seen most of the industrial development, the higher elevation forests have been left relatively undisturbed. More than 100 plant species are likely to exist.

Common flora species include Douglas and white fir; limber, ponderosa, and pinon pines; one-seeded, Rocky Mountain, and alligator junipers; quaking aspen; Gambel oak; locust; big, bigelow, and sand sagebrushes; cliffrose; Apache plume; Mormon tea; barberry; skunkbush; four-wing saltbush; penstemons; globemallows; composites; chenopods; grasses (muhlies, bromes, fescues); and various introduced species including Russian thistle, tumble mustard, filaree, and cheatgrass brome.

FWDA will continue to maintain the existing vegetation throughout closure and transfer of the property. Only very small areas of vegetation at FWDA are expected to be impacted during proposed soil excavation at restoration sites. With the exception of the OB/OD Area closure, no critical habitats will be
impacted in the restoration areas. The Army will consider ways to minimize vegetation impacts during the remedial design process, if necessary.

3.13.2 Wildlife

Because of the range of habitat types and plant communities, there is diversity of wildlife located on FWDA property. In addition to indigenous species, pronghorn antelope and bison were transplanted to the FWDA property under a cooperative agreement between the New Mexico Game and Fish Commission and the FWDA for wildlife experimentation of previously grazed lands. The bison were removed in 1999.

FWDA will continue to maintain the existing wildlife throughout closure and transfer of the property. With the exception of the OB/OD Area closure, only relatively small areas are expected to be disturbed at the restoration sites during remedial activities, and impact to wildlife is expected to be minimal. The Army will consider ways to minimize wildlife impacts during the remedial design process, if necessary.

3.13.3 Wetlands

Although a minor habitat (as a whole) on the FWDA property, wetland and open water habitats are perhaps the most important resources on the property for wildlife because of the very arid climate and the general paucity of water in this area.

Parts of Lake Knudsen include wetlands. These wetland areas are predominantly emergent and open water areas with the majority of vegetation occurring along their perimeters. Wetland habitats have also been identified in the OB/OD Area (PMC, 1999a). Potential impacts to the identified areas during the performance of closure/post-closure activities will be limited, to the extent possible.

3.13.4 Designated Preservation Areas

No property on FWDA is considered a designated preservation area.

3.13.5 Rare, Threatened and Endangered Species

Although no systematic survey of rare, threatened, and endangered species at FWDA has been performed, the BRAC EIS indicated that several federal or state listed and candidate endangered or threatened species possibly occur within FWDA boundaries. Listed species include the following:

*Haliaeetus leucocephalus* - Bald eagle (Federal Threatened)
*Falco peregrinus* - Peregrine falcon (Federal Endangered)
*Erigeron rhizomatus* - Zuni fleabane (Federal Endangered)
*Mustela nigripes* - Black footed ferret (Federal Endangered)

Candidate species include the following:
Empidonax trailiji extimus - Southwestern willow flycatcher (Federal & State)  
Vireo vicinior - Gray vireo (State)  
Strix occidentalis lucida - Southern spotted owl (Federal)  
Euderma maculatum - Spotted bat (Federal and State)  
Accipiter gentilis apache - Northern goshawk (Federal)  
Erigeron acomanis - Acoma fleabane (Federal)  
Astragalus micromerius - Chaco milkvetch (State Sensitive)  
Astragalus accumbens - Zuni milkvetch (State Sensitive)  
Mammillaria wrightii var. wrightii - Wright’s pincushion cactus (State-Protected)  
Pediocactus papyracanthus - Grama grass cactus (Federal, State-Protected)  
Helianthus paradoxus - Pecos sunflower (Federal, State-Protected).

A 5,780-acre portion of the installation, much of which was transferred to the DOI in June, 2000 for management by BIA, has previously been identified as an area where positive sightings of threatened and endangered bird species have occurred.

3.13.6 **Cultural Resources**

FWDA is dotted with ruins of prehistoric and historic habitation by Native Americans. The site and land in the vicinity have been inhabited for centuries by farming and hunting Indian tribes, primarily the Pueblo Indians. Ruins of the Anasazi civilization are found on FWDA. The Army is presently a signatory to an MOA executed on 16 July 1991 between the New Mexico State Historic Preservation Officer and other entities. The MOA commits the Army to preservation of the existing cultural resources and identifying such resources in the event of property transfer. To date, two known archaeological sites have been identified at the installation and are considered significant cultural resources.

There have been several surveys of cultural resources at FWDA, and the survey data are currently being compiled by the University of New Mexico Office of Contract Archaeology. This information will be provided to and used by FWDA, NMED, and other stakeholders to guide environmental restoration efforts and protect important cultural resources; however, because of the sensitive nature of the data, it is unlikely that it will be provided in a “public” document such as this BCP.

3.14 **COMMUNITY INVOLVEMENT PROGRAMS**

Community relations activities that have taken place at FWDA include the following:

- **NEPA Process.** Public scoping occurred during the development of the Closure EIS. Scoping letters were distributed and the Notice of Intent was published in the Federal Register. Public comments were received on draft EIS documents and were addressed by the Army.
• **Information Repository.** The FWDA Information Repository is currently located within the BIA Navajo Regional Office in the Gallup Federal Building, 301 West Hill, Gallup, NM 87301.

• **Mailing List.** A mailing list of all interested parties in the community is maintained by the Tooele Army Depot Public Affairs Office and is updated regularly.

• **Fact Sheets.** Fact sheets on the progress of environmental restoration and disposal programs will be developed and distributed to the Reuse Planning Committee and anyone requesting information.

• **Restoration Advisory Board (RAB).** To promote increased public involvement and enable the continued flow of information, concerns, and needs between the community and FWDA, a RAB was formed in 1993. RAB meetings typically have been held on the same day as quarterly BCT meetings, and RAB meeting locations have been rotated to various locations within the surrounding area in an attempt to increase public participation. Public participation in RAB meetings has historically been low.

