

LANDFILL USAGE ARCHIVES SEARCH REPORT

on

**DONA ANA, ORO GRANDE, AND MCGREGOR
RANGE COMPLEX, NEW MEXICO
FORT BLISS, TEXAS**

COMMISSIONED

BY

MALCOLM PIRNIE, INC.



FOR USE BY

U. S. ARMY CORPS OF ENGINEERS

AUGUST 2000

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1.0 Introduction

The Fort Worth Corps of Engineers (COE), requested Malcolm Pirnie, Inc. (MPI) to undertake the investigation of four inactive landfills located on Fort Bliss Firing Ranges in New Mexico (Figure 1). On February 2, 2000, Mr. F. Steve Petersen, Senior Geologist for Malcolm Pirnie, Inc. requested J. K. Wagner & Company (JKW&CO) to conduct an archives search in order to obtain information relating to the former use, configuration, and duration of the four landfills located on three Fort Bliss Firing Ranges in New Mexico. All four sites had been closed in 1992 by the New Mexico Department of the Environment, two of which were reported to be located south of the Dona Ana Range Camp, one south of the Oro Grande Range Camp and one south of McGregor Range Camp (Figures 2, 3, 4). JKW&CO responded with their Proposal No.200218B. On March 28, 2000, MPI released JKW&CO to accomplish the task.

Assisting in the production of this report have been Mr. Douglas Molineu (report production), Ms. Kelli Pousson (computer and data management), Ms. Lorene Pouncey (bibliographic research), Ms Pam Wyrick (document research), and Mr. Keith Odenheim (BLM research). Janet K. Wagner provided project management. This report completes our scope of work for the project and transmits our findings on the project.

Special thanks to the generous assistance of Mr. David Dodge, Directorate of the Environment; Ms. Vicki Hamilton; Katherine Diehl, Susie Paine, Archivist; Jim Bowman, Archeologist; and Mr. Gary Hebler, Archeologist. We also wish to thank the assistance of Mr. Bill Tipton, Directorate of Public Works, and Ms. Susan Martinez and Miguel Cheg Guajardo of the Real Estate Department, Fort Bliss, El Paso, Texas as well as Ms. Mary Guitierrez, Bureau of Land Management Old Records, Santa Fe, New Mexico; Mr.

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Ronnie Martinez, New Mexico General Land Office; Mr. Kelly Blough and Bob Burton of White Sands Missile Range, and Treavor Ashby, Bureau of Land Management, Las Cruces, New Mexico Field Office.

1.1 Executive Summary

Archival research, combined with documentation from construction contractors, aerial photographs, range camp operators, former Range Riders, local ranchers, as well as Fort Bliss historic maps, land and real estate records, reveals the following information:

The two sanitary landfills at the Dona Ana Range Camp are reported to be located south of the main camp. The closest is known as SWMU (Solid Waste Management Unit) 29, or Fort Bliss Landfill No. 11 (FTBL-011). SWMU 29 (FTBL-011) was reported to be directly adjacent to the south road of the main Dona Ana Camp. From the archival literature search, historic aerial photographs, and contractor reports, this site appears to be a dump of small size (about 100 feet diameter by five feet in depth) and filled with modern construction trash.

The second Dona Ana Sanitary Landfill, SWMU 27, also known as Fort Bliss Landfill No. 012 (FTBL-012) is located about 0.7 of a mile south of the main camp. This landfill commenced about 1968 and held mostly trash and lumber from packing crates which were burned at regular intervals, the ash pushed to one end and the pit re-filled for the next burn. Individual trench sizes within the overall pit are about 180 feet long by 22 feet wide and 15 feet deep at the center. The overall pit utilized conforms to about

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250 feet in length by 40 feet wide. Some pits, where soft sand was encountered, may be nearly 20 feet in depth. At the time of closure, the pit held about 707 cubic yards of waste material with the overburden waste material from the pit being used to re-close the surface. The walls were constructed of hard packed clay and slightly graveled soil. The bottom of the pit was constructed of the same material. At present, a number of large mounds of overburden material pushed up in the original construction still remain on the surface. Some new vegetation in the form of Creosote Plants are attempting re-entry. A small amount of erosion is present from surface water crossing the site during rain episodes. It should be noted that Thompson (1989, page 4-87) reports an "original length of 450 feet" for the overall landfill utilization, noting one active pit reported to be "40 feet wide and 25 feet deep (Thompson, 1989, page 4-87)."

The Oro Grande Landfill (SWMU 25), also known as FTBL-014, is located south of the Oro Grande Range Camp. This landfill is about 0.8 of a mile southeast of the main camp road and directly west of Elephant Mountain. This landfill commenced operation about 1964. This landfill was burned occasionally and used for trash and rubble from camp construction and operations. Some illegal dumping from nearby residents has been reported in the interviews. Oro Grande trenches are approximately 120 feet long by 40 to 50 feet wide and 15 feet deep at the center with 1222.22 cubic yards total capacity. Within the overall pit, there are two parallel trenches, about two feet distant.

At the time of closure there was about 600 cubic yards of waste material in the pit. The pit walls were constructed of hard packed clay, caliche and rock. The pit bottom was constructed of hard packed clay and sand. The overburden waste material from the pit was utilized in re-closing the pit. The overburden is presently leveled and a small amount of new growth vegetation has emerged with a small settlement having occurred in the pit.

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There is minor erosion in the central area from a local water shed. To the west of the original pit is an unrelated longitudinal tar seep. Thompson reports (1989, page 4-63) that the overall pit size was "300 feet long by 50 feet wide and 35 feet deep."

The McGregor Landfill (SWMU 18) is located south of the McGregor Range Camp. This landfill is also known as Fort Bliss Landfill No. 013 (FTBL-013), or as the McGregor Sanitary Landfill. This landfill is located in an old borrow pit and directly south of the main portion of the McGregor Range Camp, being opened just after the camp was constructed around 1962. The McGregor landfill also contained rubble and camp refuse, being burned occasionally. The pit size is reported to be approximately 180 to 200 feet long by 100 feet wide and twenty feet deep at the center, and was estimated by contractors as having about 1711 cubic yards total capacity. Within the overall pit area, multiple trenches were utilized, being one foot apart and 22 to 40 feet wide.

