DEPARTMENT OF THE AIR FORCE
27TH SPECIAL OPERATIONS MISSION SUPPORT GROUP (AFSOC)
CANNON AIR FORCE BASE NEW MEXICO

ENTERED

DEC 18 2015

Colonel Douglas W. Gilpin
Commander, 27th Special Operations Mission Support Group
110 E Alison Avenue Suite 1098
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DEC 23 2015

Mr. John E. Kieling
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East Bldg 1
Santa Fe NM 87505-6063

Dear Mr. Kieling

Cannon AFB is pleased to submit the *"Workplan, RCRA Facility Assessment at OW541 and OW560".* If you have any questions regarding this submittal, please contact Ms. Brandy Chavez, Chief, Environmental Element at (575) 904-6747.

Sincerely

DOUGLAS W. GILPIN, Colonel, USAF
Commander

Attachments:
1. RFA Workplan OWS541 and 560

cc:
NMED, Dave Cobrain
NMED, Gabriel Acevedo
NMED, Neelam Dhawan

AECOM
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Engineering & Consulting Services

LETTER OF TRANSMITTAL

RE: *Final RCRA Facility Assessment Work Plan -*
Sites OW541 & OW560
Cannon AFB, New Mexico
Contract No. FA3002-07-D-0015
Task #4

DATE: **December 16, 2015**

AECOM is pleased to submit the above Final RCRA Facility Assessment (RFA) Work Plan for Sites OW541 & OW560 – Cannon Air Force Base, for review by the New Mexico Environment Department (NMED), Hazardous Waste Bureau. This deliverable is being provided under Task #4, Contract No. FA3002-07-D-0015, RCRA Facility Assessment, Supplemental RCRA Facility Investigation, and Five Year Review at Cannon AFB and Holloman AFB, NM. Based on our correspondence with Mr. Sheen Kottkamp (December 15, 2015), our understanding is that Cannon Air Force Base will submit two hardcopies and two electronic copies to NMED by no later than December 31, 2015, in order to facilitate compliance with the Air Force's previous Request for Extension (August 28, 2015) of the Work Plan submittal for delivery to NMED.

If you have any questions or require additional information, please contact me at 505-662-2107 or via email at steve.geiger@aecom.com, or the Project Manager Richard Wells at 602-861-7409 or via email at richard.wells@aecom.com.

Very truly yours,

Steve Geiger
CAFB RFA Task Leader, AECOM

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(4 hardcopies, 4 electronic copies)

FINAL WORK PLAN

RCRA FACILITY ASSESMENT AT OW541 & OW560

CANNON AIR FORCE BASE
NEW MEXICO
RCRA PERMIT No. NM7572124454

Contract Number: FA3002-07-D-0015
Task Order 0004

Prepared for

AIR FORCE CIVIL ENGINEER CENTER
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November 2015

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Acronyms and Abbreviations

°F	degrees Fahrenheit
AAFES	Army and Air Force Exchange Service – Service Station
AECOM	AECOM Technical Services, Inc.
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AIP	abandoned-in-place
ASTM	American Society for Testing and Materials
bgs	below ground surface
BH	Borehole
Bldg	Building
CAC	corrective action complete
COPC	contaminants of potential concern
CSM	Conceptual Site Model
DRO	diesel range organics
ELAP	Environmental Laboratory Approval Program
FB	Field Blank
FD	field duplicate
ft	feet
Gal	Gallon
gal/ft	Gallons per foot
gpm	gallon per minute
GRO	gasoline range organics
ID	identification
IDW	investigation-derived waste
Lee Wan	Lee Wan Associates, Inc.
mg/kg	Milligram per kilogram
mg/L	Milligram per liter
MoGas	motor gasoline
mph	miles per hour
msl	mean sea level
NMED	New Mexico Environment Department
OWS	oil/water separator
POL	petroleum, oils and lubricants
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
ORO	Oil range organics
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
Sonic	rotary-sonic
SOW	Special Operations Wing

SOCES	Special Operations Civil Engineering Squadron
SVOC	Semi-volatile organic compound
TAL	target analyte list
TPH	total petroleum hydrocarbon
USCS	unified soil classification system
URS	URS Group, Inc.
U.S.	United States
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

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The goals of the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) for sites OW541 and OW560 are to analyze and confirm the previous work reported in the 2012 investigations, to determine the contaminants of potential concern (COPCs) present in media surrounding and below the former oil-water separators (OWS), and to determine if the sites can be closed or if further investigation is warranted.