• **Community Outreach and Open Houses.** Site visits and public informational meetings may be scheduled periodically to augment the RAB meetings and inform the community on the restoration activities and reuse plans.

• **Public Hearings.** Public hearings have been held in the past regarding the EIS prepared for MDA projected reuse of FWDA property. Future public hearings may be required under the RCRA closure and corrective action processes.

• **Historic Preservation MOA.** A Historic Preservation MOA was signed 14 July 1991 between the U.S. Army, New Mexico State Historic Preservation Officer, BLM, Navajo Nation, Zuni Tribe, and the Reuse Planning Committee. This MOA requires consultation before any remedial actions or property disposal are considered for areas on FWDA that might contain historic properties.

• **Public Involvement and Response Plan.** A Public Involvement and Response Plan (PIRP) was prepared in April 1993 and was revised in 1994. The goal of the PIRP was to provide an effective mechanism for communication and exchange of information among the local community and civic associations; on-post military and civilian employees; U.S. Army; and diverse federal, state, city, and local agencies. This PIRP was designed to fulfill applicable federal and state regulatory requirements.

• **Community Relations Plan.** A Community Relations Plan (CRP) will be developed for FWDA, as required by the Permit. It is anticipated that the CRP will be published in the Spring of 2006.
As noted previously, a CERFA Report was prepared for FWDA in 1994 (ERM, 1994b), and has not been updated. Individual Environmental Condition of Property (ECOP) Reports have been prepared for various parcels transferred to DOI. However, because a significant number of SWMUs and AOCs were added to the Permit, and because future characterization, restoration, and transfer activities will occur under the auspices of the Permit, the current ECOP for the remaining FWDA lands will not be included in this BCP.
5.0 SCHEDULE

With the finalization of the Permit for FWDA, the environmental program shifted to the schedule and process mandated by the Permit. A current schedule is included in Appendix E.
6.0 REFERENCES


PMC, 2001b. Memorandum, Fort Wingate Depot Activity Ground Water Data. PMC Environmental, 14 August 2001


TPMC, 2006. Supplemental Ground Water Investigation – Administration and TNT Leaching Beds Areas, Fort Wingate Depot Activity. TerranearPMC


Figure 1
Installation Location
Fort Wingate Depot Activity
Gallup, New Mexico


NOT TO SCALE
# Table 1
**Project Team Members**  
**Fort Wingate Depot Activity**  
**Gallup, New Mexico**