The pit contained about 900 cubic yards of waste material at the time of closure. The walls were constructed of hard packed clay, caliche and rock. The bottom of the pit was constructed with hard packed clay and sugar sand. The overburden waste material from the pit was used to re-close the surface. Several large mounds of overburden material remain on the surface with a small amount of new vegetation growth. In general, the area is relatively level on the surface. All hazardous materials including used drums from the red foaming nitric acid were stored elsewhere on the site and removed by a private contractor for proper disposal. Thompson (1989, page 4-18) reports the most recent trench landfill to be "300 feet long by 50 feet wide and ten feet deep, originally excavated 35 feet deep."

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Since, 1992, all solid waste generated at field mess locations in weapons firing and maneuver areas is collected and disposed of at the official Fort Bliss Sanitary Landfill, according to Standing Operating Procedures issued by the Headquarters, 1st Combined Arms Support Battalion, Fort Bliss, Texas(15 July 1996: page 25). The Procedures prohibit the burning and burying of solid waste refuse. In addition, ordnance will not be combined with solid waste refuse and is to be turned in and evacuated through salvage channels to collections points conforming to established DOD and Army policy and requirements (Standing Operating Procedures: 15 July 1996: p.25).

1.2 Methodology

Records consulted included those located at Fort Bliss in the Departments of Planning, Public Works, Environment, the ADA Post Historian, the Fort Bliss Museum, and at the McGregor Range Camp; the City of Las Cruces Departments of Planning and Environment; the Otero County Clerk's Office and Tax and Planning Office; the Alamogordo Public Library; the El Paso Public Library; the Branigan Public Library (Las Cruces, New Mexico); the Dona Ana County Clerk's Office and Tax and Planning Office; as well as the Special Collection at the University of Texas at El Paso (UTEP). Organizations and records also contacted, but not researched, included the Corps of Engineers, St. Louis District and National Archives, Ft. Worth, Texas. Air photographs recovered include those from the United States Geological Survey, the National Archives and the United States Department of Agriculture.

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Personal Interviews regarding the landfills were taken from Mr. George Bankston, Range Commander, Mr. Pete Atkins, former Range Rider and Rancher at McGregor, Mr. Larry Fisher, former employee of Fort Bliss, Mr. Dave Hall, Fort Bliss Employee, and Mr. Ron Smith, Vice President of Moore Disposal Services.

1.3 Site Location

Figures 2, 3, and 4 depicts the general locations of the four inactive landfills in New Mexico. Figure 2 depicts the historic location of the two Dona Ana Range Camp landfills known as SWMU 29 (FTBL-011) and SWMU 27 (FTBL-012). Figure 3 covers the historic area of Oro Grande Range Camp for SWMU 25 (FTBL-014), and Figure 4, of the McGregor Range Camp for SWMU 18 (FTBL-013).

1.4 Previous Site Investigations

Two previous site investigations, conducted by A. T. Kearney, Chicago, Illinois and the Thompson Professional Group, Houston, Texas, have been consulted for this report in addition to the archival resources.

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1.41 Kearney Report

This report was produced by A.T. Kearney, Inc., of Chicago, Illinois for the United States Environmental Protection Agency in March of 1989. It is titled RCRA (Resource Conservation and Recovery Act) Facility Assessment PR/VSI Report: U.S. Army Air Defense Artillery Center and Fort Bliss, Fort Bliss, Texas with the EPA ID Number: TX4213720101.

This report contains the preliminary review (PR) and the visual site inspection (VSI) carried out on the SWMU's on Fort Bliss. The report evaluates the SWMU's for the release of contaminants and makes preliminary determinations for those SWMU's in need of further actions. It also removes from further investigation those SWMU's that are determined not to pose a threat to the environment.

1.42 Thompson Report

This report entitled, "RCRA Facility Investigation for Five Solid Waste Management Units Fort Bliss, Texas and New Mexico," was produced in July of 1997. Thompson Professional Group, Inc. located in Houston, Texas assembled the report for the U.S. Army Corps of Engineers Fort Worth District. The Report in three volumes was identified as Contract No. DACA63-94-D-0009, Delivery Order No. 0036.

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The purpose of this investigation report was to reasonably determine whether hazardous waste and/or hazardous constituents have been released to the environment at any of the sites, and if so, to evaluate the nature and extent of that contamination, and to assess the potential risk posed by such contamination to the public health and to the environment.

1.43 Other Reports

Two other previous site investigations were reviewed. The first, conducted in 1987 and 1989 was by the United States Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland, entitled "Final Report, Evaluation of Solid Waste Management Units, Fort Bliss, Texas", 3-7 August 1987 and 26-29 September, 1989. The second report was the April, 1993, "Environmental Compliance Assessment Report" by the Earth Science Corporation.

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2.0 Site History: Dona Ana, Oro Grande and McGregor Range Camps

Dona Ana was the first New Mexico camp acquired by Fort Bliss originated from an executive order issued in 1911 by the President of the United States. The Oro Grande Camp site was used as a camp site during World War II as part of the Antiaircraft Range. The McGregor Camp Site was used in 1959 as a tent camp site. Permanent facilities were constructed at Oro Grande and McGregor in the early 1960s with five old firing ranges being abandoned at this time: Alvarado, Desert, North McGregor, South McGregor and Red Canyon.

2.1 Dona Ana Range Camp

The Dona Ana Range Camp is located in Township 25 South, Range 4 East, Section 11 at Latitude 30 degrees, 8 minutes 46 seconds and Longitude 106 degrees 30 minutes 30 seconds (Figure 2). The Dona Ana Camp was part of a ring of auxiliary camps that were constructed around the main cantonment of Fort Bliss for the National Guard mobilization along the United States - Mexican border. The Camp was founded in 1911 by Executive Order No. 1450 dated 29 December 1911 and signed by the 27th President of the United States, William Howard Taft (1857-1930) acquiring nearly all of Township 25 South, Range 4 East. The acquisition had been triggered by the Mexican Revolution that threatened the United States/Mexican border, especially El Paso, with disruption and civil unrest from Texas to Arizona, and the number of troops necessary to cover an eighty mile patrol line. The Army had established Fort Bliss near El Paso and Fort Selden north of Las Cruces, near the Rio Grande. The Dona Ana Township 25 South, Range 4 East location was one day's ride between the two forts. There were early

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reports that the revolutionary Mexicans had established a training camp in the area. The acquisition and military presence served to provide a training base for the Forts as well as eject any of the revolutionary troops from the region. The Dona Ana Camp also served to control the flow of weapons into Mexico from the United States.

