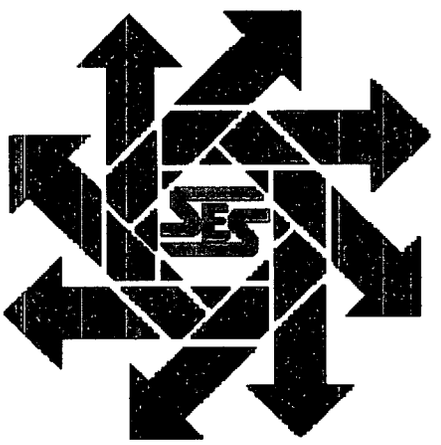
Navajo Refining Company
MCA #4 Line Leak
(Lynx Petroleum Lateral)
Remediation/Cleanup Report
Section 16, Township 17S, Range 32E
Lea County, New Mexico

August 8, 2003



Prepared for:

Navajo Refining Company
P.O. Box 159
Artesia, New Mexico 88211

By:

Safety & Environmental Solutions, Inc.
703 E. Clinton Suite 103
Hobbs, New Mexico 88240
(505) 397-0510

Navajo - 94081
facility - fPAC0603930846
incident - nPAC0603930930
application - pPAC0603931079

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Memorandum

To: Oil Conservation Division (Certified Mail 91 7108 2133 3930 4462 8525)

From: Dickie Townley, Regulatory Coordinator

Date: 3/8/2004

Re: MCA #4 Line Leak (8-8-03)

I am enclosing the Remediation/Cleanup Report for the MCA #4 Line Leak located at Sec. 16-17S-32E. After going through my files I was unable to remember if I had sent a copy of the report to your agency for record keeping. Please disregard if I have already done so.

If you have any further questions, please do not hesitate to call me at 505.748.8949.

CONFIDENTIAL

I. Background

Safety & Environmental Solutions, Inc. (SESI) was contracted by Navajo Refining Company to perform assessment and cleanup services on an area impacted by the spillage of approximately 23 barrels of crude oil from a gathering line associated with production in the area. The subject area is located in Section 16, Township 17S, Range 32E in Lea County, New Mexico. The site is situated on a relatively level area located on Bureau of Land Management (BLM) land. (Figure 1) Mesa Field Services of Carlsbad, New Mexico was engaged to perform an archeology study of the area surrounding the leak site. (Appendix A)

II. Contaminant and Size of Leak

The suspected contaminant is crude oil, which leaked from a gathering line associated with production in the area. The approximate size of the impacted area is approximately 800 sq. ft. During delineation SESI also encountered a tank bottom like material at a depth of 3.5' on the west end of the run area. No evidence of other contaminants was observed.

III. Surface and Ground Water

The nearest groundwater of record with the New Mexico State Engineer's Office is in Section 11 and 12 of 17S, 32E. The depth to water in Section11 is 105.86 feet. The depth to water in Section 12 is 120.13 feet.

IV. Soils

The soils in the area are predominantly sandy loam.

V. Work Performed

The cleanup level reached by the application of the **"Guidelines for Remediation of Leaks, Spill and Releases"** *New Mexico Oil Conservation Division* – August 13, 1993 to this site is 5000 ppm TPH. The site was excavated both horizontally and vertically for the removal of all highly contaminated and/or saturated soils as defined in the Guidelines, with the exception of the tank bottom material. The excavated soils were blended on-site with adjacent clean soils to a level of no greater than 5000 ppm TPH.

The impacted soils were excavated and vertical extent of contamination was found to be approximately 4.5 feet in depth in most areas. The area where the tank bottom material was found was excavated 1.5 to 2 feet to the top of the historical contamination. The remaining contaminated material was left in place. SESI notified the NMOCD and Conoco/Phillips of the historical contamination. The excavated soils were blended with clean soils on site. The blended soils

were backfilled into the excavation, and the area was contoured back to normal grade.

SESI retrieved composite samples from the bottom & walls of the excavation, the blended stockpiles, and a final composite sample of the surface after back filling operations were completed. The samples were preserved in appropriate containers and transported under chain of custody to Cardinal Laboratories in Hobbs, New Mexico for analysis for TPH (method TRPHC-EPA 600/7-79-020,418.1) and BTEX (method BTEX-EPA SW-846-8020).

The results of the analysis are as follows:

DATE	SAMPLE ID	TPH	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
7/18/03	Section A	2100	<0.005	0.006	0.006	0.025
7/18/03	Section B	5150				
7/18/03	Section C	7710				
7/18/03	Section D	7230				
7/18/03	Stockpile 1	20000				
7/18/03	Stockpile 2	3920	<0.005	<0.005	<0.005	<0.015
7/18/03	Stockpile 3	3450	<0.005	<0.005	<0.005	<0.015
7/17/03	Section B	429	<0.005	<0.005	<0.005	<0.015
7/17/03	Section C	266	<0.005	<0.005	<0.005	<0.015
7/17/03	Section D	2440	<0.005	<0.005	<0.005	<0.015
7/17/03	Section D #2	208	<0.005	<0.005	<0.005	<0.015
7/18/03	Section A Sides	49.2	<0.005	<0.005	<0.005	<0.015
7/18/03	Section B Sides	342	<0.005	<0.005	<0.005	<0.015

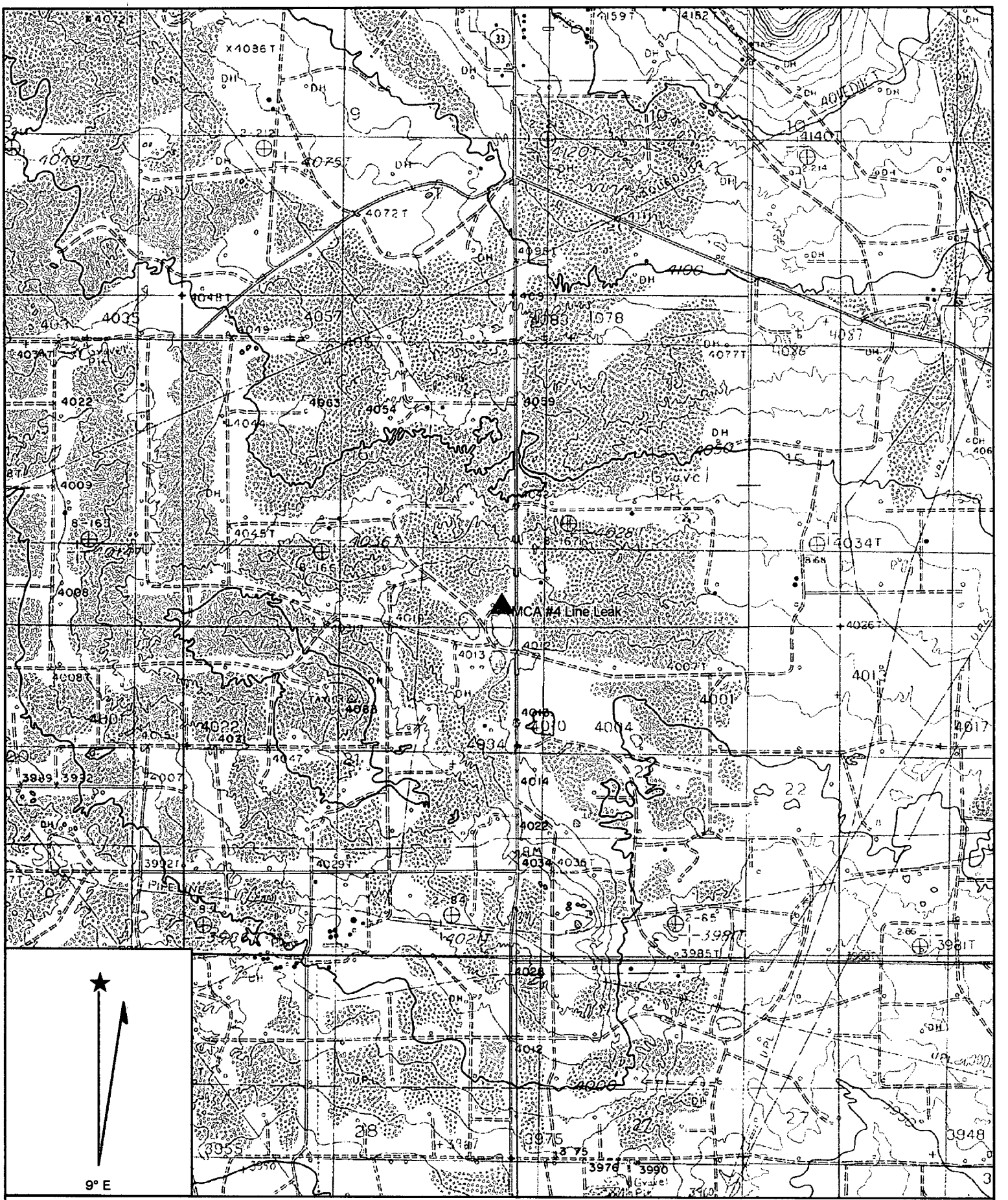
DATE	SAMPLE ID	TPH	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES
8/8/03	Final E ½ Composite	4660	<0.005	<0.005	0.013	0.082
8/8/03	Final W ½ Composite	4160	<0.005	<0.005	<0.005	<0.015

The area will be reseeded with BLM # 4 mix.

VI. Figures & Appendices

Figure 1 - Vicinity Map
Figure 2 - Site Plan
Appendix A - Archeology Study
Appendix B - Analytical Results
Appendix C - C-141
Appendix D - Site Photos

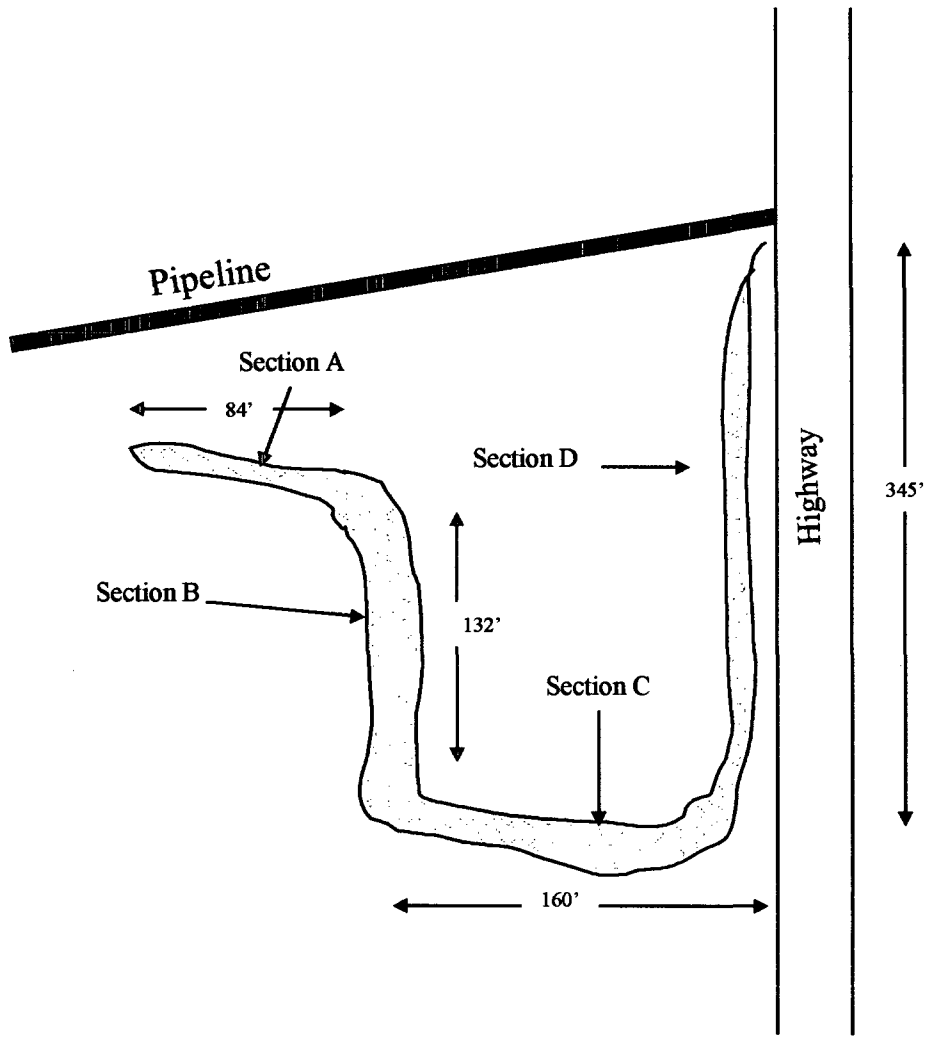
Figure 1
Vicinity Map



Name: MALJAMAR
Date: 8/15/2003
Scale: 1 inch equals 2000 feet

Location: 032° 49' 41.3" N 103° 45' 46.8" W
Caption: Navajo Refining
S16, T17S, R32E
Lea County, New Mexico

Figure 2
Site Plan



Not To Scale

Navajo Refining Company	**MCA #4 Line Leak** **S16, T17S, R32E** **Lea County, New Mexico**	**Safety & Environmental Solutions, Inc.**

Appendix A
Archeology Study

A CULTURAL RESOURCE SURVEY FOR A REMEDIATION OF THE MCA #4 LINE LEAK

Prepared and Submitted by

Sean Simpson
Mesa Field Services
PO Box 3072
Carlsbad, NM 88221

Presented to

Albert Reyes
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

New Mexico State Permit No. NM-03-104
Bureau of Land Management Permit No. 153-2920-02-L
NMCRIS No. 83475

Mesa Field Services Report No. 891
May 21, 2003

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Introduction

Sean Simpson and Justin Rein with Mesa Field Services (MFS) performed a Class III cultural resource survey for a pipeline remediation project following the rupture of a Navajo Refining Company buried pipeline and subsequent oil spill (NMCRIS Registration No. 83475). Albert Reyes requested the survey and provided a legal location for the spill (Appendix A). During the course of the survey, one previously recorded archaeological site was encountered and updated.