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Telephone</th>
<th>E-Mail</th>
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<tbody>
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<td>Stephan Beran</td>
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<td>SWMU 2</td>
<td>21</td>
<td>Building 515 (Painting and Acid Washout Building and Acid Holding Pond)</td>
<td>During the RI, three surface soil and 24 subsurface soil samples were collected and analyzed for explosives, SVOCs, pesticides, PCBs, metals, nitrate/nitrite, total phosphorus. During the RI one monitoring well was installed and sampled for explosives, metals, nitrate/nitrite, nitrate, and anions. RI found elevated concentrations of pesticides and metals (chromium, copper, lead, and zinc) in 2 of 3 surface soil samples; elevated metals in subsurface soils RI found elevated ground water concentrations of metals (barium, chromium, selenium, and zinc) and fluoride.</td>
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<td>SWMU 3</td>
<td>11</td>
<td>Fenced Storage Yard (Former Storage Yard or DRMO Area, Extended Storage Yard, Former Coal Storage Area)</td>
<td>During the RI, 21 surface soil and 39 subsurface soil samples were collected and analyzed for VOCs, SVOCs, PCBs, metals. During the RA, six surface soil samples in this area were collected and analyzed for metals as part of “Administration Area” reference sampling. RI found elevated concentrations of a few VOCs and metals, arsenic as high as 12 ppm. RA found elevated metals (cadmium, chromium, lead, and thallium)</td>
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<tr>
<td>SWMU 4</td>
<td>6</td>
<td>Building 600 (Building 539, Ammunition Work Shop Area Change House and Laundry)</td>
<td>Soil investigation included eight subsurface soil samples around abandoned cesspool, one surface soil sample at outfall to arroyo, and one sanitary sewer manhole sediment sample; samples analyzed for explosives, VOCs, SVOCs, and TAL metals. Ground water investigation combined with SWMU 1 (TNT Beds) and SWMU 11B (Bldg. 542). No explosives detected in cesspool borings, outfall to arroyo, or manhole sediment samples. SVOCs and metals detected in cesspool borings. Metals detected in outfall sample. VOCs, SVOCs, and metals detected in manhole sediment sample. Explosives detected in ground water.</td>
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<td>SWMU 5</td>
<td>11</td>
<td>Building 5</td>
<td>During the RI eight surface soil and 12 subsurface soil samples were collected and analyzed for VOCs, SVOCs, and pesticides; one sump sediment sample was collected and analyzed for VOCs, SVOCs, pesticides, and metals. USACE, Albuquerque collected additional surface and subsurface soil samples analyzed for pesticides. Pesticide contaminated soils on east side removed in 1998; estimated 1 foot excavated over entire length; five post-removal soil samples collected. During the RA, one water sample and two sediment samples were collected from storm drainage system and analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. RI found elevated pesticides in soil along east side of building and one pesticide in wash rack sump. Extent of elevated soil pesticide levels delineated and removed. RA identified elevated levels of PAHs, pesticides, and PCB 1260 in sediments present in two storm sewer manholes at NE and SE corners outside of building.</td>
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<td>SWMU 6</td>
<td>11</td>
<td>Building 11 (Former Locomotive Shop)</td>
<td>RI and further characterization efforts identified PCB contamination inside building, some evidence of release to the environment outside building (PCBs in sanitary sewer) Building remediated/demolished in 2002; additional soil removed in 2003</td>
</tr>
<tr>
<td>SWMU 7</td>
<td>21</td>
<td>Fire Training Ground</td>
<td>During the RI, six surface soil and 22 subsurface soil samples were collected and analyzed for VOCs, SVOCs, and metals During the RA, 28 surface soil samples were collected and analyzed for metals and 16 subsurface soil samples were collected and analyzed for VOCs, SVOCs, and metals RI found elevated metals (arsenic &gt; 3ppm) and trace VOCs and SVOCs in a few samples RA found one location with SVOCs, a few very low VOC levels (&lt;1ppm) which are probably lab contaminants RA found elevated metals (cadmium, chromium, lead, nickel, thallium, vanadium, and zinc)</td>
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<tr>
<td>SWMU 8</td>
<td>6</td>
<td>Building 537 (Pesticide and Field Battery Shop)</td>
<td>During the RI, six subsurface soil, one sump sediment, one sump water and five wipe samples analyzed for pesticides During the RA, seven surface soil samples were collected and analyzed for herbicides, metals During the RA, four surface soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides, metals During the RA, 59 soil samples were collected and analyzed with chlordane test kits, and 18 confirmatory lab samples were collected and analyzed for chlordane During the RA, one septic tank sediment sample and two soil samples near septic tank outfall were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, metals PCB impacted soil “hotspot” (greater than 1 ppm; approximately 187 tons) removed in 2003 and disposed in chemical waste landfill Concrete pad with drain formerly located east of Building 537 reportedly a shed used for battery draining and refilling; pad removed 2003; this structure was not a UST as suspected in other documents</td>
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<tr>
<td>SWMU 9</td>
<td>7</td>
<td>POL Waste Discharge Area</td>
<td>During the RI, five surface soil, 30 subsurface soil, and three surface water samples were collected and analyzed for VOCs, SVOCs, PCBs, and metals</td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
<td>Description</td>
<td>Environmental Characterization Completed</td>
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<tr>
<td>SWMU 10</td>
<td>11</td>
<td>Sewage Treatment Plant (includes Buildings/ Structures 22, T-37, 63, 69, 70, 71, 72, 73, 74a, 74b, 74c, 74d, 82, 83, document incinerator, Structure 745, drainage ditch, septic system at sewage treatment plant)</td>
<td>During the RI, 15 subsurface soil samples were collected and analyzed for explosives, VOCs, SVOCs, metals, nitrate/nitrite, total phosphorus. During the RI, one monitoring well was installed and ground water samples were collected and analyzed for metals (total and dissolved), anions, total hardness, and trihalomethanes. MEC and MEC-related scrap cleared in 1998; no environmental sampling after removal, but site is within fence for active sewage treatment plant. RA collected 2 soil and 1 septic tank sediment samples analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. RI found elevated metals. RI found elevated ground water metals concentrations; chloride and sulfate concentrations exceeded secondary MCL concentrations. A copy of the MEC clearance statement is included in Appendix D. RA found elevated metals. This is an active sewage treatment plant receiving sewage from current installation activities.</td>
</tr>
<tr>
<td>SWMU 11</td>
<td>6</td>
<td>Building 542 (Ammunition Workshop) and Building 541</td>
<td>Soil investigation included eight wipe samples from stained areas on loading docks, eight surface soil samples along loading docks (test kit analysis), two subsurface samples along loading dock, eight subsurface soil samples around cesspool, one cesspool sediment sample, one surface soil sample from cesspool out fall, one septic tank sediment sample, one septic tank water sample, and 20 subsurface soil samples within septic tank drain field; samples were analyzed for explosives, VOCs, SVOCs, and TAL metals (not including those samples analyzed by test kits, which were explosives only). Ground water investigation included installation of six monitoring wells around this SWMU and SWMU 4 (Bldg. 600); ground water samples were analyzed for explosives, metals, nitrate/nitrite, and nitrate. HMX detected in wipe samples from loading docks. HMX, RDX, one VOC, SVOCs, and metals detected in subsurface samples next to east loading dock. VOCs, SVOCs, and metals detected in cesspool sediment and borings. One VOC, SVOCs, and metals detected in septic tank and drain field samples. No shallow (unconsolidated) water bearing zones encountered. TPL has/had operations in this building, including HMX recovery.</td>
</tr>
<tr>
<td>SWMU 12</td>
<td>22</td>
<td>Building 536 (Inspectors Workshop and Ammunition Renovation Depot)</td>
<td>None (not identified as a SWMU prior to Draft Permit)</td>
</tr>
<tr>
<td>SWMU/AOC Number 1</td>
<td>Parcel Number ²</td>
<td>Description</td>
<td>Environmental Characterization Completed ³</td>
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</tr>
<tr>
<td>SWMU 13</td>
<td>18</td>
<td>Eastern Landfill</td>
<td>During RI, geophysical investigation was performed to locate landfill; nine subsurface soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, metals; passive soil gas samples were screened for methane, hydrogen sulfide D</td>
</tr>
<tr>
<td>SWMU 14</td>
<td>3</td>
<td>Old Burning Ground and Demolition Landfill Area (Includes KGA-3, KGA-4, KGA-5, KP-2, KP-3, KP-4, Arroyo in Fenced Up Horse Valley, and Dump Pile)</td>
<td>Solid matrix characterized as part of Phase IA of OB/OD Closure Field Program (CFP) Ground water characterized as part of Phase IB of OB/OD CFP</td>
</tr>
<tr>
<td>SWMU 15</td>
<td>3</td>
<td>Old Demolition Area (includes Inactive EOD Area, KGA-1, KGA-2, Old OB/OD &amp; Buried White Phosphorus Rounds, and Three Mounds in Fenced-Up Horse Valley)</td>
<td>Solid matrix characterized as part of Phase IA of OB/OD CFP Ground water characterized as part of Phase IB of OB/OD CFP</td>
</tr>
<tr>
<td>SWMU 16</td>
<td>16, may include 15</td>
<td>Functional Test Range 2/3</td>
<td>During RI, 10 surface soil samples were collected and analyzed for explosives, nitrate/nitrite, and total phosphorus; five sediment samples were collected and analyzed for VOCs, SVOCs, explosives, pesticides, metals, nitrate/nitrite, and total phosphorus MEC and MEC-related scrap cleared in 1998</td>
</tr>
<tr>
<td>SWMU 17</td>
<td>2</td>
<td>Western Rifle Range</td>
<td>During the RI, six surface soil samples were collected and analyzed for metals; one surface soil sample was collected and analyzed for TCLP lead</td>
</tr>
</tbody>
</table>
### Table 2
**SWMU and AOC Summary Table**