The historical review for information on previous environmental investigations at sites OW541 and OW560 produced limited and fragmented historical information. Several facility drawings and diagrams were found for each site. Limited analytical data sheets, of varying degrees of completeness, were found for both sites. Documents were obtained that detailed the following: removal of the OWS from OW541; a technical review of both sites from 2012; and historical site photographs. Other historical documents recovered included partially completed testing, inspection, and repair reports for both sites.

The previous investigation at OW541 detected the presence of total petroleum hydrocarbons (TPHs) and metals including chromium, zinc, copper, and lead, based on confirmation samples collected following the OWS removal in 2000. At OW560, four sets of analytical results were found quantifying the contaminant levels in soil and “organic liquid" from the site between 1996 and 2000. Diesel range organics (DROs) were detected in soils when the OWSs were removed in 2000. Suspected COPCs include volatile organic compound (VOCs), TPH, and metals.

Based on the site visit and data reviewed, soil samples at the surface and in the subsurface are proposed at five locations at OW541 and at five locations at OW560. All methods and procedures for drilling, sampling, and analytical work are described herein. Soil samples will be analyzed for TPH (DRO and oil range organics [ORO]), VOCs, semi-volatile organic compounds (SVOCs), pesticides and target analyte list (TAL) metals. Following data verification, analytical results will be screened based on appropriate background levels (metals), and screened against New Mexico Environmental Department (NMED) Soil Screening Levels or EPA regional screening levels, as needed. Results will be interpreted and recommendations will be provided for additional investigation, or whether corrective action complete (CAC) without controls should be sought.

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1.1 AUTHORITY

AECOM Technical Services, Inc. (AECOM) has been contracted by the Air Force Civil Engineer Center (AFCEC) under Contract Number FA3002-07-D-0015, Delivery Order 0004, to complete a RCRA RFA at OW541 and OW560 at Cannon Air Force Base (AFB). This RFA is being completed under the Environmental Restoration Program for Cannon AFB.

1.2 PURPOSE AND SCOPE

The scope of the RFAs conducted under Task Order 0004 is the following:

- Review of historical information, including previous environmental investigation reports and documentation, meeting with relevant individuals, and collecting additional information, if available regarding past operational practices, facility drawings, diagrams and plans.
- Conduct a focused visual site inspection, including review of potential release scenarios from the OWS tanks, conveyance lines, transfer points, valves and pipe connections. Review potential surface and sub-surface release pathways to determine optimal sampling locations and depths. Review of facilities and infrastructure with regard to drilling and sampling logistics.
- Develop, draft, draft final, and final submittal of a RFA Work Plan, to include site specific Sampling and Analysis Plans.
- Conduct surface (0 to 0.5 feet [ft]) soil sampling at 5 locations at each site.
- Collect seven sub-surface soil samples from each of 10 borings to a total depth of 35 ft, using rotary-sonic (Sonic) drilling methods.
- Submit samples to the contract laboratory, TestAmerica (Denver, Colorado) for analysis of TPH-OROs, TPH-DROs, TAL metals, VOCs, SVOCs, and pesticides.
- Collect quality control samples (field duplicates, matrix spike/matrix spike duplicates, trip, and equipment blanks).
- Review analytical results and develop data a verification report.
- Background screening of sampling results for COPC determination against NMED Soil Screening Levels (NMED, 2015).
- Develop, draft, and final submittals of the RFA Report in accordance with requirements of Cannon AFB RCRA Permit.

1.3 FACILITY DESCRIPTION AND BACKGROUND

In 1929, Portair Field was established as a transcontinental flight civilian air terminal. The Department of Defense took control of Portair Field in 1942 and renamed it Clovis Army Air Base. In its early years as an Army Air Base it provided training facilities for B-17, B-24, and B-29 aircrews during World War II. The Army Air Base was deactivated in 1947. In 1951, the Air

Base was reassigned to the Tactical Air Command, renamed Clovis AFB, and served as an operations center for P-51s and F-86s. The Base was renamed Cannon AFB in 1957 in honor of a former commander of the Tactical Air Command, John K. Cannon. Today the base encompasses approximately 4,500 acres in eastern New Mexico and is the base of operations for F-100s. Since 1971, the primary mission of Cannon AFB has been to develop and maintain tactical fighter wings composed of various models of the F/EF-111 aircraft. Cannon AFB was reassigned to the Air Combat Command on 1 June 1992. In 1995, Cannon AFB transitioned from F/EF-111 aircraft to F-16 aircraft, and operated four squadrons. However, as determined in the 2005 Base Realignment and Closure recommendations, the 27th Fighter Wing was deactivated upon reassignment of the F-16 Fighter Falcons, and the Air Force Special Operations Command accepted ownership of Cannon AFB in October 2007.