The base camp for Dona Ana was situated in the gap between Boulder Canyon in the Organ Mountains to the north and the northernmost point of the Franklin Mountains to the south. Within four years, a second acquisition of land around the original Dona Ana Camp was necessary. Executive Order No. 2280, dated 1 December 1915, set aside for military purposes a 40 acre tract in the northeast quarter of the northeast quarter of Section 4 Township 24 South Range 4 East. This was immediately followed two years later with a Decree of Condemnation (U.S. vs R. B. Findlay, et al) acquiring 600 acres for the Dona Ana Range. The 1916 time period reflects the shift from a focus on infantry to artillery and the beginning of mechanization of forces. The troops at the Dona Ana Camp were trained in the use of sabers and small arms, as well as the new British Lewis machine guns. Ford trucks were used in place of cavalry. The most intensive training use of the Dona Ana Range Camp occurred in 1916 with the arrival of the National Guard from Massachusetts and New Jersey, eventually boosting the Fort Bliss forces to 40,000 troops (Metz 1981:71). The Dona Ana Range Camp facilitated the training of these troops in the new weapons and vehicles.

An Amendment of the Act of 1911 regarding Dona Ana land came in a Quit-Claim Deed from the State of New Mexico (Commissioner of Public Lands) on 7 February, 1920 dedicating 5,120 acres to military use out of Township 24 South, Range 4 East (Sections 2, 16, 32 & 36) and Township 25 South Range 4 East (Sections 2, 16, 32, & 36) and recorded in the Deed Records of Dona Ana County, Volume 61 page 196.

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In 1928, the Dona Ana Camp trained troops in Mounted Pistol, Saber, and machine gun target practice. The horses were quartered at the camp in six corrals. A horse cemetery was constructed to the north of the camp. The camp buildings consisted of an exchange building (20ft x 60ft), camp headquarters, staff building, dispensary, kitchen and mess, an officers bath and club, supply office, officers mess building, telephone exchange, officers quarters enlisted mens bath building, and tents for the housing of soldiers in training. The sanitary landfill and manure dumps were located over a mile from the main camp. New mess halls were constructed in 1932 and 1933.

A paved "black top" highway (War Highway No. 11) was constructed, commencing on 1 October 1940, from Fort Bliss to the Dona Ana Camp by the Texas Highway Department for 9.17 miles to the New Mexico line, wherein the New Mexico State Highway Commission finished the road to the Camp. The road leading northward and east to Oro Grande and White Sands remained a dirt road named the "Desert Road."

In 1949, the Dona Ana Camp, located 24 miles north-northwest of the main cantonment of Fort Bliss, consisted of barracks, latrine, mess hall, administration, supply and recreations buildings, along with a water well and horse corrals. Training in sub-machine gun fire, mortars, gravity guns, pistol and rifle fire was conducted at firing ranges near the camp. Sewage from kitchens and wash room only was disposed of a grease interceptor to evaporation ponds. Electricity was supplied via a 50-KVA 3 phase generator, 60 cycle, 220 volt, diesel-driven engine.

By 1951, an attach course was constructed to the southwest of the camp, whereupon the Planning Post recommended a permanent type pit latrine for the location. By 1962, the Dona Ana Camp was training troops in small arms and conventional artillery

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firing. The water well had been replaced in 1959, now powered by electric motor with a stand-by gasoline engine. Cooking facilities were not available at the camp, only dining facilities.

2.2 Oro Grande Range Camp

The paving of War Highway No.11 resulted in an additional 506,480 acre acquisition in Dona Ana and Otero Counties between the Organ Mountains on the west and the Hueco Mountains to the east, being the area known as the Tularosa Basin, that was recommended as early as 1938. This acreage included part of the Oro Grande Range Camp (Figures 1 and 3). As 356,400 acres were public domain and 103,880 were New Mexico State land, the acquisition was doable except for the small portion of 46,200 acres of private land. Much opposition came from the Ranchers operating on the private land. As some of the Bureau of Land Management property was under grazing leases, this property had to be negotiated for military use. Between 1940 and 1948, the land negotiations and acquisitions that covered the Oro Grande and McGregor Ranges slowly increased the military presence. The prime need for a greater amount of Range Camp land was due to the use of Antiaircraft weapons and the resultant training programs. Firing fans greater and greater distance became necessary as the longer-range weapons became available. The time of World War II saw the demise of the Cavalry and the advent of the mechanized army.

In 1949, the Oro Grande Camp site consisted of a salt water well for washing, trucked in drinking water to a cistern, a septic tank for sewage (capacity 2000 population) with evaporation pool, ten mess halls, ten latrine buildings, twenty accessory buildings

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with the troops housed in tents. Electricity was supplied via a diesel-driven 50 KVA 3-phase generator, 60 cycle, 220 volt. At this time, the Post Engineer recommended replacing tentage with hutments as an interim measure as the number of night rattlesnakes in the area (with troops in tents) created a serious mental hazard as well as a dangerous condition.

In 1950, the camp had added a post exchange building, three range buildings, caretaker's quarters, infirmary, two storehouses, and a classroom. Fresh water was still being delivered to the camp by truck and coal was used throughout the camp for cooking and heating purposes. An increase in camp usage by the U.S. and NATO troops occurred in 1962, necessitating the rebuilding of the camp. All World War Two construction was removed and new semi-permanent masonry or sheet metal buildings were placed at the camp to house about 1000 men. Water came from White Sands Missile Range through pipes. Oro Grande had gained in importance as the only location in the United States where the firing of surface-to-surface missiles over land was possible for practice.