This project is located in Township 17 South, Range 32 East, Sections 16 and 21 in Lea County, New Mexico. It can be found on the Maljamar, New Mexico, Provisional Edition 1985 7.5′ USGS quadrangle (Figure 1). Remediation of this oil spill involves the mixing of soils from an area up to 100 ft around the edges of the spill. Mixing and blending of soils will dilute the concentration of crude oil to acceptable levels. The proposed impact area was surveyed with a 100 ft buffer to ensure protection of cultural resources. The spill is present along the west side of County Road 243. Due to the nature of the remediation project no activities will take place on the east side of the road. Therefore a 100 ft buffer east of the county road was not surveyed. Total acreage surveyed was 7.7, of which 4.43 are on land owned by the State of New Mexico, and 3.27 are on land owned and administered by the Bureau of Land Management – Carlsbad Field Office (BLM-CFO).

One previously recorded historic site, LA 43385, was encountered and documented during the survey. The site is the first oil well drilled in Lea County and is on the State Register of Historic Places as Site No. 542. The site consists of a monument and is located over 200 ft southwest of the spill. After consultation with lead archaeologist Tiffany Sullivan-Owens of the BLM-CFO, it was decided that an archaeological monitor for project activities would not be necessary.

This survey was conducted in order to comply with federal and state laws designed to protect sensitive cultural resources, including Section 106 of the National Historic Preservation Act of 1966 (as amended) and Executive Order 11593. The standards and procedures that were followed are designed to meet or exceed those set forth by the Bureau of Land Management and the State of New Mexico. The project was conducted under BLM permit No. 153-2920-02-L and New Mexico State Permit NM-03-104.

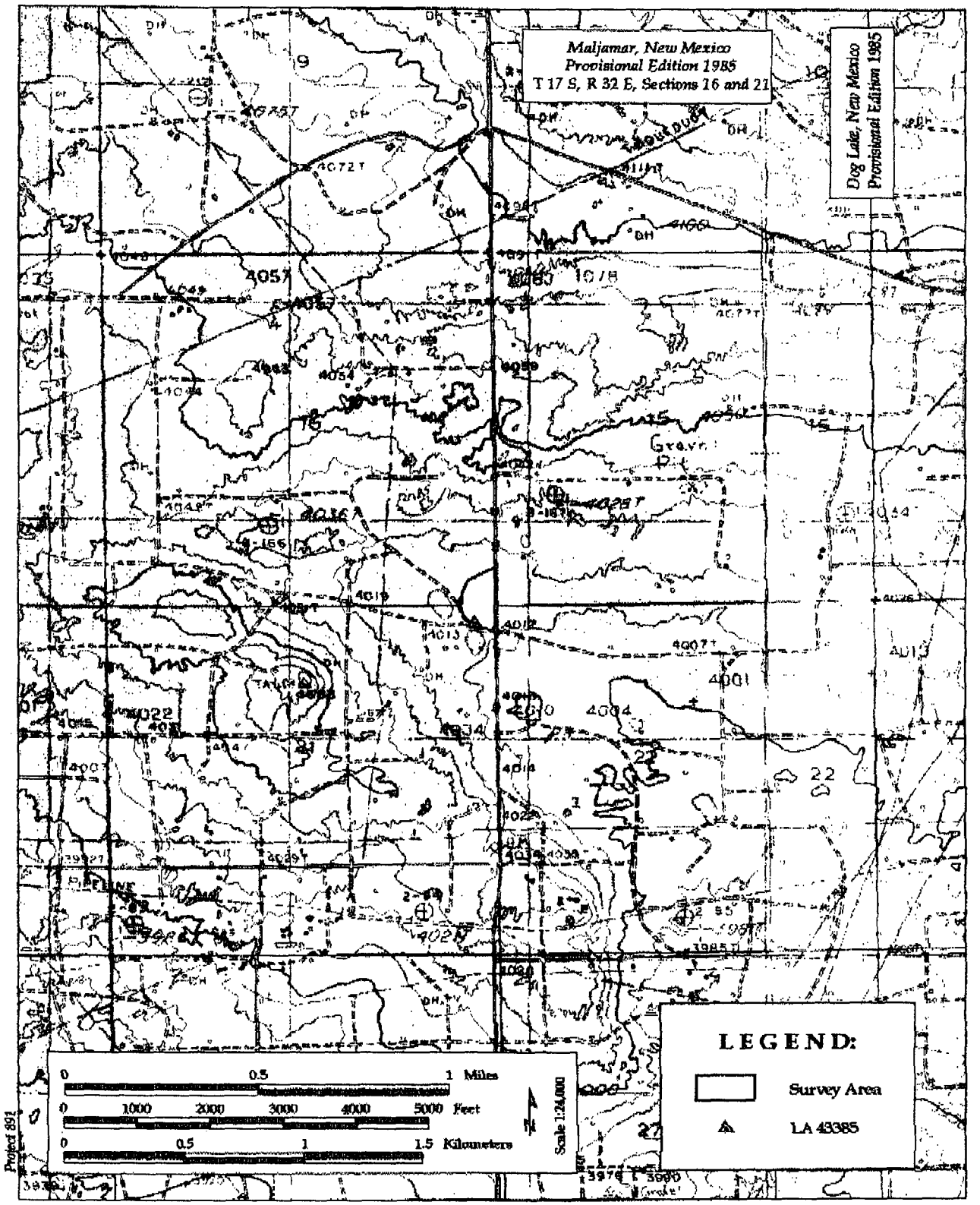

Figure 1: Project Area Map *Mesa Field Services*

Description of Undertaking

A pipeline owned by Navajo Refining Company ruptured and spilled crude oil along the west side of County Road 243. Albert Reyes requested the survey and provided a legal location for the spill (Appendix A). Sean Simpson and Justin Rein performed a Class III cultural resource survey for the proposed remediation. Safety and Environmental Solutions, Inc. will be contracted for the remediation portion of the project. A bulldozer will be used to blend the affected area with surrounding clean soils in order to lower the concentration of crude oil to an acceptable level.

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Environmental Setting

The project is located approximately 2 miles south of Maljamar, New Mexico. The terrain is flat with parabolic dunes along the north and west side of the survey area. The central portion of the project area consists of a shallow basin. The oil spill is located within the central eastern portion of the survey area. Soils in the area are composed of gently undulating and rolling, deep, sandy soils of the Pyote-Maljamar-Kermit association, as defined by the Soil Conservation Service of the U.S. Department of Agriculture. Vegetation is characteristic of Chihuahuan Desert Scrub, and includes shin oak, sage, yucca, mesquite, and various bunch grasses. The elevation of the project area averages 4,015 ft above mean sea level. Surface visibility was approximately 70 percent at the time of the survey. The area is heavily disturbed by oil field related production. Many lease roads and well pads have been developed in the area with numerous old oil spills and abandoned rusted pipelines serve as additional impacts.

Carlsbad is the nearest town. From 1951 to 1980, Carlsbad had an average highest temperature of 106.9 degrees and an average lowest temperature of 6.1 degrees (Williams 1986:39). In the same time span, Carlsbad reported an average annual precipitation of 12 inches (Williams 1986:43). Also, from 1951 to 1980, the wettest three months in Carlsbad were July through September, while the driest three months were December through February (Williams 1986:45). Drainage of the project area would be to the southwest, although no washes were noted within the project area.

The local vegetation includes mesquite, grasses, yucca, sand sage, and shin oak. These species are members of the Chihuahuan Desert scrub community. The vegetation includes several species that are suitable for use as food, medicine, or for the manufacture of items requiring the use of fibrous materials, such as basketry containers, clothing, and foot wear. Mesquite flowers and beans can be eaten, the leaves can be used to make a tea that helps relieve diarrhea, the sap makes a great adhesive, and the wood can be used to manufacture bows, mortors, and firewood (Cornett 1995:25). Yucca can be used for food, fiber for the manufacture of baskets and sandles, and the roots can be processed to produce soap (Cornett 1995:37)

The contemporary environment provides adequate habitat for a variety of faunal species including bobcat, mule deer, pronghorn antelope, coyote, badger, jackrabbit, desert cottontail, roadrunner, rattlesnake, and a variety of other small mammals and reptiles. Since the Historic Period, these species have shared their habitat with cattle, which currently graze in the project area.

Cultural Overview and Research Focus

Several overviews have been published of the archaeological and historical research performed in the southeastern part of New Mexico, providing a summary of the cultural characteristics of the region's inhabitants through time. Syntheses by Stuart and Gauthier (1988), Katz and Katz (1993), Sebastian and Larralde (1989), and others provide a valuable frame of reference within which cultural resource managers can assess the significance of archaeological resources and develop management strategies that address gaps in the current knowledge. Additionally, this background information can help field investigators identify areas of higher site location probability, and be aware of the expected resources in any given project area. To these ends, a brief summary of the known culture sequences and current avenues of research in southeastern New Mexico is provided below.

Paleoindian Period (ca. 9,500 – 5,500 B.C.)

The earliest conclusive evidence of human habitation in North America was discovered in eastern New Mexico, at the Blackwater Draw and Folsom sites. At the end of the Pleistocene, early hunter-gatherers and scavengers inhabited what was then a lush

grassland interspersed with stands of evergreens and broad, shallow lakes (Sebastian and Larralde 1989:19). Mammoths, *bison antiquus*, and other now-extinct species were commonly exploited for food by these Paleoindian groups, as evidenced by the characteristically large, lanceolate spear points and butchering tools that can be found associated with the remains of these animals (Sebastian and Larralde 1989:19).

The cultural adaptations of this period have been categorized into several complexes based on the diagnostic traits of affiliated projectile points (Judge 1974:5). However, because of the limited number of radiocarbon dates and pristine stratigraphic contexts associated with Paleoindian finds, there are still unresolved questions as to whether these point series are representative of temporal, cultural, or functional distinctions (Sebastian and Larralde 1989:23-26).

It is generally accepted that the Clovis complex represents the earliest known human occupation of this area, although a few New Mexico sites have been heavily debated as having a pre-Clovis component. Folsom and Midland points, similar in outline, are classified as diagnostic of the Folsom complex, which extends through the middle of the Paleoindian period. Later in the period, a diversification of projectile point forms has resulted in the identification of several (spatially and temporally overlapping) complexes in this region, including Plainview, Firstview, and Cody (Sebastian and Larralde 1989:32).

In addition to the confusion surrounding the material culture sequences of this area during the Paleoindian period, numerous other questions have been raised that are difficult or impossible to answer given the limited data from the small number of sites that have been excavated. For example, although the majority of Paleoindian remains consist of tools associated with the hunting and butchering of large mammals, the type of focal economy suggested by these remains is notoriously risky (Tainter and Gillio 1980:95). Therefore, it is highly probable that Paleoindian populations were exploiting a much broader range of resources, including plants and small game, but material evidence of this suspected pattern has not been conclusively identified. This is because any Paleoindian sites that were created by activities other than hunting or butchering would probably not contain the projectile points that are the only diagnostic indicators of this period, and would consequently be classified as having an unknown cultural/temporal association (Sebastian and Larralde 1989:33, 34).

A second research problem is in the location of known Paleoindian sites. Most Paleoindian sites or components in southeastern New Mexico have been discovered in contexts along the edges of landforms subject to heavy erosion, such as along the face of the Mescalero Pediment (Stuart and Gauthier 1988:289). At this point, there is insufficient data to determine whether these patterns of site location are an accurate reflection of Paleoindian occupation zones, or if their exposure in these areas is more a

function of erosional processes that have so far left other Paleoindian use areas unexposed.

Archaic Period (ca. 5,500 B.C - A.D. 900)

The end of the Pleistocene was marked by a climatic shift toward a warmer, drier, and more seasonally variable environment closely resembling that of modern times. As a result of this change, vegetation types and distributions altered, sometimes dramatically. Furthermore, certain animal species died out, notably the megafauna that were a mainstay of the Paleoindian diet. Human adaptive strategies during this period changed as a necessity brought about by these environmental factors (Cordell 1997).

The Archaic period is characterized by a more visible reliance on small-bodied game and plant resources, while the remaining larger animals, such as deer and pronghorn, were exploited to a lesser extent (Sebastian and Larralde 1989). Overall, evidence suggests a subsistence strategy with considerably more variation than that in use during the Paleoindian period (Judge 1982). Mobility also changed, becoming more cyclical and restricted, rather than the free-ranging pattern characteristic of earlier Paleoindian complexes. Once established, favorable site locations were reused on a seasonal basis for the exploitation of one or a few locally abundant resources.

In general, the Archaic period is defined by a diversity of tool forms. Projectile points were typically smaller than those of the Paleoindian period, but larger than the forms used during the subsequent Ceramic period (Sebastian and Larralde 1989:42). Stemmed and corner-notched points became the standard, although Archaic points show evidence of greater morphological variability and less precision in the quality of manufacture than Paleoindian points (Cordell 1997). Furthermore, grinding implements were frequent additions to the Archaic tool kit, a trait seen at only a miniscule fraction of Paleoindian sites.