**Fort Wingate Depot Activity**

**Gallup, New Mexico**

<table>
<thead>
<tr>
<th>SWMU/AOC Number</th>
<th>Parcel Number</th>
<th>Description</th>
<th>Environmental Characterization Completed</th>
<th>Summary of Environmental Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC 18</td>
<td>9, 24</td>
<td>Igloo Block A</td>
<td>During the RI, 24 surface soil samples were collected under igloo drains, and 18 surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>Only phosphorus was detected (slightly above background in six samples)</td>
</tr>
<tr>
<td>SWMU 19</td>
<td>21</td>
<td>Building 501 (Former Boiler House and Heating Plant No. 7)</td>
<td>During the RI, 12 subsurface soil, one sump sediment, and one sump water samples were collected and analyzed for explosives, nitrate/nitrite, total phosphorus; four concrete chip and four wipe samples were collected from building interior and analyzed for PCBs</td>
<td>RI did not identify elevated levels of constituents in soils RI found PCBs in all but one wipe sample PCBs detected in all four composite surface soil samples &gt; 1 ppm; further characterization/ remediation planned PCBs detected in 1 post-removal sample (0.215 mg/kg); areas sampled by USACE not addressed by building demolition</td>
</tr>
<tr>
<td>SWMU 20</td>
<td>7</td>
<td>Western Landfill, includes Features 3 and 4 on 1962 air photo API-3 (1995 Archive Search Report)</td>
<td>During the RI, 29 investigation trenches were excavated and 15 waste and 16 soil samples were collected and analyzed for explosives, SVOCs, pesticides, PCBs, metals, and nitrate/nitrile Waste removed in 2001; excavations backfilled with clean soil</td>
<td>RI found trace SVOCs, two VOCs, one pesticide, and metals exceeding background in native soils Post-excision confirmation samples detected SVOCs and pesticides</td>
</tr>
<tr>
<td>SWMU 21</td>
<td>23</td>
<td>Central Landfill</td>
<td>During the RI, nine investigation trenches were excavated and 12 waste and 12 soil samples were collected and analyzed for explosives, SVOCs, pesticides, PCBs, metals, and nitrate/nitrile Waste removed in 1999; a total of 32 post-excavation surface soil samples were collected from the floor of the excavation, and analyzed for explosives, VOCs, SVOCs, pesticides, PCBs, herbicides, metals, and petroleum hydrocarbons</td>
<td>RI found SVOCs and metals exceeding background in several native soil samples Post-excavation found elevated levels of SVOCs, pesticides, and metals RA found PAHs in 17 of 38 samples, elevated arsenic in 4 of 38 samples, trace pesticides in 13 of 25 samples (chlordane at 286 ppb in one sample), and explosives in 2 of 37 samples</td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
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</tr>
<tr>
<td>SWMU 22</td>
<td>2</td>
<td>Group C Landfill</td>
<td>During the RI, five surface soil, 12 subsurface soil, and three sediment samples were collected and analyzed for explosives, metals, nitrate/nitrite, total phosphorus; eight investigation trenches and five test pits were excavated, and nine waste and 10 soil samples were collected and analyzed for explosives, SVOCs, pesticides, PCBs, metals, and nitrate/nitrite</td>
<td>RI found only zinc exceeding screening in one native soil sample. Post-excavation samples found elevated levels of four metals, and three metals with detection limits above background levels. RA found PCB1260 in one sample.</td>
</tr>
<tr>
<td>SWMU 23</td>
<td>11</td>
<td>Building 8 (Paint Shop or Carpenter Shop) and Building 7 (Paint Shop and Paint Storage Warehouse)</td>
<td>Building 7 was not a SWMU or AOC prior to Draft Permit. During RI, six surface soil, 12 subsurface soil, and two sediment samples were collected around Building 8 and analyzed for VOCs and metals. During RA one surface soil sample (near loading dock) was collected and analyzed for VOCs and metals; one surface soil sample and two subsurface soil samples were collected and analyzed for VOCs, SVOCs, PCBs, metals, and phosphorus.</td>
<td>RI found elevated metals and VOCs. RA found elevated metals, SVOCs, and PCBs.</td>
</tr>
<tr>
<td>SWMU 24</td>
<td>11</td>
<td>Building 15 (Garage and Storage Bldg.)</td>
<td>During the RI, five surface soil and 12 subsurface soil samples were collected and analyzed for VOCs, SVOCs, and pesticides. During the RA, six surface soil and six subsurface soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and pH; one wipe sample was collected and analyzed for PCBs.</td>
<td>RI found elevated concentrations of pesticides. RA found elevated concentrations of SVOCs, pesticides, PCB1260 and lead; no PCBs detected in wipe sample.</td>
</tr>
<tr>
<td>SWMU 25</td>
<td>7</td>
<td>Trash Burning Ground Property Disposal Office includes Features 1, 2 and 5 on the 1962 aerial photo API-3 (from the 1995 Archive Search Report)</td>
<td>During the RI, six surface soil and 21 subsurface soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, and metals.</td>
<td>RI found pesticides and elevated metals, only beryllium exceeding screening levels. Review of historical aerial photos and drawings led FWDA to believe that only the trash burning ground portion of the site was addressed by RI; PDO office location appears to have been farther south, and is believed to be included in this SWMU and possibly portions of SWMU 20.</td>
</tr>
<tr>
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<tr>
<td>SWMU 26</td>
<td>10</td>
<td>Suspected POL Area. Large berm north of the railroad classification yard.</td>
<td>During the RI, 10 subsurface soil samples were collected and analyzed for VOCs, SVOCs, PCBs, and metals.</td>
<td>RI found lead above background Trace levels of VOCs detected, believed to be lab contaminant (cannot tie to a method blank) NFA submitted in 1999, but not approved by NMED Site determined to be an explosive safety barricade (suspect rail car spur) rather than soil used to cover POL discharge area.</td>
</tr>
<tr>
<td>SWMU 27</td>
<td>22</td>
<td>Building 528 Complex. Includes Building 528 (Ammunition Normal Maintenance Building), Building 528A (temporary storage igloo), AOC 121 (Building 528B, temporary storage igloo), AOC 122 (Building 529), AOC 125 (Building 550, vacuum collector barricade), AOC126 (Building 551, service magazine).</td>
<td>During RI, five surface soil and six subsurface soil samples were collected around Building 528 (one subsurface location was near Bldg. 551); analyzed for explosives, VOCs, SVOCs, PCBs, metals, nitrate/nitrite, and total phosphorus TPL collected 10 surface wipe and 1 paint chip samples inside the building; analyzed for explosives, TPH, lead NMED HRMB collected soil samples from around Building 528 while TPL in operation, and from monitoring well TMW05; samples were analyzed for perchlorate In 2002, surface soil samples were collected from approximate locations of NMED samples; samples were analyzed for perchlorate With the exception of surface soil sampling for perchlorate, the other buildings/sites within this SWMU have not been investigated because they had not been identified as a SWMU or AOC prior to Draft Permit</td>
<td>RI found TNT (3.2 ppm) in one sample and RDX (5.5 ppm) in one sample, other explosives ND at 1 ppm detection limit; SVOCs detected in all five surface soil samples, above screening levels in four; elevated metals (cadmium = 7.7 ppm, copper = 70.6 ppm, iron = 99,000 ppm, lead = 87-320 ppm, zinc = 51.7-409) TPL found explosives, TPH, lead in building Perchlorate detected in soil and ground water in both NMED and FWDA samples; TPL operations in this area involved perchlorate, both in raw product (within ammonium nitrate pellets reportedly stored inside) and recovered (from photoflash cartridge demilitarization) forms</td>