2.3 McGregor Range Camp History

The troops of Fort Bliss were training at McGregor as early as 1941 (Fort Bliss News: April, 1941). Small military vehicles later known as jeeps along with Antiaircraft weapons were utilized in the training at McGregor Range. Originally known as the Antiaircraft Range, this area consisted of 421,582.72 acres acquired as a co-use lease on 1 December 1940. The co-use involved working with the ranchers and their cattle operations on the same land. Over time, the arrangement proved unworkable and

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dangerous. In November, 1945, the Army took steps to acquire the land, ending all grazing rights for the ranchers and beginning condemnation suits on the balance of the private land to the north (Figures 1 and 4).

The McGregor Range was divided into two ranges known as North and South McGregor Range. The pre-1964 land use of the McGregor Firing Range appears as day-use and temporary tent camp sites from 1941 to early 1961. Firing points at each range contained one hutment, two pit latrines and steel observation tower with desert roads for ingress and egress.

Between 1953 and 1959, most of the McGregor activities took place in Red Canyon to the north, until the present camp site was selected for construction of more-permanent facilities. The Red Canyon camp was closed in June 1959 and the three hundred men moved to the south McGregor Range.

Oro Grande was important in the early 1960s as the guided missile firing ranges for Nike Ajax and Nike Hercules firing at 26 points. The first road to the present McGregor Camp was graded in 1962 and the permanent buildings and facilities camp established at the present site by 1964. Water and natural gas came to the camp from El Paso via pipeline. Heating and cooking was by natural gas.

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3.0 Landfill Activities at the Range Camps

According to extant records and documents, sanitary landfill activity began, following camp construction, between 1911 and 1917 at the Dona Ana Range Camp; in 1964 at the Oro Grande Range Camp; and in 1962 at the McGregor Range Camp. According to previous studies, the sanitary landfills were closed in 1992 at these camps.

3.1 Dona Ana Range Camp SWMU 29 (FTBL-011)

Until the late 1960s, there were no kitchen facilities at Dona Ana and, presumably, all food had to be processed elsewhere and delivered to the range camp. The latrines and washrooms present at Dona Ana Range Camp drained through a grease interceptor, into an open trench that drained the material away and disposed of it through evaporation (Analysis of Facilities 1951). This trench is, almost certainly, the latrine trench that can be seen on all aerials to the west and south of the range camp (Figure 5 and 6).

This set up continued until 1966 when a complete sanitary sewage collection and disposal system was built. This was provided through the Augmentation of Active Army (AOAA) project number 4. This project also provided the modern facilities now present within the range camp and included foundations for at least eleven cook tents and the vehicle maintenance facilities (Figure 7).

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SWMU 29 (FTBL-011), has not identified as a extensive sanitary landfill according to the archival records. This landfill was reported to have been opened before 1960, and reported to contain waste from around the time of the First World War through 1945 (Thompson, 1997). This landfill appears to be small in size and conform to the Thompson findings.

Mr. Brendt was interviewed by members of the Thompson Group during their 1997 study of landfill sites on the three Range Camps in New Mexico. SWMU 29 (FTBL-011) was estimated at that time by Mr. Wayne Brendt (Thompson, 1997) an amateur historian, to be located immediately southwest of the Dona Ana Range Camp and to be approximately five acres in extent (Figure 8). This hypothesis was based on the recovery of artifacts scattered across the surface of the area. This landfill was reported to be the oldest SWMU, as well as the one closest to the camp (Thompson, 1997).

From the historical record, the landfill discussed by Mr. Brendt and the Thompson Report (1997) is not the original landfill used by the Dona Ana Range Camp. While the area that was defined as SWMU 29 is reported to be the oldest and the closest to the camp, a review of the literature indicates that the pre-1960 sanitary landfill (or landfills) is located over one mile from the Dona Ana Range Camp.

Resistivity studies conducted by Thompson (1997) indicate that only one area within the estimated five acres that appears to have disposed material is a small region, about 100 feet in diameter, immediately adjacent to the maintenance parks (Thompson Report Figures 4-6-3 and 4-6-5A). Thompson conducted trenching and soil bores only from the defined rubble pit and not from elsewhere and within the estimated extent.

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This testing also indicated that the rubble pit was only 4 to 6 feet in depth and held modern material. John Laser (Thompson Professional Group, personal communication August 2000) states that the artifacts recovered during the trenching of this rubble pit (bottles, coffee cans, expended smoke grenades) appeared to be of recent origin. Mr. Laser further stated (personal communication August 2000) that this very small area was the only region of subsurface disturbance found while surveying this area.

Except for the previously discussed rubble pit no excavations have been conducted to determine if subsurface features exist or to recover buried artifacts. Resistivity surveys appear to indicate that no further subsurface disturbances exist within this area immediately adjacent to the range camp (Thompson Report Figure 4-6-5A) (Thompson 1997). Unless further subsurface investigations prove the contrary, there does not appear to be any evidence that would support the conclusions that there are any landfills in this region.

An alternate theory for the spread of cultural debris recorded by Mr. Brendt (Thompson, 1997) is that it has been deposited by fluvial action during periods of flooding or heavy rainfall. This area is inundated by water from the latrine trench at the western edge of the expanse during periods of high rainfall (Figure 9). This would explain the surface scatter without necessitating the presence of a landfill.

Maps from 1928, indicate that the Dona Ana Sanitary Landfill and manure pit, as well as the pistol/saber range, were located over a mile from the main camp (Figure 10). This is not an unreasonable distance for trenches containing manure and other such degradable substances.

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If the landfill hypothesized by Mr. Brendt was in use during the early years of the Dona Ana Range Camp, then it should be visible on aerial photographs both while it was in use and later from damage to the surface land forms. From those maps and photos studied by JKW&Co. it is not visible. Aerial photos from the earliest periods on, clearly show this area, the latrine trench, and the construction in the camp, but lack evidence of damage from a landfill.

The 1936 aerial photo does not appear to show any use of this suspected land (Figure 11). The entire area appears to be undisturbed and covered in creosote bush. The same is true for the 1942 aerial photo (Figure 12). In this case there is some building construction in the area that later becomes the vehicle maintenance parks but no other cultural land use or modification is visible.