Many of the same identification and research problems typical of Paleoindian sites are also common to Archaic sites. In particular, there is considerable variation among recorders as to which sites are labeled as Archaic. Most recorders, when confronted with an artifact scatter that possess neither diagnostic projectile points nor ceramics, will assign that site to an unknown temporal period. However, there are those who will classify all aceramic scatters as Archaic, and others who will use varying criteria of lithic material type, reduction strategies, or spatial patterning of debitage to deduce an Archaic affiliation (Sebastian and Larralde 1989:41). While many of these site classifications are undoubtedly correct, they are (at best) ineffectually applied. The lack of a universal standard by which to determine Archaic affiliation has led to considerable inconsistencies in the site database for this region, and consequently, very little applicable knowledge of Archaic land use patterns (Sebastian and Larralde 1989:41-43, 56).

Ceramic Period (ca. A.D. 600/900 - 1540)

The beginning of the Ceramic, or Formative, period is not based on climatic change, but rather on a cultural and technological event: the introduction and use of pottery (Sebastian and Larralde 1989:41). Use of ceramics in southeastern New Mexico was initially believed to have occurred between A.D. 600-900 (Stuart and Gauthier 1988). However, a limited number of sites yielding radiocarbon dates of A.D. 150 or 200 indicate that ceramics may have appeared earlier, either through trade or local manufacture.

There has long been an underlying assumption that the appearance of pottery coincides with the adoption of agriculture and a more sedentary lifestyle (Sebastian and Larralde 1989). However, unlike many other parts of the American Southwest, Ceramic period sites in this region exhibit little if any visible evidence of agricultural dependency (Stuart and Gauthier 1988). This had led some researchers to postulate that Archaic subsistence patterns continued, largely unchanged, until historic times (Sebastian and Larralde 1989:41, 52, 82). Still others have argued that agriculture did in fact play a role in Ceramic period subsistence strategies, but that the physical evidence of this practice is more subtle than in other parts of the Southwest, and therefore largely overlooked (MacNeish and Beckett 1987).

Site typologies for this region fall into two broad types based on subsistence strategies. When agriculture was a significant part of subsistence, pithouses and surface structures became more prevalent. In areas less conducive to agriculture, populations remained more mobile and so used temporary or seasonal camps for hunting, gathering, and plant processing. A search of ARMS records completed in 1985 shows that 88.4 percent of the Jornada Mogollon Ceramic period sites were nonstructural (Sebastian and Larralde 1989). However, it is possible that evidence of structures has simply not been recognized.

A Ceramic period typology specifically for the Middle Pecos Valley was developed by Arthur Jelinek in 1967. This area was believed to be a local center of agricultural development during this time, and has been separated into four temporal phases (with each of the first three divided into early and late subphases). These phases are based primarily on differing architectural adaptations and ceramic assemblages (Jelinek 1967:144-164).

The Early and Late 18-Mile phases (A.D. 600-900 and A.D. 900-1000, respectively) are characterized by small pithouse villages, with some surface structures appearing in the late subphase. Ceramics from this time include Jornada Brown and Lino Gray, an Anasazi type, in the early subphase, with Middle Pecos Micaceous and Red Mesa Black-on-white appearing in the late subphase.

Early and Late Mesita Negra sites (A.D. 1000-1100 and A.D. 1100-1200) display a continuance of pithouse architecture, with surface roomblocks becoming gradually more common through time. Ceramic assemblages are distinguished by the introduction of Chupadero Black-on-white in the early subphase, with this type becoming more common in the late subphase. The micaceous wares typical of the Late 18-Mile phase gradually decline in frequency, while intrusive Santa Fe and Socorro Black-on-white ceramics from the middle and northern Rio Grande areas indicate increasing trade with these Puebloan groups.

The Early and Late McKenzie subphases each last only 50 years or so, from A.D. 1200 to 1250 and A.D. 1250 to 1300, respectively. By this phase, rectangular surface rooms constructed of flat limestone slabs are the most common architectural feature. McKenzie Brown replaces the remaining micaceous ceramic wares, and corrugated brownwares become fairly common in the late subphase, although the percentage of brownwares in the overall assemblage decreases. Chupadero and Middle Pecos Black-on-white become the primary painted wares, with intrusive ceramics decreasing in frequency.

Around A.D. 1300, the agricultural system started to break down in the eastern Jornada Mogollon region. Agricultural adaptations ceased in the area referred to as the Roswell District, and mobile hunting and gathering adaptations became the predominant focus for subsistence. Jelinek terms this the Post-McKenzie phase (A.D. 1300-1600), and postulates interaction with Rio Grande groups during this time, based on the occurrence of imported ceramics from the Rio Grande and obsidian in lithic assemblages (1967:159-160). The only structure noted on a Post-McKenzie phase site is a possible tipi ring.

Historic Period (after A.D. 1540)

Spanish explorers used Southeastern New Mexico as a route to destinations farther to the north and east. Francisco Vásquez de Coronado first entered the area in 1541 on an expedition in search of the riches to be found at the fabled cities of "Quivira." Subsequent expeditions by other explorers followed through the end of the 16th Century. Native groups encountered by the Spanish were nomadic and included those they dubbed Apaches, Querechos, Vaqueros, Jumanos, and Teyas. There were no permanent settlements of Pueblo or Hispanic groups in the area during the Spanish Colonial period (Olmstead 1975).

Apachean groups, who were described by the Spanish as Plains bison hunters that used dogs as beasts of burden, extended their range to the southern portion of the state sometime in the 1500s. By about 1630, the Apache (with the aid of horses taken during raids on pueblos) were ranging as far south as the Seven Rivers area on the Pecos. During the early 1700s, Comanches and their allies drove the Apache from the plains of

eastern New Mexico and western Texas into the Guadalupe Mountains and as far north and west as Sierra Blanca. This relocation in the late 1700s put them into conflict with the Spaniards. With the use of horses, the Apache continued raiding their neighbors as an additional means of subsistence during lean times. The Spanish tried repeatedly to subdue the raiding Mescalero Apache, but were unsuccessful until 1810 when a treaty was signed that gave the Mescalero the land from El Paso to the Sacramento Mountains (Sebastian and Larralde 1989).

In the 1850s Anglo ranchers began to move into the region followed by the establishment of two military outposts, Hatch's Ranch in 1856 and Fort Sumner in 1862. After the Homestead Act of 1862, communities of settlers grew around the safety and commerce of the forts, eventually expanding out over the grassy plains between the Pecos River and the Guadalupe Mountains.

Beginning in the late 1880s, irrigation efforts were begun by the Eddy brothers and their contemporaries in an attempt to expand the economic base of the newly organized county. Their attempts at irrigating the entire lower Pecos Valley met with mixed results. Years of drought and repeated structural failures of poorly designed water delivery systems plagued those who attempted to make Eddy County the agricultural center of the state. On a more successful note, water well-drilling efforts on the Llano Estacado opened the eastern portion of the state to livestock ranching. Agriculture and ranching vied for economic superiority for several decades.

The first mineral resources to be discovered and exploited in Eddy County was guano from a tunnel in the later-named Carlsbad Caverns. Mining of the guano stopped in the 1920s when the cave was declared a national monument, and tourism began to boom as yearly visitors to the caverns increased in exponentially growing numbers. Meanwhile, potash mines had been opened, and the first successful oil wells were being drilled in the Artesia oil fields. Later, when natural gas became a marketable commodity, it was added to the list of mineral resources that became an increasing part of the county's economic development.

Carlsbad was home to an Army Air Field base during World War II. Bomber planes became a frequent sight and sound, as pilots and bombardiers practiced daily runs over the plains surrounding the town. The atomic research conducted as part of the war effort has also had a lasting impact on the communities of Eddy County. In the 1970s, the federal government selected an abandoned salt mine southeast of Carlsbad to house the Waste Isolation Pilot Plant (WIPP) (BLM-New Mexico State Office 1999).

Methods

In this section, the procedures and standards that were used during fieldwork and for the completion of the report are identified and discussed.

Survey Methods

Survey of the project area was accomplished by walking parallel transects spaced no more than 50 ft apart throughout the project area. The BLM definition of an isolated manifestation (IM) was used, so that a cultural resource designated as an IM is an occurrence of fewer than 10 artifacts (that predates 1950) with no potential for additional buried materials (BLM, Carlsbad and Roswell Field Offices 1999). The locations of all IMs were plotted on the appropriate USGS quadrangles and recorded using a Garmin 12 Global Positioning System (GPS) unit, with a margin of error no more than 100 ft (30 m). Isolated manifestations were recorded using the same analytical methods and the same level of detail as were used during site recording.

Site Recording and Artifact Analysis

When sites are encountered, artifacts are marked with pin-flags to determine the distribution of the assemblage and to delineate boundaries. Sites are recorded using the Laboratory of Anthropology's Site Record Form and Mesa Field Services' artifact analysis forms. A site datum is established and marked with an aluminum tag wired to a 12-inch metal spike placed in the ground. Locations of the datum, features, unique or diagnostic artifacts, and site boundaries are recorded with a Garmin 12 GPS unit. At minimum a general overview of the site will be photographed. Features and structures on site may also be photographed to help document the site.

Mesa Field Services' artifact analysis forms are designed to efficiently record those artifact attributes that are most useful in defining the type or use of the artifact. For debitage these attributes include flake condition/ degree of fragmentation, amount of dorsal cortex, reduction technology or stage, and platform type (when applicable). The recorded attributes of cores include core type, reduction method, and degree of reduction. Non-diagnostic tools are recorded with regard to parent object (core, cobble, or flake), tool type, and edge angle. These are attributes cited by leading flintknappers and researchers as being relevant to determining the function, and in some cases the age or cultural affiliation of the flaked-stone assemblage (Whittaker 1994, Crabtree 1972, Turner and Hester 1993).

Bifaces are recorded using reduction stages based upon work done by John Whittaker (1994). A Stage I biface has rough and or partial edges with cortex remaining. It will generally be fairly thick. A Stage II biface will have a continuous bifacial edge with the

flake scars extending up to or past the centerline. Very little to no cortex will remain. A Stage III biface has been thinned and shaped without any cortex remaining. Whittaker's Stage IV biface is not used by Mesa Field Services.

Although the projectile point typologies for this region are incomplete (complicated by issues of corner-notched point forms continuing in time from the Archaic through the Ceramic periods), some local researchers have developed techniques for determining approximate age categories (Katz and Katz 1985, Roney 1985). This technique is based on the measurement of neck width, a value that appears to be largely independent of other point measurements, as neck width decreased through time due to changes in hafting techniques (Roxlau et al 1997). The groups that have been defined on this basis are as follows: less than 9 mm= late prehistoric (arrow points), 9 to 14 mm= Transitional Archaic, 13 to 16 mm= Late Archaic, 16 mm or greater= Middle Archaic or earlier (Katz and Katz 1985).

All flaked-stone artifacts are recorded using a size scale that is based on the artifact's largest measurement in centimeters. The scale rounds this measurement up to the next whole centimeter and uses that number as the size category. For example, a flake that is 3.8 cm in length is considered a size 4. Material type and color are also recorded for all flaked-stone debitage, cores, and tools, and notes are taken regarding any unique characteristics of the artifact, such as heat treatment of material, specific fracture types, or flake terminations.

Groundstone tools are recorded with regard to basic form (mano, metate, or pestle) and specific type (slab, basin, trough, or bedrock metate; one-hand or two-hand mano, etc.). Formal preparation or shaping is noted, as is modification by burning. Size is measured using the scale described above, material type and grain size are recorded, and the condition of the tool is documented.

Ceramics are recorded using known types and wares. If the ware or type is unknown, sufficient descriptions of the paste, temper, and surface treatments are recorded so that ceramics can be matched to a known ware from a published description. Vessel and rim forms are noted, as these can be used to determine specific patterns of use and temporal affiliations.

Historic artifacts are described as to material type, original function (if known), and any identifying marks or characteristics. For ceramic or glass artifacts, maker's marks can be compared to a published typology, as can the size, shape, and sealing methods of cans (Simonis 1995). When historic features are encountered a Historic Cultural Properties Inventory (HCPI) Base Form (Form 1) is filled out. This form provides some basic information about a structure or historic feature with reference to dimensions and legal location, etc. At minimum a general overview of the site will be photographed. Features and structures on site may also be photographed to help document the site

Results

One previously recorded historic site, LA 43385, was encountered and updated during the survey. This resource is discussed below along with the results of the records search.

Pre-field Investigations

A pre-field review was performed of the site files maintained at the BLM-CFO and the Archeological Records Management Section of the Historic Preservation Division in Santa Fe (online database search) by Sean Simpson on May 13, 2003. The National Register of Historic Places (NRHP) and the State Register of Cultural Properties were also consulted for any listed resources. These file searches were configured using the Public Land Survey System (PLSS) legal location of the project area and a 0.25-mile radius, so that all of Township 17 South, Range 32 East, Sections 15, 16, 21, and 22 were searched. Two previously recorded sites (LA 43385 and LA 38358) are within 0.25 miles of the project area. The site LA 43385 is within the survey area but not the oil spill.

Previously Recorded Site

LA No.:	43385
Quadrangle:	Maljamar, New Mexico Photo Inspected 1985 (32103-G7)
Legal Location:	T 17 S, R 32 E, Section 21, NE¼ NE¼ NE¼
UTM Coordinates:	Zone 13: E 615779/ N 3632532 (Datum)
Size:	320 ft N/S (98 m) by 60 ft E/W (21 m)
Ownership:	BLM-CFO
State Register:	Site No. 542
BLM Category:	Category 1
NRHP:	Eligible, Criterion A

Noted as the first oil producing well in Lea County the Baish Oil Well No. 1 was named after the field superintendent at the time, Mel Baish. Texas Tech. University originally recorded the site in October 1977 (Figure 2). The site was recommended eligible for nomination to both the State and National Registers on December 9th, 1977. At the time of the original recordation it was stated that the site consisted of; "cement foundations and a pressure valve inside a pipe railing". It was also noted that the well was still occasionally used for water injection to raise the production of other wells in the area. The site description indicates that the well was drilled in November of 1925.