</tr>
<tr>
<td>AOC 28</td>
<td>6</td>
<td>Igloo Block B</td>
<td>During the RI, 24 surface soil samples were collected under igloo drains, and 15 surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus.</td>
<td>Only nitrate/nitrite was detected above background in one sample</td>
</tr>
<tr>
<td>AOC 29</td>
<td>2, 4, 23</td>
<td>Igloo Block C</td>
<td>During the RI, nine surface soil samples were collected under igloo drains, and nine surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus.</td>
<td>One explosive (HMX) was detected in one sample under an igloo drain, at a very low level (2.29 ppm) well below the NMED Residential Soil Screening Level (SSL) of 3,000 ppm</td>
</tr>
<tr>
<td>AOC 30</td>
<td>19, 22</td>
<td>Igloo Block D</td>
<td>During the RI/IFS, 24 surface soil samples were collected under igloo drains, and six surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus.</td>
<td>Only phosphorus was detected slightly above background in one sample</td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
<td>Description</td>
<td>Environmental Characterization Completed</td>
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<tr>
<td>AOC 31</td>
<td>19</td>
<td>Igloo Block E</td>
<td>During the RI, 24 surface soil samples were collected under igloo drains, and 12 surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>No constituents were detected exceeding background levels</td>
</tr>
<tr>
<td>AOC 32</td>
<td>19</td>
<td>Igloo Block F</td>
<td>During the RI, nine surface soil samples were collected under igloo drains, and three surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>No constituents were detected exceeding background levels</td>
</tr>
<tr>
<td>SWMU 33</td>
<td>3</td>
<td>Waste Pile KP1</td>
<td>Solid matrix characterized as part of Phase IA of OB/OD CFP. Ground water characterized as part of Phase IB of OB/OD CFP</td>
<td>See reports (too much info for this table)</td>
</tr>
<tr>
<td>AOC 34</td>
<td>19</td>
<td>Igloo Block G</td>
<td>During the RI, 24 surface soil samples were collected under igloo drains, and three surface soil samples were collected in storage revetments; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>No constituents were detected exceeding background levels</td>
</tr>
<tr>
<td>AOC 35</td>
<td>2</td>
<td>Igloo Block H</td>
<td>During the RI, 24 surface soil samples were collected under igloo drains; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>Only phosphorus was detected slightly above background in one sample</td>
</tr>
<tr>
<td>AOC 36</td>
<td>2</td>
<td>Igloo Block J (includes Missile Launch Pad used by MDA)</td>
<td>During the RI, 18 surface soil samples were collected under igloo drains; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>Only phosphorus was detected slightly above background in one sample</td>
</tr>
<tr>
<td>SWMU 37</td>
<td>11</td>
<td>Building 9 (Machine Shop and Signal Shop)</td>
<td>Not identified as area of concern for RI During the RA, six surface soil, 18 subsurface soil, two sediment, and three sump sediment samples were collected and analyzed for VOCs, SVOCs, PCBs, metals, and total phosphorus; two wipe samples were collected and analyzed for PCBs</td>
<td>RA found elevated levels of one VOC (probable lab contaminant), PAHs, PCBs, and metals (cadmium, chromium, copper, and lead) in soil and sediment outside the building. One PCB detected in each wipe sample</td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
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<td>Environmental Characterization Completed</td>
<td>Summary of Environmental Condition</td>
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<tr>
<td>SWMU 38</td>
<td>20</td>
<td>Functional Test Range 1</td>
<td>During the RI, five surface soil samples were collected and analyzed for explosives, nitrate/nitrite, and total phosphorus; four sediment samples were collected and analyzed for explosives, VOCs, SVOCs, pesticides, metals, nitrate/nitrite, and total phosphorus</td>
<td>RI found elevated metals; characterization effort was limited by the presence of possible UXO</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>MEC and MEC-related scrap cleared in 1997</td>
<td>A copy of the MEC clearance statement is included in Appendix D; clearance statement recommended additional subsurface clearance on 37.5 acres in the north central portion of FTR1</td>
</tr>
<tr>
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<td></td>
<td>Following MEC clearance, 13 surface soil, 17 sediment, and three waste samples were collected and analyzed for explosives, metals, TCLP metals (waste only), and TPH-DRO/GRO (selected sediments only)</td>
<td>RI follow-on found explosives, elevated metals, and TPH-DRO/GRO in selected areas; waste not hazardous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>During the RA, 29 surface soil, 30 subsurface soil, and five sediment samples were collected and analyzed for explosives, metals, and petroleum hydrocarbons</td>
<td>RA found explosives and elevated metals</td>
</tr>
<tr>
<td>SWMU 39</td>
<td>19</td>
<td>Pistol Range</td>
<td>During the RI, five surface soil samples were collected and analyzed for metals; one surface soil sample was collected and analyzed for TCLP lead</td>
<td>RI found elevated lead levels; TCLP lead concentration = 63,000 ug/l</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Soil removed 1999; post removal soil samples collected and analyzed for lead</td>
<td>Confirmation samples less than 50 ppm lead with three exceptions (57.3, 132, and 393 ppm)</td>
</tr>
<tr>
<td>SWMU 40</td>
<td>6, 7, and 11</td>
<td>South Administration Area</td>
<td>Characterization has been performed at Coal Tar Storage Tanks and Bldg. 29 only; other sites were not identified as SWMUs/AOCs prior to Draft Permit</td>
<td>Coal Tar Storage Tanks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Formerly named the Coal Tar Storage Tanks (Structures 58, 59, and 60), SWMU 48 (Building 10), SWMU 49 (Building 12), SWMU 50 (Building 13), SWMU 51 (Building 29), SWMU 52 (Building T-33), SWMU 53 (Building 36), SWMU 54 (UST #5), AOC 55 (Structure T-49), AOC 56 (Building T-50), AOC 72 (Building 14), SWMU 77 (Building T-34), AOC 83 (Structure 63), and AOC 87 (Structure 57)</td>
<td>RI did not detect SVOCs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coal Tar Storage Tanks</td>
<td>Confirmation samples did not detect SVOCs or metals above background, but arsenic detection limit exceeded background and screening levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>During the RI, one surface soil and three subsurface soil samples were collected and analyzed for SVOCs</td>
<td>RA analyzed arsenic only; elevated arsenic levels in two of eight samples (8 and 12 ppm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tanks and surface soil were removed in 1999, post-removal surface soil samples were collected and analyzed for metals and SVOCs</td>
<td>Bldg. 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>During the RA, eight surface soil samples were collected and analyzed for arsenic</td>
<td>RI found one pesticide (DDE at 0.0103 ppm) in one of four surface soil samples</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bldg. 29</td>
<td>RA found PCBs at 35.8 ppb in one soil sample and at 45.4 and 49.6 ppb in two sediment samples</td>
</tr>
</tbody>
</table>
### Table 2
**SWMU and AOC Summary Table**
**Fort Wingate Depot Activity**
**Gallup, New Mexico**