The first indications of any major use of this area is in the 1967 Analysis of Facilities, which indicates that two vehicle maintenance parks had been built in this area (Figure 13). The 1972 Analysis of Facilities shows that these maintenance parks had reached their current size (Figure 7). A 1971 aerial photo appears to show scarring from vehicle transit and parking throughout the area south of the range camp that corresponds to the current land use in this region (Figure 14).

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The rubble pit identified in the Thompson Report (1997) by resistivity measurements most likely dates to the construction of the vehicle maintenance parks for several reasons. This opinion is supported by the following observations;

(1) That the area reported by Thompson (1997) as SWMU 29 (FTBL-011) appears scarred on aerials after the 1960's is the result of the disturbance of the entire area by the construction of these parks and the use of the region around them for vehicle parking.

(2) The size and limited data recovered by the investigators in the Thompson Report (John Laser, personal communication, July, 2000) would better fit the size and composition of a limited use (or one-time use) rubble pit dug by a contractor to dispose of waste produced during the construction of the vehicle maintenance parks and/or the enhancement of Dona Ana Range Camp in 1966 under the AOAA Project Number 4.

(3) Both the 1936 and 1942 aerial photos show scarring to the southwest of the range camp that corresponds to the areas indicated on the 1928 map (Figure 10) as the locations of both the cavalry pistol/saber range and the sanitary landfill (Figure 15). The presence of scarring in these early aerials makes it even further improbable that the area indicated by Mr. Brendt is the location of any form of early landfill. Any cultural use of this land immediately adjacent to the Dona Ana Range Camp should appear in these aerials. Furthermore, due to the slow regeneration of desert lands, any landfill as temporally and geographically extensive as that hypothesized should leave traces visible even on contemporary aerials as well as to intensive archaeological survey.

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The area identified by Thompson (1997) as SWMU 29 (FTBL-011) is, as previously stated, heavily disturbed by its use as a vehicle parking and transit area (Figure 16). The area directly east of the rubble pit is shown in the photo on Figure 17. This area is the vehicle/tank parking area that is heavily used during maneuvers. As can be seen from the following photos, the entire area is spotted with various bits of refuse and has been culturally enhanced (Figure 18, 19, 20, 21).

3.2 Dona Ana Range Camp SWMU 27 (FTBL-012)

SWMU 27 (FTBL-012), known as the Dona Ana Rubble Pit, is located approximately 0.7 miles southwest of the Dona Ana Range Camp at north 32 degrees 8.755 minutes by west 106 degrees 30.971 minutes at an elevation of 4104 feet above mean sea level (amsl) (Figures 22, 23, 24, 25, 26).

Kearney (1989) reports that there are two trenches in use here, one covered and one in use, and that the site has been used since the 1950's. The most recent trench has been active since 1983 and, when it was closed in 1992, was approximately 180 feet long by 22 feet wide and 15 feet deep and contained around 707 cubic yards of waste material (Thompson Report Figure 4-5-4). The pit itself consists of hard packed clay and gravel walls and floor. The pit is capped with overburden waste material (Figures 27, 28, 29, 30).

Waste disposed of in this landfill includes wood, cardboard, paper, plastic, tires, scrap metal, food, and 55-gallon drums. It may also contain rubble waste and arms munitions. According to Kearney (1989), there was no information collected regarding hazardous wastes being placed in this landfill (Kearney 1989). The potential for the

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release of waste and waste byproducts from this unit was considered likely by Kearney (1989). The current conditions of this site include several piles of remaining overburden and some visible water erosion.

3.3 Oro Grande Range Camp SWMU 25 (FTBL-014)

The Oro Grande Range Camp is located in Township 22 South, Range 8 East, Section 8, at Latitude 32 degrees 23 minutes 10 seconds and Longitude 106 degrees 9 minutes 0 seconds (Figures 3, 31). Much of the sanitary waste produced at the Oro Grande Range Camp were disposed of through an Imhoff sewage system and evaporation (Analysis of Reports 1951-1972)

SWMU 25 (FTBL-014) is also known as the Oro Grande Rubble Pit and is located approximately 0.8 miles south of the Oro Grande Range Camp, immediately west of Elephant Mountain near high voltage lines (Figures 32, 33, 34, 35, 36). It is at north 32 degrees 23.473 minutes by west 106 degrees 8.991 minutes at an elevation of 4226 feet amsl. The SWMU 25 (FTBL-014) is located in Section 17, Township 22 South, Range 8 East.

This SWMU consists of a two acre, trench type landfill. The most recent trench is approximately 120' long by 22' wide by 15' deep. In 1992, when it was closed, it contained approximately 600 cu. yards of waste material. The pit itself consists of hard packed clay, caliche, and rock walls with a hard packed clay and sand floor. The pit is capped by overburden waste material from the pit (Figure 37 and Thompson Report

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Figure 4-4-3). The waste reported to have been disposed in this landfill (Kearney 1987) includes organic garbage, wood, scrap metal, plastic, cardboard, and miscellaneous rubble. No hazardous wastes were reported to have been disposed here, although some unauthorized dumping of metal and other materials apparently has occurred. Kearney (1987) considered the potential for the release of contaminants into the environment from this landfill as low, although he does not consider what might have been entered into the landfill unauthorized. There is a tar spill just west of the landfill (Figures 38, 39) reported by Kearney (1989) and extant in 2000.

3.4 McGregor Range Camp SWMU 18 (FTBL-013)

McGregor Range Camp is located in Township 26 South, Range 7 East, Section 1 and Township 26 South, Range 8 East, Section 6 at Latitude 32 degrees 4 minutes 28 seconds and Longitude 106 degrees 10 minutes 00 seconds (Figures 4, 40, 41).

The sanitary landfill directly south of the Camp known as SWMU 18 (FTBL-013) was established at this time. Much of the sanitary wastes produced at the McGregor Range Camp were disposed of through an Imhoff sewage system and evaporation tank (Analysis of Reports 1951-1972).