During this update none of the cement foundations mentioned earlier was encountered. A lot of activity has occurred within the area since 1977. The well now consists of a monument with a plaque dedicated to the location. A large caliche berm has been built

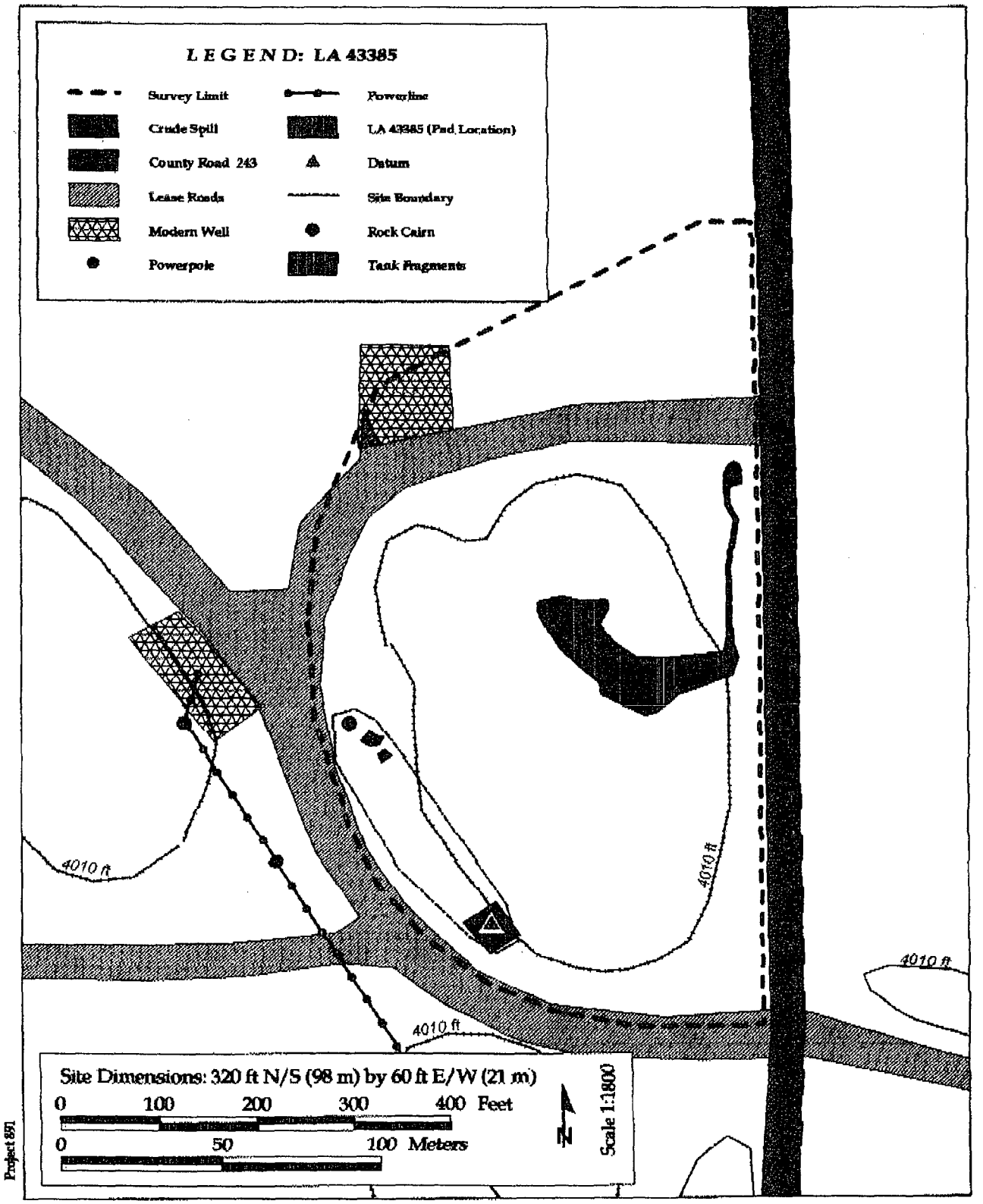

Figure 2. Site Map LA 43385 *Mesa Field Services*

up at the well location with a metal railing enclosure with a gate. In addition, the well stem is located in the center and appears to be more modern in age with an inscription welded on its surface stating "250 FNL, 250 FEL, MCA Unit # 29". Nothing at this monument location is of historic age. Some old rusted segments of a tank battery and an old rock cairn are located approximately 200 ft to the northwest. It is unclear whether these are in association with the particular well stem. However they represent the only possible artifact and historic feature within the survey area or near the site.

The site dates to 1925 and now consists of an improved monument with no remaining historical artifacts or features. The site is currently on the State Register of Historic Places as Site No. 542. The original recordation completed in 1977 thoroughly documented the location with historical records and interviews. Therefore, no further investigations are warranted.

Recommendations

Mesa Field Services performed a Class III cultural resource survey for a pipeline remediation project following the rupture of a Navajo Refining Company buried pipeline and subsequent oil spill. During the course of the survey, one previously recorded archaeological site was encountered and updated. The site dates to 1925 and consists of an improved monument. The site is currently on the State Register of Cultural Propoerties as Site No. 542. The original recordation completed in 1977 thoroughly documented the location with historical records and interviews. Given the fact that the site now consists of a well identified monument no archaeological monitor is required. Therefore, no further investigations are warranted and the project should proceed as planned.

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Appendix A (Legal Location)

Appendix B
Analytical Results

CARDINAL LABORATORIES

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PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BOB ALLEN
703 E. CLINTON, #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 07/16/03
Reporting Date: 07/16/03
Project Number: NAV-03-005
Project Name: NOT GIVEN
Project Location: NOT GIVEN

Analysis Date: 07/17/03
Sampling Date: 07/16/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)
H7816-1	SECTION A	2100
H7816-2	SECTION B	5150
H7816-3	SECTION C	7710
H7816-4	SECTION D	7230
H7816-5	STOCKPILE 1	20000
H7816-6	STOCKPILE 2	3920
H7816-7	STOCKPILE 3	3450
Quality Control		226
True Value QC		240
% Recovery		94.2
Relative Percent Difference		2.1

METHOD: EPA 418.1

Chemist

7/16/03
Date

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HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 07/16/03
Reporting Date: 07/18/03
Project Number: NAV-03-005
Project Name: NOT GIVEN
Project Location: NOT GIVEN

Sampling Date: 07/16/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		07/17/03	07/17/03	07/17/03	07/13/03
H7816-1	SECTION A	<0.005	0.006	0.006	0.025
H7816-6	STOCKPILE 2	<0.005	<0.005	<0.005	0.408
H7816-7	STOCKPILE 3	<0.005	0.018	0.187	0.794
Quality Control		0.097	0.099	0.090	0.261
True Value QC		0.100	0.100	0.100	0.300
% Recovery		96.6	99.3	89.7	86.9
Relative Percent Difference		1.9	1.8	1.1	0.1

METHOD: EPA SW-846 8260

Burgess J. A. Cooke
Chemist

7/18/03
Date

CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 (915) 673-7001 Fax (915) 673-7020
101 East Marland, Hobbs, NM 88240 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name: SESI	BILL TO PO #:
Project Manager:	Company: SAME
Address: 703 E. CLINTON, #103	Attn:
City: HOBBS State: NM Zip: 88240	Address:
Phone #: (505) 397-0510	City:
Fax #: (505) 393-4388	State: Zip:
Project #: NAU-03-005 Project Owner:	Phone #:
Project Name: [redacted]	Fax #:
Project Location:	

ANALYSIS REQUEST

BTEX 8021B
TPH 418.1
IF TPH IS UNDER 5000 PPM DO NOT RUN BTEX

FOR LAB USE ONLY LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRES.: ACID:	ICE / COOL	OTHER:	SAMPLING DATE	TIME
H14161	Section A	C	1			✓					✓		7/11/03	1:35
-2	Section B	C	1			✓					✓		7/11/03	1:45
-3	Section C	C	1			✓					✓		7/11/03	1:55
-4	Section D	C	1			✓					✓		7/11/03	2:05
-5	Stockpile 1	C	1			✓					✓		7/11/03	2:15
-6	Stockpile 2	C	1			✓					✓		7/11/03	2:25
-7	Stockpile 3	C	1			✓					✓		7/11/03	2:35

Sampler Relinquished:	Date: 7/11/03	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
	Time: 3:40		Fax Result: ☐ Yes ☐ No
Relinquished By:	Date:	Received By: (Lab Staff)	REMARKS: IF TPH IS OVER 5000 do not run BTEX
	Time:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☒ Yes ☐ No Intact: ☒ Yes ☐ No	CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020

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ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BOB ALLEN
703 E. CLINTON, #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 07/18/03
Reporting Date: 07/21/03
Project Number: NOT GIVEN
Project Name: NAV03 005
Project Location: MALJAMAR, NM

Sampling Date: 07/17/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		07/18/03	07/18/03	07/18/03	07/18/03	07/18/03
H7823-1	SECTION B	429	<0.005	<0.005	<0.005	<0.015
H7823-2	SECTION C	266	<0.005	<0.005	<0.005	<0.015
H7823-3	SECTION D	2440	<0.005	<0.005	<0.005	<0.015
H7823-4	SECTION D #2	208	<0.005	<0.005	<0.005	<0.015
Quality Control		244	0.100	0.102	0.091	0.258
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		101	99.7	102	90.6	86.0
Relative Percent Difference		3.1	3.1	2.6	1.0	1.1

METHODS: TRPHC-EPA 600/4-79-020 418.1; BTEX -EPA SW-846 8260

Burgess J. A. Cooke, Ph. D.

7/21/03
Date

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: SESI	BILL TO PO #:
Project Manager:	Company: SAME
Address: 703 E. CLINTON, #103	Attn:
City: HOBBS State: NM Zip: 88240	Address:
Phone #: (505) 397-0510 505-631-4733	City:
Fax #: (505) 393-4388	State: Zip:
Project #: Project Owner:	Phone #:
Project Name: NABOB 003 005	Fax #:
Project Location: MALJAMAR NM	

FOR LAB USE ONLY				MATRIX						PRES.			SAMPLING		ANALYSIS REQUEST																	
LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID:	ICE / COOL	OTHER:	DATE	TIME	TPH	B-TEX TF UNDER 5000																	
H7823-1	SECTION 8	C	1			X					X		7-13	12:10	+	+																
-2	SECTION C		1			X					X			11:25																		
-3	SECTION B		1			X					X			10:00																		
-4	SECTION D #2		1			X					X			2:00																		

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Sampler Relinquished: Brand Cuttle	Date: 7-18 Time: 7:35 AM	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
Relinquished By:	Date: 07/18/03 Time: 735A	Received By: (Lab Staff)	Fax Result: ☐ Yes ☐ No
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool ☒ Yes ☐ No Intact ☒ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: IF TPH IS UNDER 5000PPM, PLEASE RUN B-TEX, OTHERWISE JUST TPH.

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SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BOB ALLEN
703 E. CLINTON, #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 07/21/03
Reporting Date: 07/22/03
Project Number: NAV-03-005
Project Name: MCA
Project Location: MALJAMAR, NM

Sampling Date: 07/18/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NUMBER	SAMPLE ID	TPH (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		07/21/03	07/21/03	07/21/03	07/21/03	07/21/03
H7832-1	SECTION A SIDES	49.2	<0.005	<0.005	<0.005	<0.015
H7832-2	SECTION B SIDES	342	<0.005	<0.005	<0.005	<0.015
Quality Control		244	0.100	0.099	0.090	0.257
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		101	100	99.4	89.9	85.8
Relative Percent Difference		3.1	0.3	2.7	0.8	0.3

METHODS: TRPHC-EPA 600/4-79-020 418.1; BTEX -EPA SW-846 8260

Burgess J. A. Cooke, Ph. D.

7/22/03
Date

H7832.XLS

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: SESI	BILL TO PO #:
Project Manager:	Company: SAME
Address: 703 E. CLINTON, #103	Attn:
City: HOBBS State: NM Zip: 88240	Address:
Phone #: (505) 397-0510	City:
Fax #: (505) 393-4388	State: Zip:
Project #: NAV-03-005 Project Owner:	Phone #:
Project Name: MCA	Fax #:
Project Location: MARTINEZ	

FOR LAB USE ONLY				MATRIX						PRES.			SAMPLING		ANALYSIS REQUEST	
LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID:	ICE / COOL	OTHER:	DATE	TIME	TPH 418.1	B-TEX TPH TS UNDER 5000)
H7832-1	SECTION A SIDES	C	1			X					X		7-18	10:10am	X	
-2	SECTION B SIDES	C	1			X					X		7-18	9:00am	†	

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: Brand Cuellar	Date: 07-21-03 Time: 12:03pm	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
Relinquished By:	Date: 7/21/03 Time: 12:10	Received By: (Lab Staff) Amy Hill	Fax Result: ☐ Yes ☐ No
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)

REMARKS: IF TPH IS UNDER 5000, PLEASE RUN B-TEX

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ANALYTICAL RESULTS FOR
SAFETTY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: BOB ALLEN
703 E. CLINTON, #103
HOBBS, NM 88240
FAX TO: (505) 393-4388

Receiving Date: 08/08/03
Reporting Date: 08/11/03
Project Number: NAV-03-005
Project Name: MCA #4
Project Location: NOT GIVEN

Sampling Date: 08/08/03
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NO.	SAMPLE ID	TPH (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		08/08/03	08/08/03	08/08/03	08/08/03	08/08/03
H7895-1	E1/2 COMPOSITE	4660	<0.005	<0.005	0.013	0.082
H7895-2	W1/2 COMPOSITE	4160	<0.005	<0.005	<0.005	<0.015
Quality Control		242	0.094	0.104	0.094	0.271
True Value QC		240	0.100	0.100	0.100	0.300
% Recovery		101	94.4	104	94.3	90.5
Relative Percent Difference		5.9	6.9	2.7	1.3	1.2

METHODS: TRPHC-EPA 600/4-79-020 418.1; BTEX -EPA SW-846 8260

Burgess J.A. Cooke, Ph. D.