<table>
<thead>
<tr>
<th>SWMU/AOC Number 1</th>
<th>Parcel Number 2</th>
<th>Description</th>
<th>Environmental Characterization Completed 3</th>
<th>Summary of Environmental Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC 41</td>
<td>16</td>
<td>Igloo Block K</td>
<td>During the RI, six surface soil samples were collected under igloo drains; these samples were analyzed for munitions constituents including explosives, nitrate/nitrite, and phosphorus</td>
<td>2,4-DNT, 2,6-DNT, and TNT were detected in one sample at concentrations of 510 ppm, 20.5 ppm, and 1.78 ppm, respectively; only 2,4-DNT exceeds the NMED Residential SSL of 120 ppm, and the detected value is less than the NMED Industrial SSL of 1,370 ppm. Nitrate/nitrite was detected above background in another soil sample.</td>
</tr>
<tr>
<td>AOC 42</td>
<td>6</td>
<td>Building 516 (Ammunition Receiving Building)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 43</td>
<td>7</td>
<td>Railroad Classification Yard</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 44</td>
<td>10</td>
<td>Former Administration and Utilities Area</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>SWMU 45</td>
<td>11</td>
<td>Building 6 (Gas Station)</td>
<td>Bldg. 6 was not identified as a SWMU/AOC prior to Draft Permit. Associated USTs (#1 through #4) removed in 1993. In the Feb 1993 UST Closure Report submitted to the NMED UST Bureau on Mar 1, 1993, the Site (Site One) encompassing the locations of USTs #1-4 was identified as requiring the completion of a Minimum Site Assessment (MSA). As part of the subsurface investigation for this site, three ground water monitoring wells were installed in 1994.</td>
<td>Following completion of the UST Bureau's requirement for two years of continuous quarterly sampling from these monitoring wells, FWDA requested that the quarterly sampling be discontinued, in August, 1998. Received NFA status from NMED UST Bureau in 1999.</td>
</tr>
<tr>
<td>AOC 46</td>
<td>11</td>
<td>Above Ground Tank located near Bldg. 11</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td>FWDA believes that the release was addressed with the removal and off-site disposal of 6,000 pounds of barium-impacted soil in September 2002.</td>
</tr>
<tr>
<td>AOC 47</td>
<td>11</td>
<td>TPL spill of photoflash powder west of Bldg. 11</td>
<td>Barium impacted soil removed following spill in 2002</td>
<td></td>
</tr>
<tr>
<td>AOC 48</td>
<td>11</td>
<td>Building 34 (Fire Station)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 49</td>
<td>11</td>
<td>Structure 38 (End Loading Dock) and Structure 39 (Side Loading Dock)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>SWMU 50</td>
<td>11</td>
<td>Structure 35 (Underground Storage Tank (UST #7) located by Building #45)</td>
<td>UST was removed in Feb 1995. Laboratory analysis of the soils sampled from the excavation area confirmed the presence of petroleum hydrocarbons consistent with gasoline. MSA was initiated in November 1996; as part of the MSA, three ground water monitoring wells, numbered MW-1, MW-2, and MW-3 were installed.</td>
<td>The MSA report for this UST was submitted to the NMED UST Bureau on Mar 17, 1998, requesting site closure. Received NFA status from NMED UST Bureau in 1999.</td>
</tr>
<tr>
<td>AOC 51</td>
<td>11</td>
<td>Structure 64 (Underground Storage Tank)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
</tbody>
</table>
Table 2
SWMU and AOC Summary Table
Fort Wingate Depot Activity
Gallup, New Mexico