SWMU 18 (FTBL-013) is also known as the McGregor Rubble Pit and it is located 0.25 miles south of the McGregor Range Camp at north 32 degrees 4.445 minutes by west 106 degrees 10.630 minutes at an elevation of 4107 feet amsl (Figures 42, 43, 44, 45). This sanitary landfill appears to be located in Section 1, Township 26 South, Range 7 East.

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According to the Kearney and Thompson reports, the overall landfill site is placed on approximately two acres, but the entire landfill may be as large as twenty acres in size and contain as many as ten waste pits and trenches (Thompson Report Figure 4-2-5) (Kearney 1987, Thompson 1997). The most current trench has been used since 1983 and is approximately 180' long, 22' wide, by 20' deep and contained around 900 cubic yards of waste material when it was closed in 1992. The pit itself consists of hard packed clay, caliche, and rock walls with a floor of hard packed clay and sugar sand. The pit is capped with overburden waste material (Figures 46, 47, 48).

The waste reported to have been disposed in this landfill (Kearney 1987) includes organic garbage, wood, scrap metal, plastic, cardboard, and miscellaneous rubble. Kearney (1987) states that no hazardous wastes were reported to have been disposed here and that the potential for the release of contaminants into the environment has been categorized as low.

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4.0 Fort Bliss Landfill Interviews

4.1 Dave Hall-Civilian Employee at Fort Bliss since 1986

Dave Hall was interviewed on June 20, 2000 and had the following to report. The Oro Grande Camp (Elephant Mountain Landfill SWMU-25 -FTBL-014) was kept clean and free of any debris which might contain asbestos, such as shingles, flooring, mastic, and baseboards. When it was reported to him that the City of Oro Grande was dumping trash and garbage in the landfill, he went to Oro Grande range camp and had the landfill cleaned of all asbestos, paint, thinner, lead, oil, grease, and any other material which might adversely affect the landfill. Mr. Hall had the Texas Natural Resources Conservation Commission (Quite possibly the New Mexico Environmental Department, since this landfill is located in New Mexico), to come and assist with the closing of the landfill. The landfill was closed and to Mr. Hall's knowledge, no hazardous waste of any kind was left in the fill.

4.2 George Bankston-Civilian Employee at Fort Bliss since 1956

George Bankston was interviewed on June 26, 2000. All of the landfills on the McGregor and Dona Ana ranges, including SWMU's 18,25, 27 (FTBL-012), and 29 (FTBL-011), were unregulated. There was no one to stop any type of dumping in the landfills. Anyone wishing to dump anything into the landfills was free to do so. As to what was dumped into the landfills, everything on earth from refrigerators to light bulbs. Other materials included paint, paint thinner, gasoline, used automobile oil, automobile grease, cooking grease, spent cartridges, unexploded shells, lacquer, shipping cartons

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(both wooden and cardboard), and every type of building material used on the range. The landfill near the Oro Grande Camp was used for a time (unauthorized) by the City of Oro Grande and the citizens of Oro Grande to dump collected refuse. The practice was halted after a while, but no one could be certain of what had been dumped in the landfill up until the time the practice was terminated.

4.3 Larry Fisher-Civilian Employee at Fort Bliss from about 1955
Presently contracting to Fort Bliss

Larry Fisher was interviewed on June 18 and 19, 2000. Additionally, Larry Fisher consulted the machine operators Lalo Baca and Rafel Reyna for information on the landfills. This mainly concerned the dimensions and closing dates.

The McGregor Range Camp landfill, SWMU-18 was utilized by the Army the year round from the time it was constructed in 1962. The road to the camp was built in 1962. The landfill at McGregor was opened with two trenches made by a bulldozer. The dozer had a blade 8 feet long. As one trench was opened, another trench was dozed along side of the first, about two to three feet away. The trenches were never more than 15 feet in depth. Occasionally a soft sand would be encountered by the dozer and the depth may have increased by a few feet. The length of the McGregor landfill was about 200 feet and the width of all the trenches was about 100 feet. As the trenches were filled with debris/trash it would be pushed to the end and set on fire, then pushed to the end again. When a trench was completely full, it was covered over with loose dirt. No compacting took place except that of the dozer passing over the landfill as it moved the dirt.

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McGregor contained M-38 weapon and Ajax, and Hercules missile packing materials, but a lot of this was burned. Additionally, the landfill contains wet-mess garbage, empty cans, waste motor oil and grease. McGregor was burned at irregular intervals.

The landfill at Oro Grande Camp (Elephant Mountain SWMU-25) was opened about 1964 with two trenches. A trench is actually two trenches side by side about 20 feet wide with about 2 feet between. The two trenches were about 100 feet in length, no more than 40 feet wide and no more than 15 feet deep. It is quite possible that this landfill contains building materials, including asbestos, building blocks, roofing materials asphalt, electronics, packing crates, tin cans, wet and dry mess hall garbage, motor oils and greases. This landfill was used primarily on a seasonal basis, i.e. during the summer for Reserve or National Guard training and maneuvers.

The Dona Ana Range Camp landfill, SWMU-27 (FTBL-012), which was located south of the camp past two arroyos, about a mile down the tank road, then to the left about 100 yards off the road. This landfill was built about 1968. Dona Ana landfill was burned on a regular basis.

Moore Services collected trash/garbage from the above three range camps and deposited it in the four subject landfills of the range camps, until the practice was stopped in the mid 1980's. Then Moore collected the garbage and delivered it to a landfill at the headquarters base of Fort Bliss. Mr. Fisher stated that to the best of his knowledge, no live ammunition, rockets, duds, or un-exploded ordnance were deposited in any of the sanitary landfills under study.

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4.4 Ronald A. Smith-Vice President-Moore Services

Ronald Smith was interviewed on July 20, 2000. Moore Services held waste management contracts from Fort Bliss beginning in the 1960's. It was their responsibility to collect refuse from 55 gallon drums at each range camp and deliver it back to the landfill at Fort Bliss. No trash or garbage was placed in any of the SWMU's at the range camps by Moore Services. Mr. Smith was not able to supply copies of any of the contracts for trash hauling from Fort Bliss.