8/11/03
Date

H7895-XLS

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name: SESI	BILL TO PO #:
Project Manager:	Company: SAME
Address: 703 E. CLINTON, #103	Attn:
City: HOBBS State: NM Zip: 88240	Address:
Phone #: (505) 397-0510	City:
Fax #: (505) 393-4388	State: Zip:
Project #: NAU-03-005 Project Owner:	Phone #:
Project Name: MCA # 4	Fax #:
Project Location:	

FOR LAB USE ONLY				MATRIX						PRES.			SAMPLING		ANALYSIS REQUEST															
LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID:	ICE / COOL	OTHER:	DATE	TIME	TPH 418.1	BTEX														
H7895-1	S 1/2 composite	C	1			✓					✓		8-8-03	11:00	✓	✓														
-2	W 1/2 composite	C	1			✓					✓		8-8-03	11:15	✓	✓														

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date:	Received By:	Phone Result ☐ Yes ☐ No Additional Fax #:
	Time:		Fax Result: ☐ Yes ☐ No
Relinquished By:	Date: 08/08/2003	Received By: (Lab Staff)	REMARKS:
	Time: 2200		
Delivered By: (Circle One)	Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials)	
Sampler - UPS - Bus - Other:			

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

Appendix C
C-141

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
811 South 1st, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, New Mexico 87505

FORM C-141
Revised March 17, 1999

Submit 2 copies to appropriate District Office in accordance with Rule 116 on back side of form.

Release Notification and Corrective Action
OPERATOR

[X] Initial Report [ ] Final Report

Name	Navajo Refining Company	Contact	Dickie Townley
Address	P.O. Box 159, Artesia, New Mexico 88211	Telephone No.	(505) 748-6712
Facility Name	Mitchell Mainline	Facility Type	Pipeline

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North / South Line	Feet from the	East / West Line	County
	16	17S	32E					Lea

NATURE OF RELEASE

Type of Release	Crude Oil	Volume of Release	23 bbls	Volume Recovered	18 bbls.
Source of Release	Lynx Petal Lateral	Date & Hour of Occurrence	1/23/03 ?????	Date & Hour of Discovery	1/23/2003 8:30

Was Immediate Notice Given?	[ ] Yes	[ ] No	[X] Not required	If YES, to whom?	
By Whom?				Date & Hour	
Was a Watercourse Reached?	[ ] Yes	[X] No		If YES, Volume Impacting the Watercourse.	

If a watercourse was Impacted, Describe Fully. * NONE

Describe Cause of Problem and Remedial Action Taken. * The cause of the leak was external corrosion. The pipe was cut, drained (vacuumed), and taken out of service.

* The source is in casing under the pavement (This prompted us to drain the line & take it out of service)

Describe Area Affected and Cleanup Action Taken. * The affected area 150 yrds long 2 ft wide forming 3 pools 20' x 20'. The standing oil was vacuumed up. The saturated area will be tested for saturation depth and a determination made as to the best remeadiation method.

Maps attached

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Dickie Townley	OIL CONSERVATION DIVISION
Printed Name: Dickie Townley	Approved By:
Title: Regulatory Coordinator	District Supervisor:
	Approval Date: Expiration Date:
Date: 1/31/2003 Phone: (505) 748-6712	Conditions of Approval: Attached [ ]

* Attache Additional Sheets if Necessary

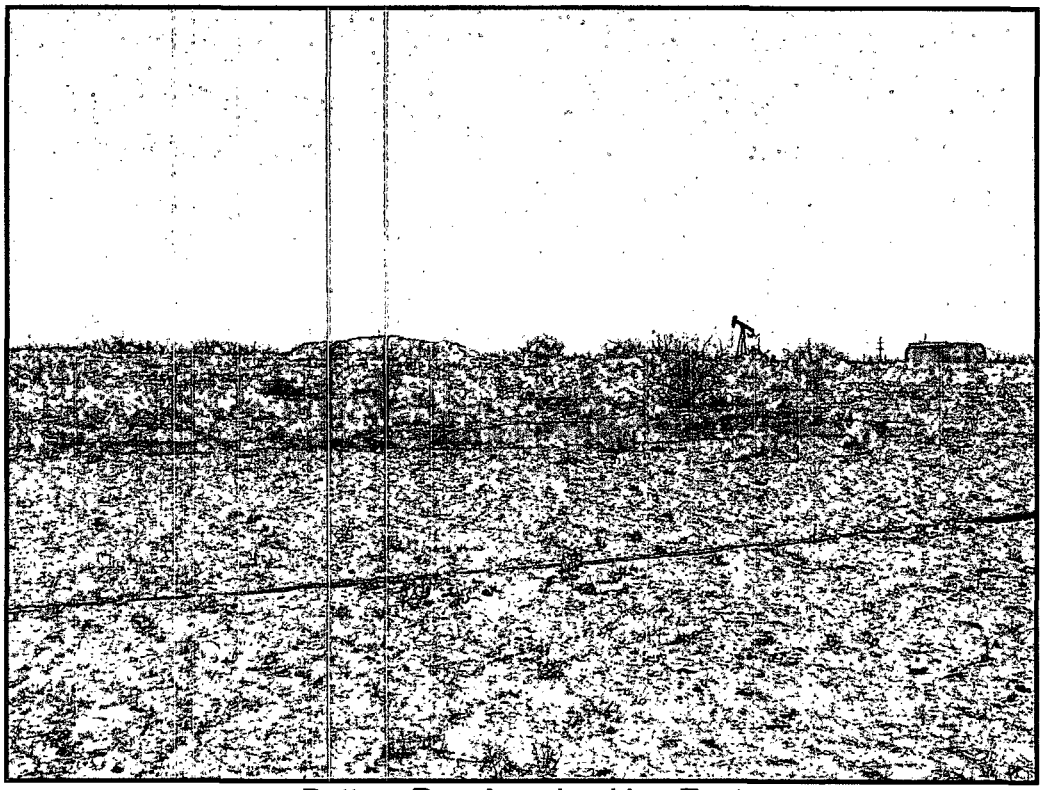
2-3-03
Cert. Mail 7001-0320-0002-8432-2552