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<tr>
<td>AOC 52</td>
<td>11</td>
<td>Building 79 and Building 80 (Storage Vaults)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 53</td>
<td>13</td>
<td>Lake Knudson</td>
<td>One surface water/sediment sample pair collected in 1981; Three surface water/sediment pairs collected during RI; samples analyzed for VOCs, SVOCs, explosives, pesticides, nitrate/nitrite, phosphorus, and metals</td>
<td>Low concentrations of chromium and phosphorus detected in 1981 surface water sample; oil and grease detected in 1981 sediment sample; Nitrate/nitrite, phosphorus, and metals detected in RI surface water and sediment samples; Surface water and sediment sample results did not indicate that Lake Knudson had been impacted by releases from FWDA operations; Lake Knudson is a man-made, seasonal body of water; there are no non-storm water discharges to Lake Knudson</td>
</tr>
<tr>
<td>AOC 54</td>
<td>13</td>
<td>Building 311 (Standard Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 55</td>
<td>13</td>
<td>Structure 506 (TNT Storage Barricade)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 56</td>
<td>13</td>
<td>Structure 533 (Explosive Barricade)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 57</td>
<td>13</td>
<td>Buildings 306, 307, 308, 309, 310 (Standard Magazines near Knudson Lake)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 58</td>
<td>19</td>
<td>Buildings 303 and 304 (Standard Magazines) and 320 (Field Dunnage Building along Arterial Road No. 3)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 59</td>
<td>19</td>
<td>Building T-422 (former Blg. X-11, Normal Maintenance Blg., Bomb and Shell Paint Blg.)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 60</td>
<td>21</td>
<td>Building 522 formerly designated as Building 500 (Ammunition Receiving Bldg.)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 61</td>
<td>6</td>
<td>Building 507 (Smokeless Powder Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 62</td>
<td>21</td>
<td>Building 508 (Smokeless Powder Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
<td>Description</td>
<td>Environmental Characterization Completed</td>
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</tr>
<tr>
<td>-----------------</td>
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</tr>
<tr>
<td>AOC 63</td>
<td>21</td>
<td>Building 509 (Primary Collector Barricade or Propellant Baghouse)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 64</td>
<td>21</td>
<td>Building 510 (Vacuum Producer Building)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 65</td>
<td>21</td>
<td>Building 511 (Service Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 66</td>
<td>21</td>
<td>Building 512 (Service Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 67</td>
<td>21</td>
<td>Building 513 (Service Magazine)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 68</td>
<td>21</td>
<td>Structure 514 (Deboostering Barricade) and Structure 545 (Earthen Barricade)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 69</td>
<td>22</td>
<td>Buildings 301, 302, and 312 (Standard Magazines), Building 316 (Field Lunch Room)</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>SWMU 70</td>
<td>22</td>
<td>Disassembly Plant and TPL QA Test Area (Disassembly Plant includes Building 517, Structure 518, Building 519, Structure 520, Structure 521, Structure 547) Disassembly Plant and TPL QA Test and OB/OD Area</td>
<td>None (not identified as a SWMU prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 71</td>
<td>21 and 22</td>
<td>Former rectangular structure near TMW-5 and north of Blg. 528</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>SWMU 72</td>
<td>21</td>
<td>Deactivation Furnace, Deactivation Furnace Acid Pits, and surrounding area (includes pre-1958 buildings and areas in the vicinity of Blg. 530)</td>
<td>During the RI, 19 surface soil, nine subsurface soil, and three sediment samples were collected and analyzed for metals, total phosphorus, and sulfate MEC and MEC-related scrap clearance completed 1997 During the RA, eight surface soil and eight subsurface soil samples were collected and analyzed for explosives, metals, and total phosphorus NMED collected eight surface soil samples and analyzed for perchlorate</td>
<td>RI found elevated concentrations of metals in surface and subsurface soils A copy of the MEC clearance statement is included in Appendix D RA found elevated concentrations of metals and total phosphorus in surface and subsurface soils NMED did not detect perchlorate</td>
</tr>
<tr>
<td>SWMU/AOC Number</td>
<td>Parcel Number</td>
<td>Description</td>
<td>Environmental Characterization Completed</td>
<td>Summary of Environmental Condition</td>
</tr>
<tr>
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</tr>
<tr>
<td>AOC 73</td>
<td>23</td>
<td>Former buildings or structures along Road C-3.</td>
<td>Some characterization of one of two buildings in this AOC completed as part of RI; site of Bldg. T-332 was mistakenly identified as another site; geophysics was performed at building footprint, and 18 subsurface soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, and metals</td>
<td>Minimal subsurface debris present based on geophysics. Only metals detected in subsurface soil samples.</td>
</tr>
<tr>
<td>SWMU 74</td>
<td>3</td>
<td>Area 16 or Site 16 (Proposed Burning Ground) – to be addressed under the Kickout Area requirements unless the location is determined to be outside the Kickout Area boundary as defined Section IV.A</td>
<td>Not identified as a SWMU prior to Draft Permit. MEC-related scrap removed in 1999.</td>
<td>Some MEC-related scrap observed and removed. Scrap believed to be kickout from OB/OD operations.</td>
</tr>
<tr>
<td>AOC 75</td>
<td>6, 7, 11, 12, 13, 19, 21, 22, and may include other parcels</td>
<td>Electrical Transformers (at least 65 former or existing transformers)</td>
<td>Sampling at some locations completed</td>
<td></td>
</tr>
<tr>
<td>AOC 76</td>
<td>2</td>
<td>Feature 19 on the 1973 aerial photo (API-5) in the 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 77</td>
<td>2</td>
<td>Feature 20 on the 1973 aerial photo (API-5) in the 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 78</td>
<td>4, 5, and 6</td>
<td>Feature 18 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 79</td>
<td>6</td>
<td>Feature 2 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 80</td>
<td>6</td>
<td>Feature 9 on 1962 aerial photo (API-3) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 81</td>
<td>6</td>
<td>Feature 11 on 1962 aerial photo (API-3) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
</tbody>
</table>
## Table 2
### SWMU and AOC Summary Table
#### Fort Wingate Depot Activity
#### Gallup, New Mexico