4.5 Mr. Pete Atkins, former Range Rider and Rancher at McGregor

Mr. Pete Atkins was interviewed at the time of site visits on June 22 and July 17, 2000. Mr. Atkins had been ranching the McGregor area since the late 1930s. He knew the early Ranchers who lived in the Oro Grande and north McGregor areas and visited with them often. The Atkins family ranched on 200 sections of land (128,000 acres) around and now part of the McGregor Range, beginning in 1939. The Atkins original home had been located near Davis Dome, south of the main McGregor Range Camp. The home burned in 1948 from a kerosene stove explosion.

He related that the landfills currently under study at the Range Camps were all treated as sanitary landfills. He was not familiar with the landfill closest to the Dona Ana Camp known as SWMU 29 (FTBL-011) but knew of the 1968 landfill to the south known as SWMU 27 (FTBL012). With regard to live ammo being dumped in the area, Mr. Atkins said the ammo was reported to have been dumped in the oxidation ponds and not the sanitary landfill at Dona Ana.

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5.0 Terms and References

5.1 Acronyms

AA	Anti-Aircraft
AAA	Anti-Aircraft Artillery
AAA&GMC	Anti-Aircraft Artillery & Guided Missile Center
ACR	Armored Cavalry Regiment
AD	Air Defense
ADA	Air Defense Artillery
amsl	Above Mean Sea Level
AP	Armored-Piercing
APC	Armored-Piercing Cartridge
AOAA	Augmentation of Active Army
ASR	Archives Search Report
ATACMS	Army Tactical Missile System
AW	Automatic Weapons
CALFEX	Combined Arms Live Fire Exercise
DA	Dona Ana
DIA	Defense Intelligence Agency
EOD	Explosive Ordnance Disposal
FFAR	Folding Fin Aerial Rocket
FTBL	Fort Bliss Landfill
HE	High Explosive
JKW&CO	J. K. Wagner & Company

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LAW	Light Anti-Tank Weapon
MLRS	Multiple Launch Rocket System
MPI	Malcolm Pirnie, Inc.
MPRC	Multi-Purpose Range Complex
NBC	Nuclear Biological and Chemical
ORDCIT	Ordnance Research Department, California Institute of Technology
PLO	Public Land Order
RCAT	Remote-Controlled Aerial Target
SWMU	Solid Waste Management Unit
TCOE	Tulsa Corps of Engineers
TOW	Tube-Launched, Optically-Tracked, Wire-Guided Missile
TP	Target Practice
TPT	Target Practice Tracer
USAADC	U.S. Army Air Defense Center
UTEP	The University of Texas at El Paso
WSPG	White Sands Proving Ground

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5.2 References

ADA	U.S. Army Air Defense Artillery School
AEC	Army Environmental Center
CAS	McGregor Range, S-3 Range Scheduling, U.S. Army CAS Battalion
CESWF	U.S. Army Engineer District, Fort Worth
CMH	U.S. Army Center of Military History
COM	McGregor Range, S-3 Development and Enforcement, U.S. Army CAS Battalion
CP	National Archives at College Park
DOE	Fort Bliss, Directorate of Environment
MAX	U.S. Air Force Historical Research Agency, Maxwell AFB
MHI	Military History Institute
MICOM	Missile Command History Office, Redstone Arsenal
MP	Fort Bliss, Directorate of Public Works and Logistics, Engineering Plans and Services Division, Master Planning Office
NARA	National Archives and Records Administration
NEPA	Fort Bliss, National Environmental Policy Act Office
NPRC	National Personnel Records Center, Military Records
PA	Fort Bliss, Public Affairs Office
RE	Fort Bliss, Directorate of Public Works and Logistics, Engineering Plans and Services Division, Real Property Management Branch

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5.3 Report Distribution

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1932 Boundary Map, compiled from field and office data. Drawn by D. K.
Albertson. February 1932. Scale: 1"=1500'. 6289-217. (2cc)
- U. S. Army Air Defense Center, Fort Bliss, Texas. Master Planning Branch,
1962 Office of the Center Engineer.
Master Plan. Future Development Plans. McGregor Guided Missile Range
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- U. S. Army Air Defense Center, Fort Bliss, Texas. Master Planning Branch.
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Master Plan. Future Development Plans. Reservation Plan. Recommended
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Revised 1 March 1969. [in lower right corner: 5]
-
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Date March 1969. Date 1965. Drawing no. 18-02-08. Sheet no. 1 of 6. File no.
RM-100-1. Revised 12 March 1987. [in lower right corner: 2]

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U. S. Army Air Defense Center, Fort Bliss, Texas. Master Planning. Office of
1987 the Director Facilities Engineering.

Master Plan. Basic Information Maps. Reservation Map. Recommended
for Approval by the Installation Planning Board, date March 1971. Date
Dec 1965. Drawing no. 18-02-08. Sheet no. 2 of 6. File no. RM-100-2.
Revised 12 March 1987.

U. S. Army Air Defense Center, Fort Bliss, Texas. U. S. Army Engineer
1988 District, Fort Worth. Corps of Engineers, Fort Worth, Texas.

Master Plan. Basic Information Maps. Detail Site Map: McGregor Range
Camp. Date: 29 November 1988. Sheet no. 4 of 9. [N. B.: Also at head of
title:] Koogle and Pouls Engineering, 8338A Comanche, N.E., Albuquerque,
New Mexico.

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6.8 Topographic Maps

Army Map Service, Chief of Engineers, U. S. War Dept.

1944 Newman SW, N. Mex., Tex. N3200-W10622.5/7.5. A.M.S. V881, Type F (AMS 1), 1947. Scale 1:24000. Contour Interval 25 feet. Datum is mean sea level. Transverse Mercator projection. 1927 North American datum. Planimetric detail revised from aerial photography by photo-planimetric methods. Aerial photography by U. S. Air Force, 1944-46. Sold and distributed by U. S. Geological Survey, Washington 25, D.C.

Army Map Service, Chief of Engineers, U. S. War Dept.

1927 Newman, N. Mex., Tex. N3200-W10615x7.5. AMS V881. Type F (AMS 1), 1947. Aerial photography by U.S. Army Air Force 1944. Sheet 4748 III SE. AMS series V881. Scale 1:24000. Contour Interval 25 feet. Datum is mean sea level. Transverse Mercator Projection. 1927 North American Datum. Sold and distributed by U. S. Geological Survey, Washington 25, D.C.