002/003

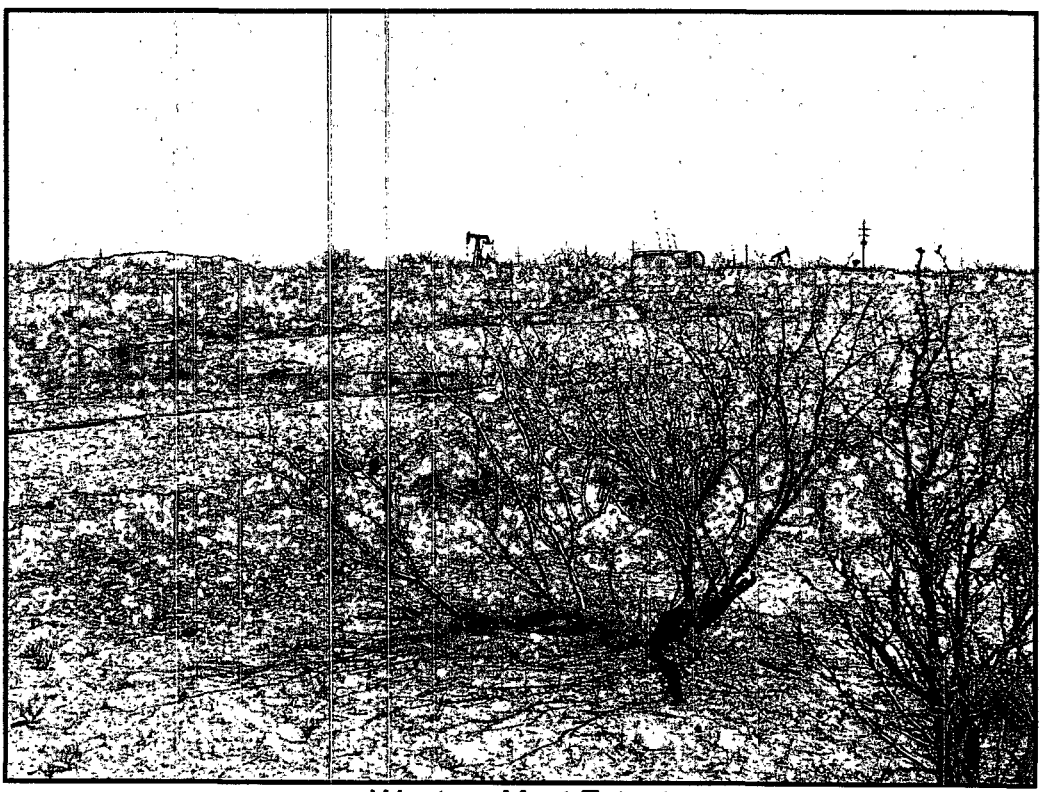
FAX 505 748 3450 NAVAJO PIPELINE

Appendix D
Site Photos

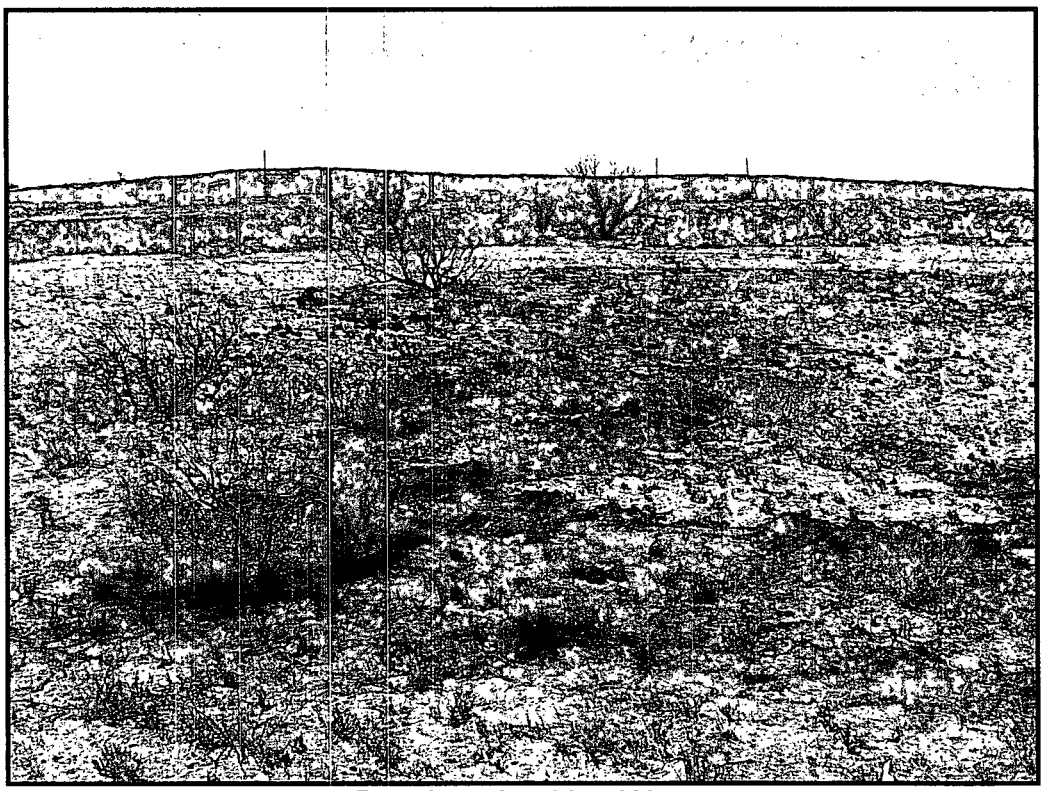
3/31/03



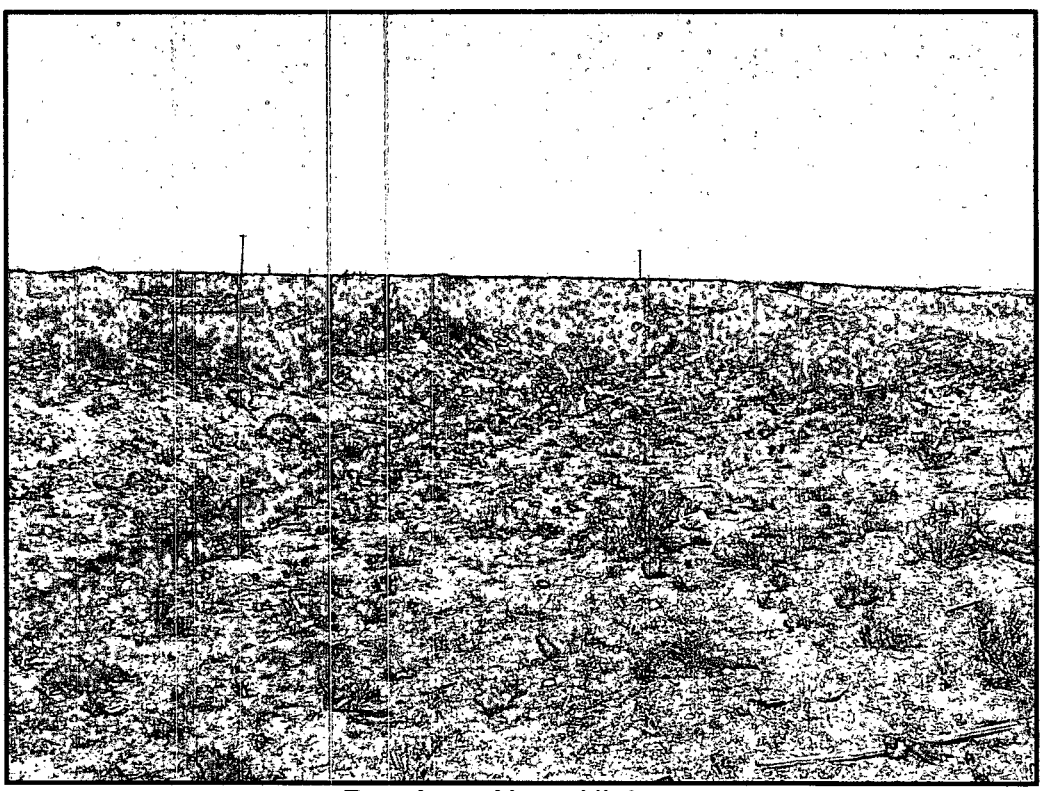
Bottom Run Area Looking East



Western Most Extent

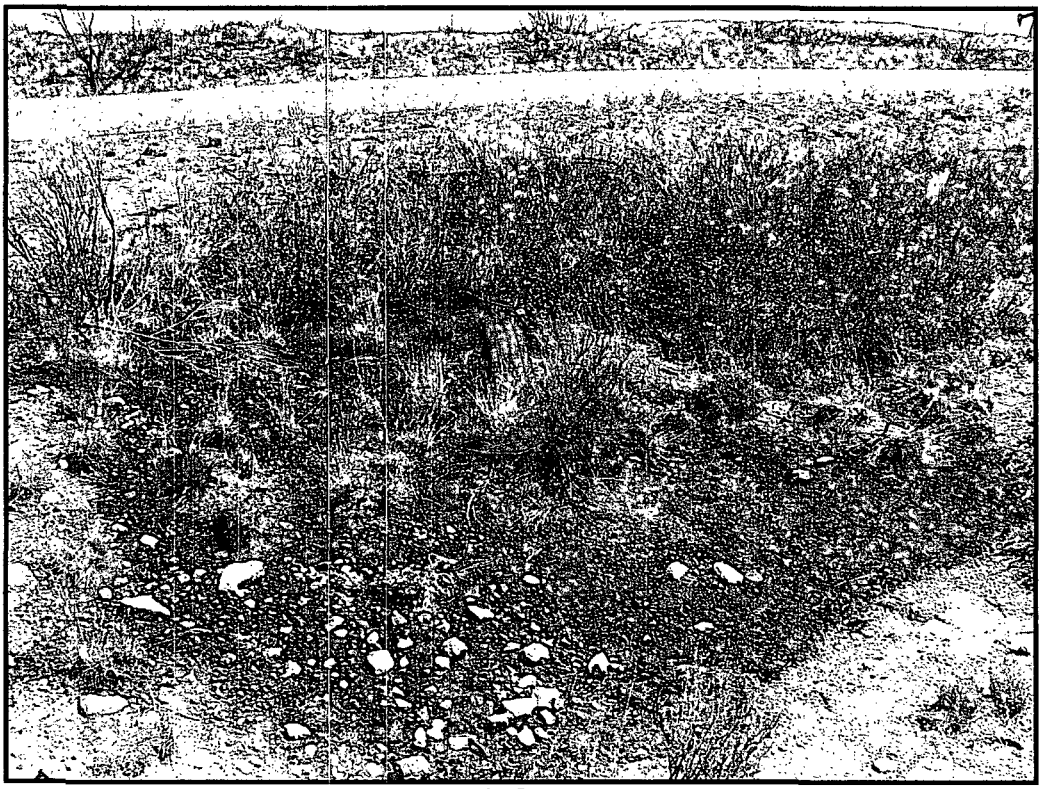


Run Area Looking West

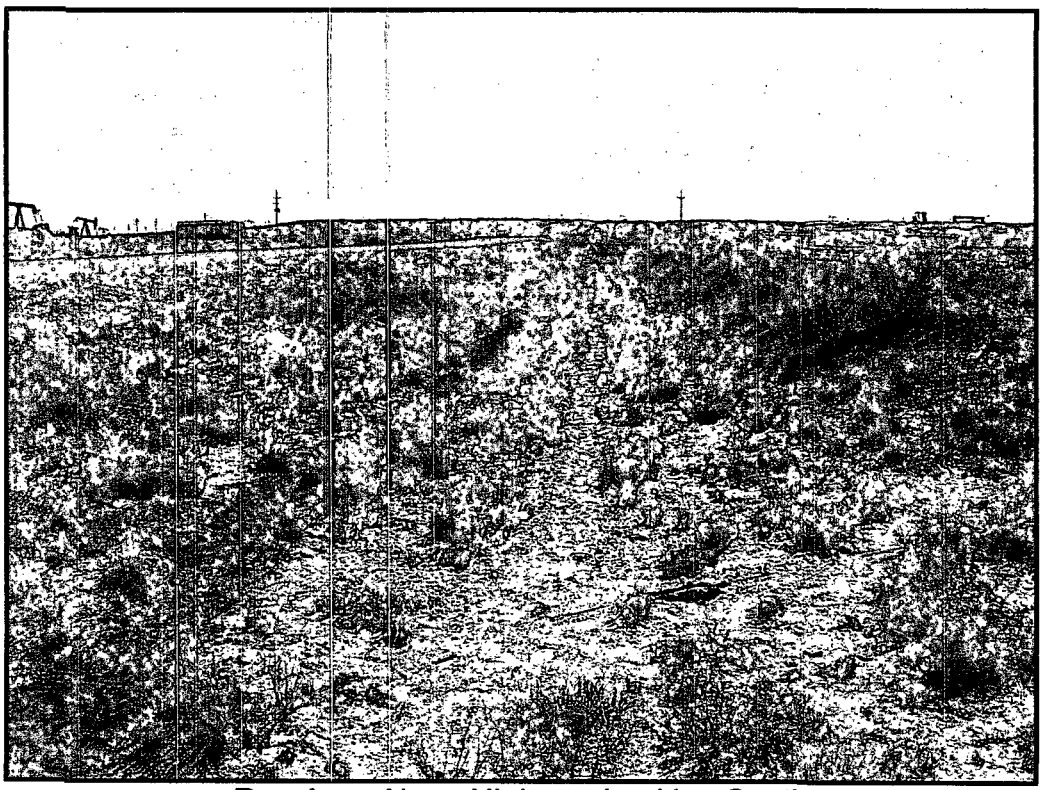