<table>
<thead>
<tr>
<th>SWMU/AOC Number 1</th>
<th>Parcel Number 2</th>
<th>Description</th>
<th>Environmental Characterization Completed 3</th>
<th>Summary of Environmental Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOC 82</td>
<td>4, 5, and 6</td>
<td>Feature 18 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 83</td>
<td>6</td>
<td>Feature 22 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 84</td>
<td>6</td>
<td>Feature 12 on 1962 aerial photo (API-3) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 85</td>
<td>7 and 9</td>
<td>Feature 11-1 on 1962 aerial photo (API-3) in 1995 Archive Search Report and Feature 1 on 1973 aerial photo (API-5) in 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 86</td>
<td>21</td>
<td>Feature 15 on 1973 aerial photo (API-5) in 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 87</td>
<td>21</td>
<td>Feature 18 on 1962 aerial photo (API-3) and Feature 23 on 1973 aerial photo (API-5) in 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 88</td>
<td>22</td>
<td>Former buildings or structures and disposal areas southwest, south, and southeast of Blg. 528.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 89</td>
<td>3</td>
<td>Feature 30 and Feature 34 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 90</td>
<td>3</td>
<td>Feature 36 on 1973 aerial photo (API-5) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 91</td>
<td>3</td>
<td>Feature 41 in the 1973 aerial photo (API-5) and Feature 27 on the 1978 historic aerial photo (API-7) in the 1995 Archive Search Report.</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
<tr>
<td>AOC 92</td>
<td>3</td>
<td>Feature 31 on the 1973 historic aerial photo (API-5) and Feature 21 on the 1978 aerial photo (API-7) in 1995 Archive Search Report</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
</tbody>
</table>
Table 2
SWMU and AOC Summary Table
Fort Wingate Depot Activity
Gallup, New Mexico

<table>
<thead>
<tr>
<th>SWMU/AOC Number</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AOC 93</td>
<td>Un-known</td>
<td>Bivouac and Tank Training Area</td>
<td>None (not identified as an AOC prior to Draft Permit)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. SWMU and AOC numbers taken from RCRA Permit No. NM 6213820974, Attachment 8, dated 1 December 2005; previous/historic SWMU/AOC numbers from previous documents have purposely been omitted to reduce confusion

2. Parcel numbers to indicate where a particular SWMU or AOC is located were taken from RCRA Permit No. NM 6213820974, Attachment 8, dated 1 December 2005; several entries have been revised/corrected based upon review of parcel mapping (Figure 4), as follows:

   - AOC 29 - reference to Parcel 19 has been deleted because no structure or land in Igloo Bock C is located in Parcel 19
   - SWMU 40 - references to Parcels 6 and 7 have been added because portions of this consolidated SWMU are within those parcels
   - AOC 51 - reference to Parcel 6 has been deleted because this UST was located in Parcel 11
   - AOC 57 - reference to Parcel 16 has been changed to Parcel 13 because the buildings in question are in Parcel 13
   - AOC 61 - reference to Parcel 21 has been changed to Parcel 6 because Building 507 is in Parcel 6
   - AOC 71 - reference to Parcel 21 has been added because this AOC straddles a parcel boundary
   - AOC 78 & 82 - reference to parcels have been revised to include Parcels 4, 5, and 6 for both AOCs (believed duplicate, based on description)
   - AOC 85 - reference to Parcel 7 has been added because a portion of this AOC is located in Parcel 7
   - AOC 86 - reference to Parcel 21 has been changed to Parcel 21 because the AOC is in Parcel 21