Army Map Service, Chief of Engineers, U. S. War Dept.

1955 Newman SW, N. Mex.--Tex. SW/4 Newman 15' Quadrangle. N3200-W10622.5/7.5 Contour Interval 20 feet. Dashed lines represent 5 and 10-foot contours. Datum is mean sea level. Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1954. Photography field annotated 1955. Sold and distributed by U. S. Geological Survey, Denver 25, Colorado, or Washington 25, D.C.

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Army Map Service, Chief of Engineers, U. S. War Dept.

1955 Newman, N. Mex.-Tex. SE/4 Newman 15' Quadrangle. N3200-W10615/7.5.
1955. Aerial photographs taken 1954. Scale 1:24000. Contour interval 20
feet. Dashed lines represent 5 and 10-foot contours. Datum is mean sea
level. For sale by U. S. Geological Survey, Denver 25, Colorado or
Washington 25, D.C.

United States Department of the Interior. Geological Survey.

1929 Elephant Mountain Quadrangle, New Mexico-Otero Co. 7.5 Minute Series.
Mapped by the Army Map Service. Scale 1:24000. Dashed lines represent
5 and 10 foot contours. National Geodetic vertical datum of 1929. 32106-
D2-TF-024. 1955. DMA 4748 1 NW-Series V881.

War Department Corps of Engineers, U.S Army.

1932 New Mexico. Fort Bliss Target Range Reservation Grid Zone E. Training
Map 1681:2083/:3007. Surveyed and drafted by det. 8th Engrs., 1922.
Polyconic projection, grid system, marginal data and revisions added in
office of the Engineer 8th CA. Oct. 1932. Scale 1/20000. Contour interval
5, 10 and 50 feet. Datum is mean sea level.

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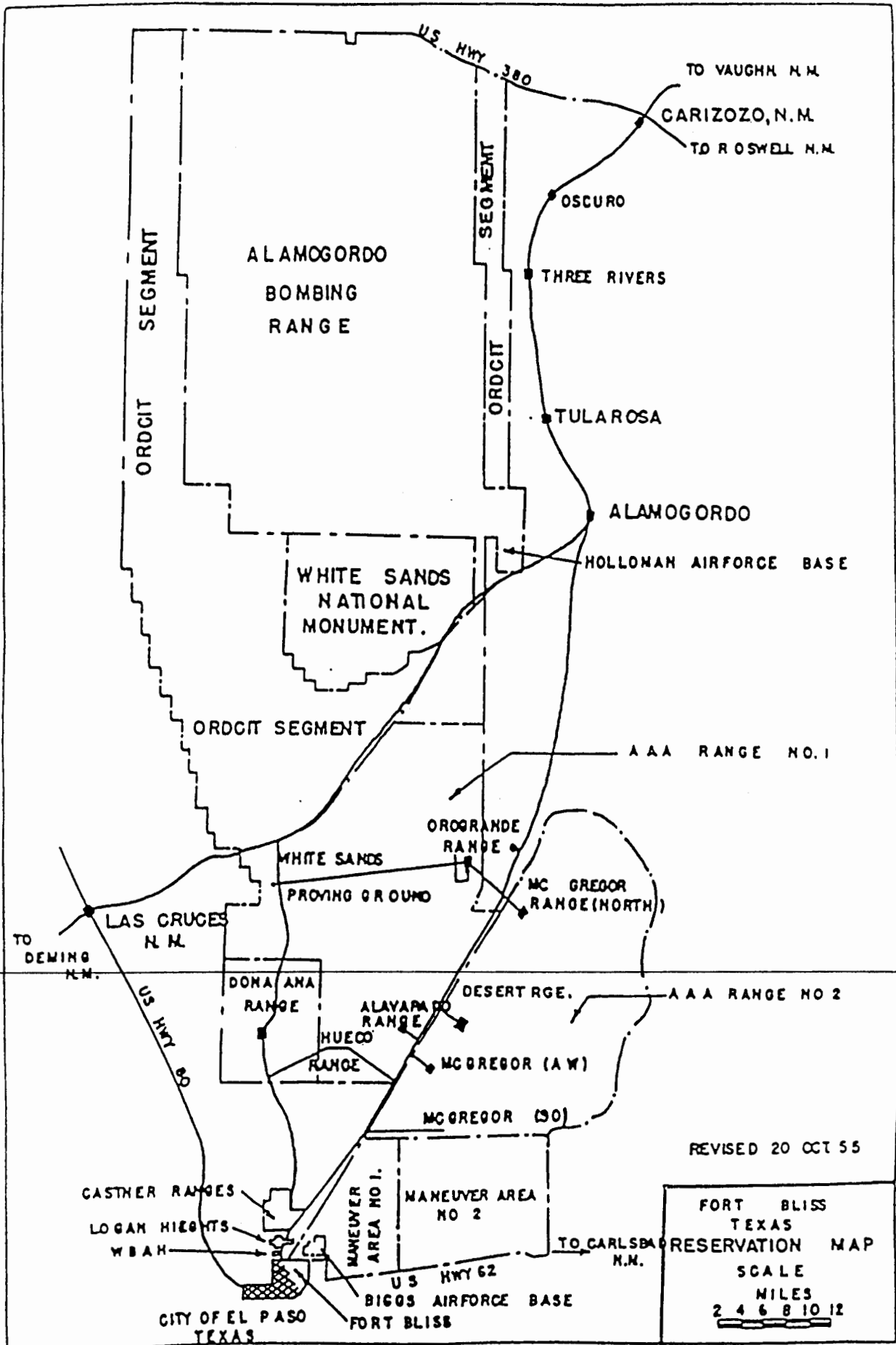
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- Figure 25 Dona Ana Range Camp SWMU 27 (FTBL-012) - 1985
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- Figure 27 Dona Ana Range Camp Typical Trench - SWMU 27 (FTBL-012) - 1992
- Figure 28 Dona Ana Range Camp photographs - SWMU 27 (FTBL-012) - 2000
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Fort Bliss and Ranges

Figure 1