Run Area Along Highway

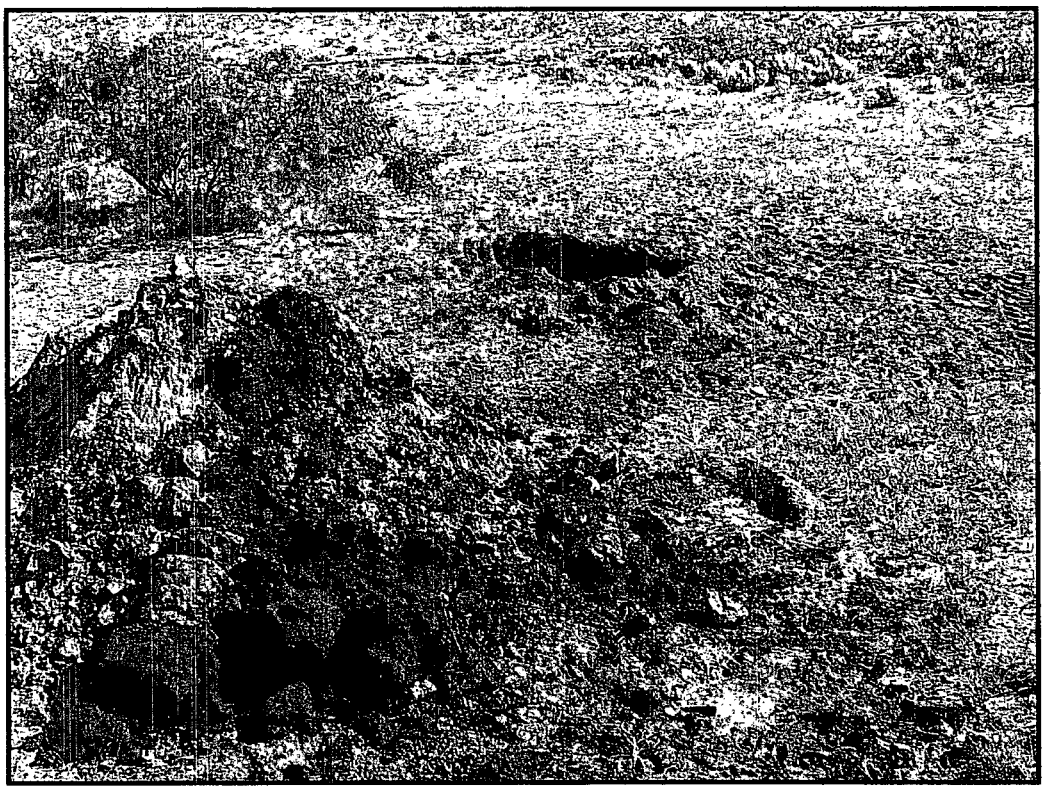
3/31/03



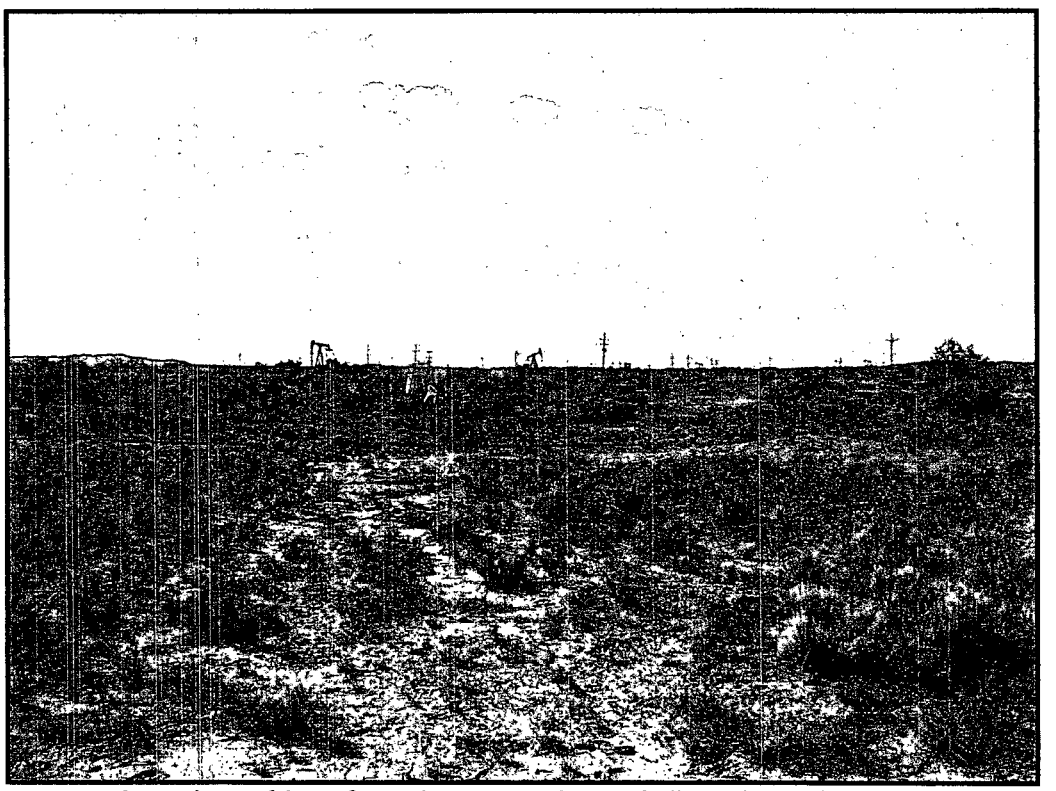
Leak Source



Run Area Along Highway Looking South

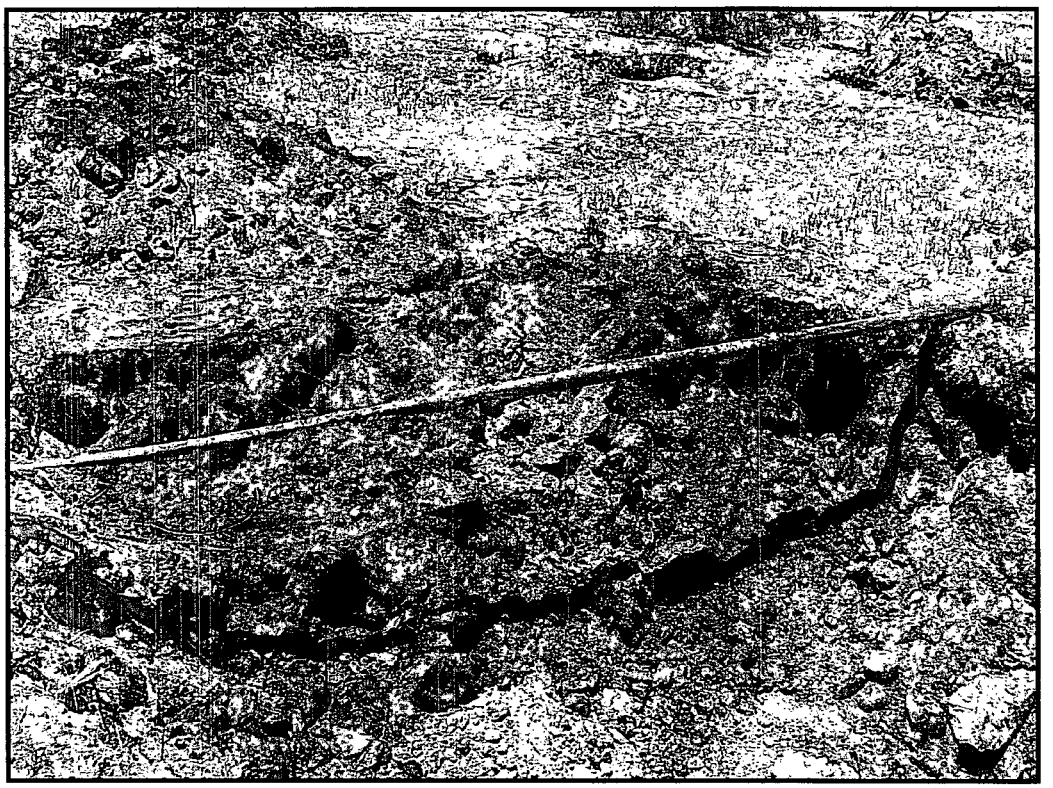


Tank Bottom Material



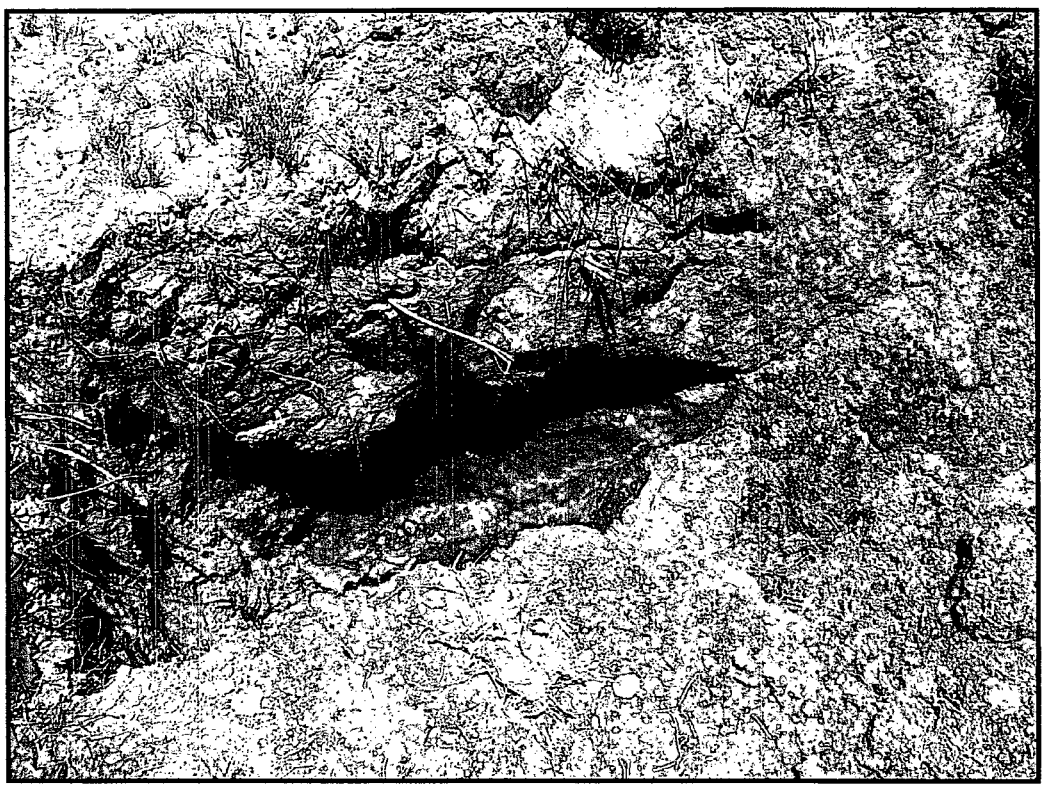
Overview of Sets from Conoco MCA Unit #10 Plugged 2/13/95

Tank Bottom Hole



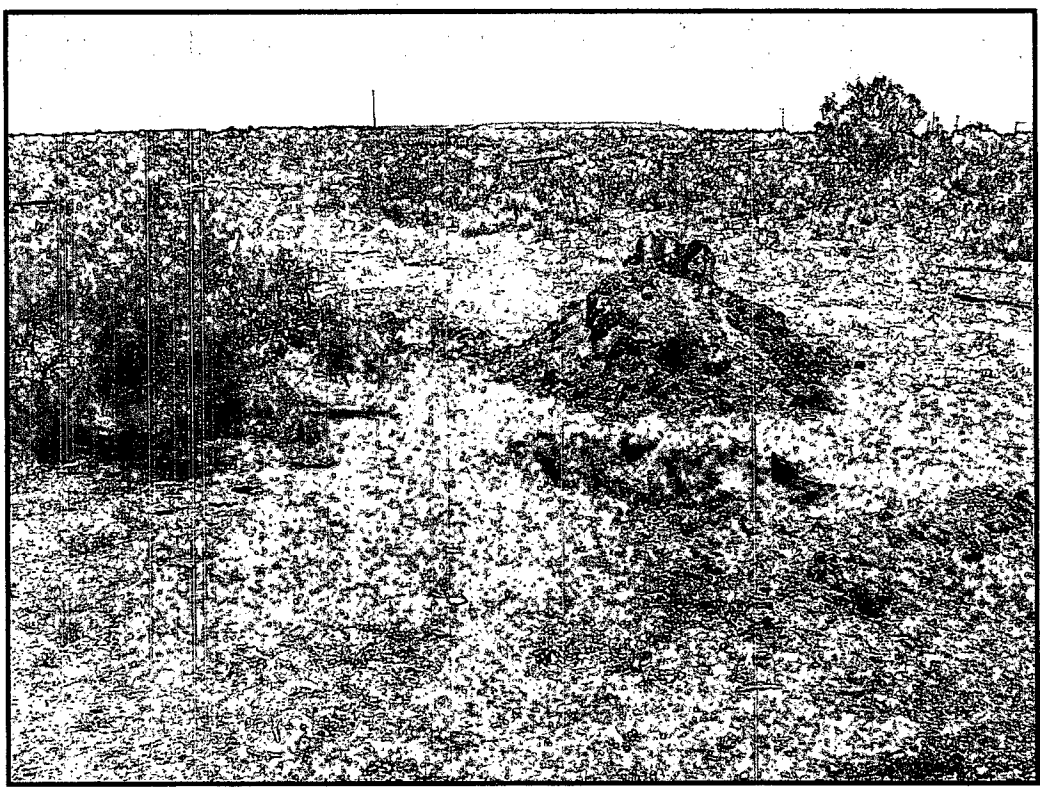
East Boundry

East Boundry Pit Area

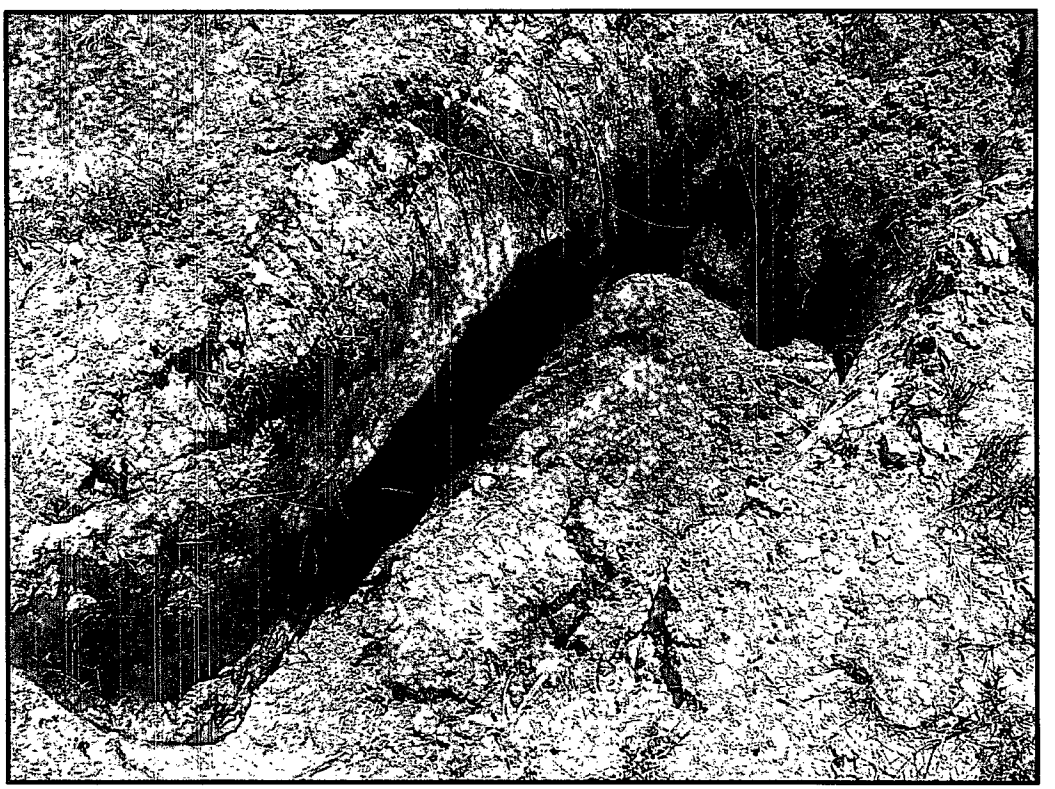


North Most Pit

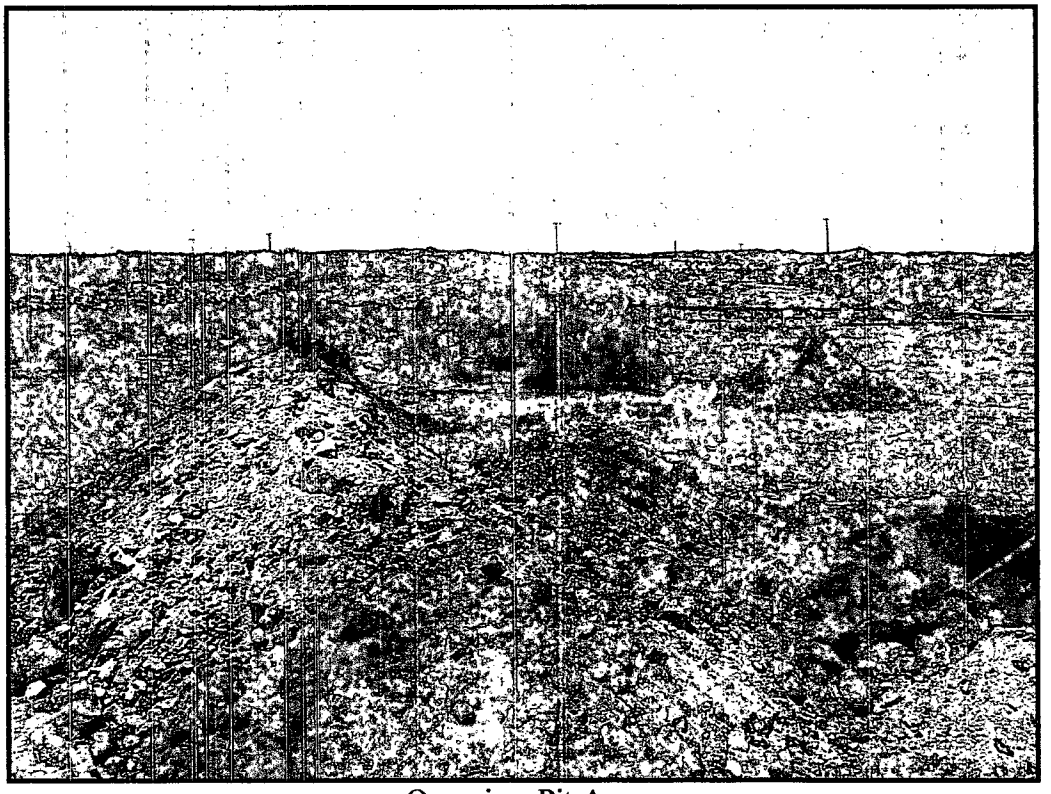
7/15/03



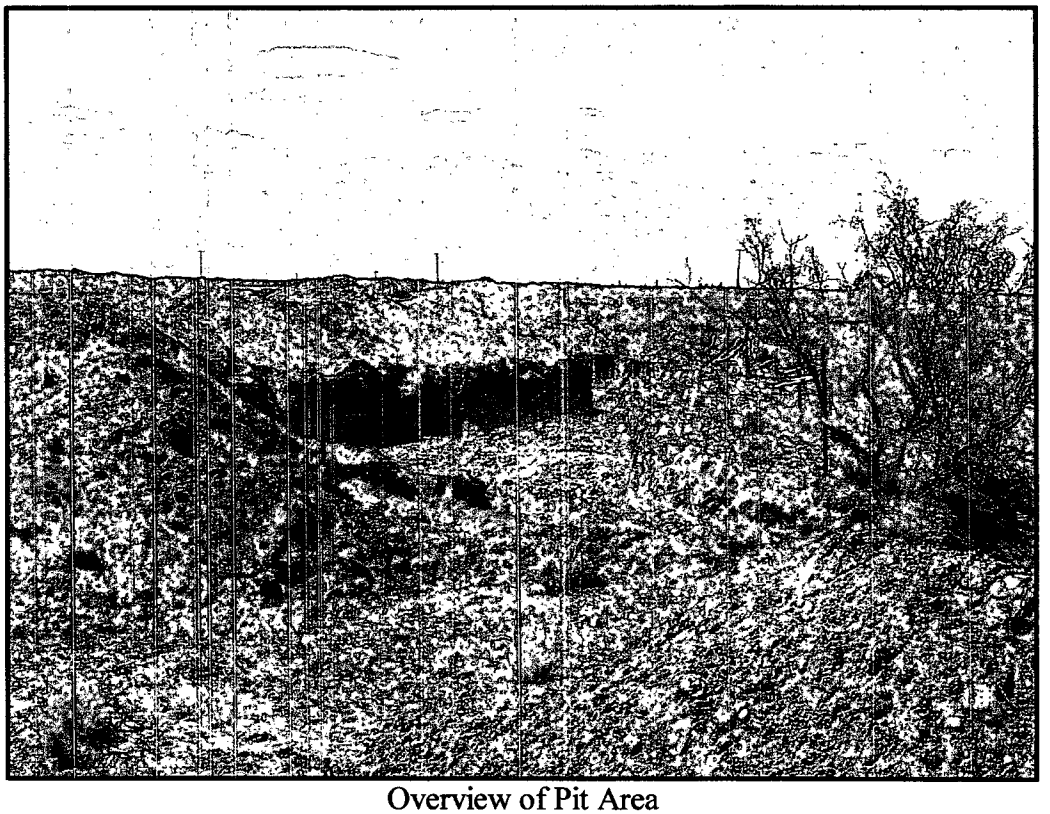
Pit Area



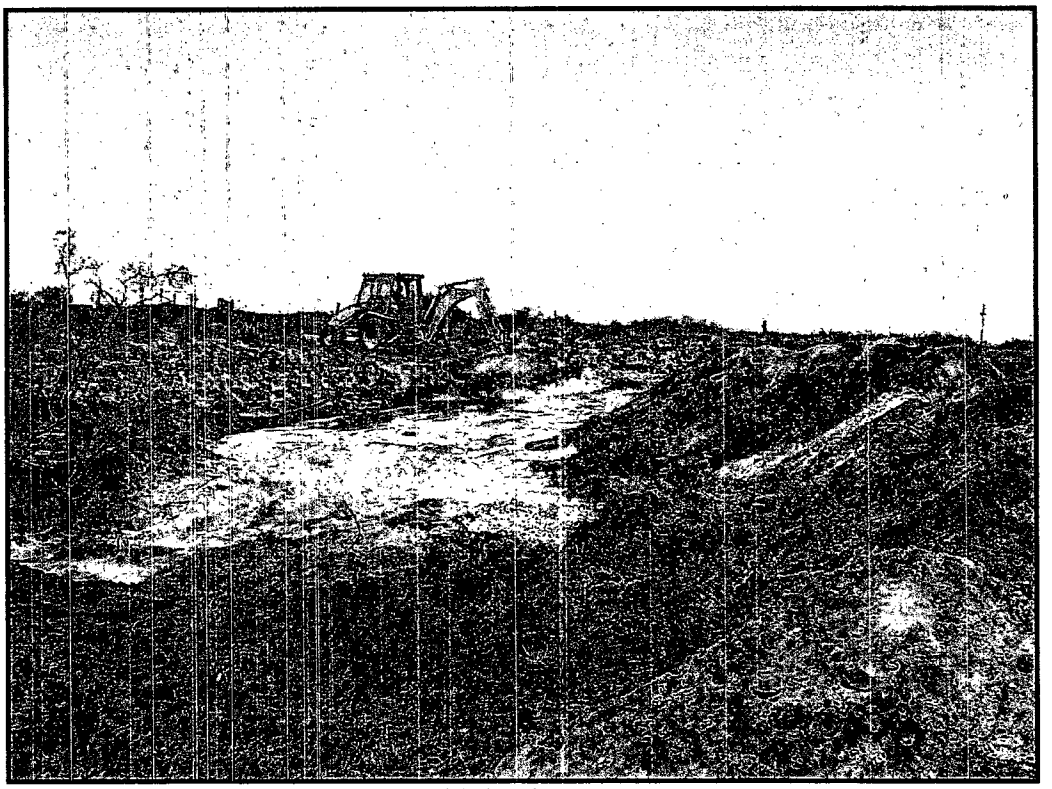
West Most Test Hole



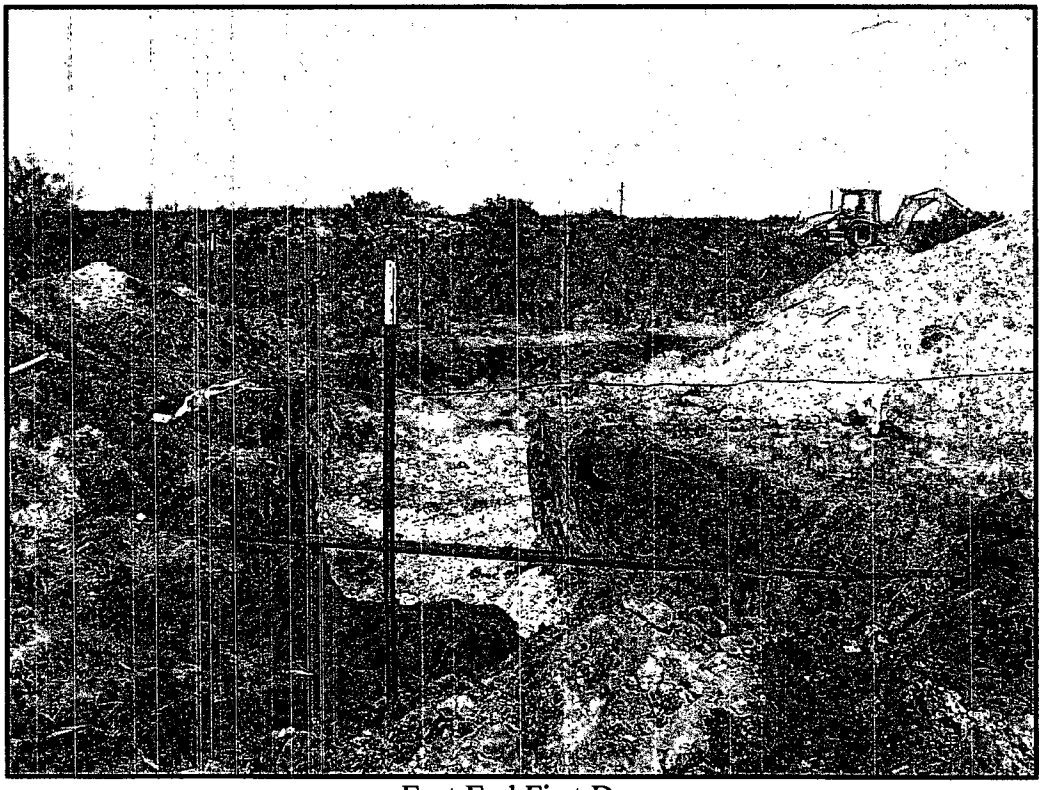
Overview Pit Area



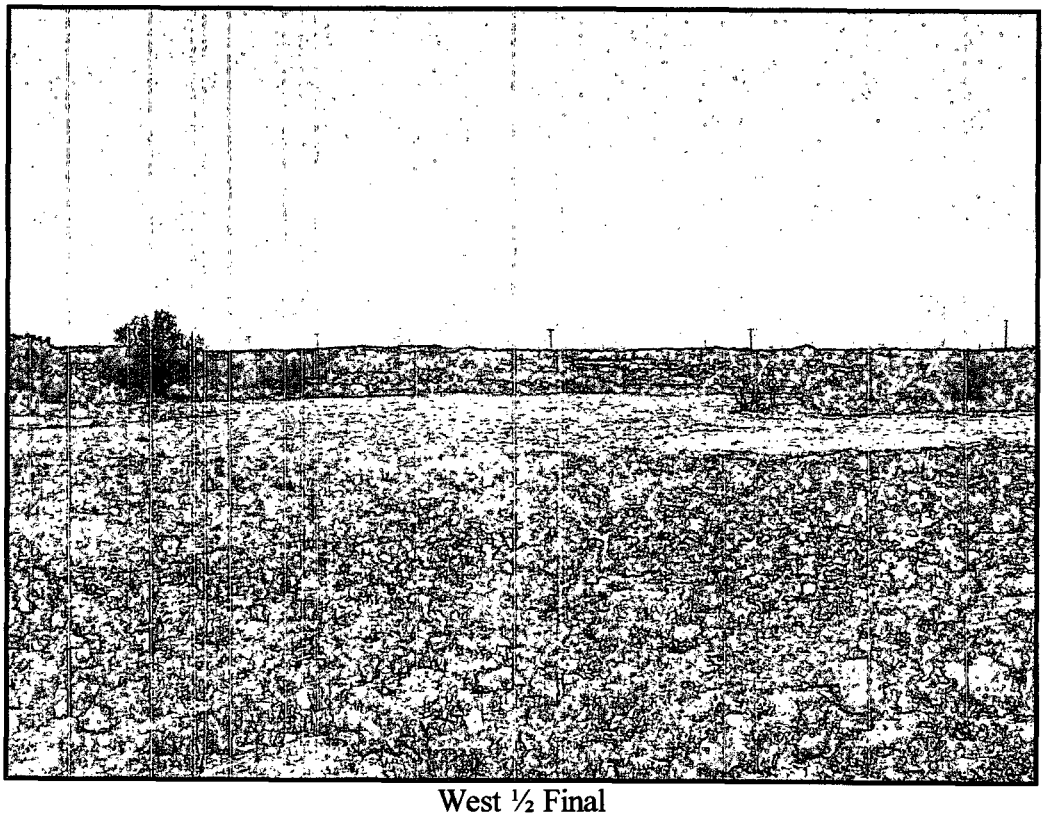
Overview of Pit Area



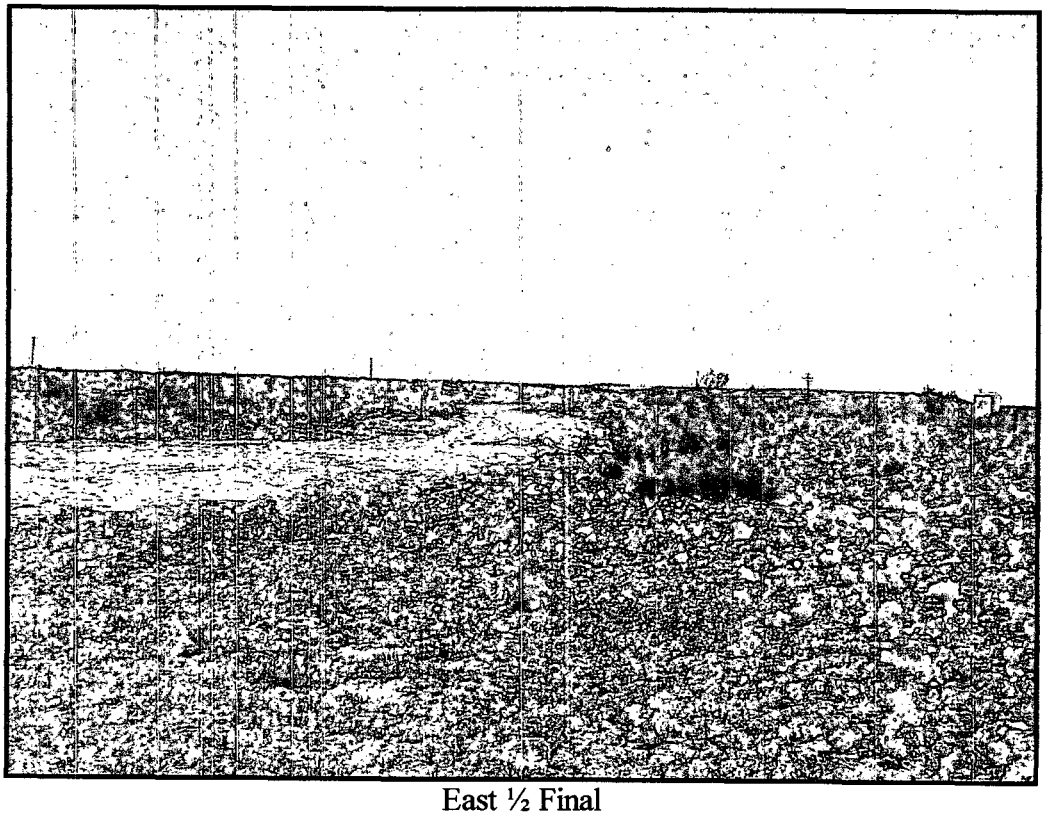
Middle First Day



East End First Day



West ½ Final



East ½ Final