The 27th Special Operations Wing (SOW) is currently the host unit at Cannon AFB. The 27th SOW, activated 1 October 2007, is the newest active-duty wing of Air Force Special Operations Command. The primary mission of the 27th SOW is to plan and execute specialized and contingency operations using advanced aircraft, tactics, and air refueling techniques to infiltrate, exfiltrate, and resupply special operations forces (URS Group, Inc. [URS], 2009). The 27th SOW also provides intelligence, surveillance and reconnaissance, and close air support in support of Special Operations Forces operations (URS, 2009).

1.4 PROJECT SCHEDULE

Fieldwork is scheduled for the winter of 2016. Preparation for field sampling activities including mobilization, acquisition of base passes and utility locates is described in **Section 4** of this WP. Should NMED reviews and approval of the work plan be obtained ahead of the scheduled timeframe, the field sampling activities schedule will be revised accordingly. This will be reflected in the updates of the project IMS provided with the monthly status report. The detailed schedule for each site is included in the latest version of the approved IMS.

1.5 WORK PLAN OBJECTIVES

The objectives of the RFA for sites OW541 and OW560 are to validate the work conducted in 2012 investigations, to determine if COPCs are present in the surface/subsurface soils surrounding and below the former OWS, and to determine if the sites are candidates for CAC without controls or require a RCRA Facility Investigation.

This phase of the corrective action process includes a review of all records related to the facility, a visit to the facility, and soil sampling, data screening, evaluation, and interpretation.

1.6 WORK PLAN ORGANIZATION

This Work Plan is organized as follows:

- **Section 1** presents the scope, project background, and the work plan objectives.

- **Section 2** presents the site history including the following: topography, climate, geology, surface water hydrology, groundwater hydrology, and current and projected land use. The previous investigations and activities are described as well.
- **Section 3** presents the observations, background investigation activities, and site-specific sampling activities that will be completed at sites.
- **Section 4** presents the sampling locations and rational and the site sampling plan.
- **Section 5** presents the project team, lines of authority and facility safety requirements.
- **Section 6** presents references used for this RFA.
- **Appendix A** – presents the Analytical Results for Previous Sampling at OW541.
- **Appendix B** – presents the Analytical Results for Previous Sampling at OW560.
- **Appendix C** – presents the Historical Documents for OW541.
- **Appendix D** – presents the Historical Documents for OW560.
- **Appendix E** – presents all the photographs taken at the site visit.

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2.1 SITE HISTORY

Cannon AFB is located in the east central portion of New Mexico approximately 7.4 miles west of Clovis, NM. Site OW541 is located in the northern portion of Cannon AFB at the petroleum, oils and lubricants (POL) yard, and site OW560 is located on the former Army and Air Force Exchange Service (AAFES) – Service Station which is currently the Cannon Federal Credit Union Building (**Figure 1**). Contaminant releases have occurred at both sites according to the *Technical Evaluation Report for Investigation of Oil Water Separators to Determine Defense Environmental Restoration Account Eligibility* (AECOM, 2012).

OW541

OW541, while operational, was a steel-constructed, gravity type, above ground OWS reportedly of an unconventional design and with no secondary containment. It was located south of the diked area containing the bulk motor gas (MoGas) tank (**Figure 2**). The unit had a reported capacity of 300 gallon (gal) and an associated 100 gal waste oil tank. OW541 treated runoff and discharged to the ground surface east of the MoGas tanks. The unit was removed on 6 June 2000 (AECOM, 2012).

OW560

OW560 consists of two sand traps constructed in 1963 at the AAFES Service Station. The two units received wash water generated from vehicle maintenance operations and floor washing inside Building (Bldg) 368 and discharged to the sanitary sewer. One sand trap was identified as ST368A, and was located inside Bldg 368. The second sand trap was identified as ST368B, and was located in the eastern corner of the parking lot of Bldg 368 (**Figure 3**). These units were misidentified as a single OWS in previous reports (AECOM, 2012). The sand traps fed into an OWS located southeast of the service station, which is now within the fenced yard north of the Bldg 5144 (mowing equipment garage) and Bldg 374 (Grounds Maintenance Administration Building), and designated as OW374. OW374 is listed as being abandoned-in-place (AIP) by concrete encasement (personal contact, Sheen Kottkamp, 27th SOCES, 12/4/2015). The former OW 560 sand trap units were constructed of concrete and located below grade with a capacity of 170 gal. Both units were removed on 3 December 2000 (AECOM, 2012).

2.2 ENVIRONMENTAL SETTING

The environmental setting of Cannon AFB is described below, including topography, climate, geology, hydrology, and land use.

2.2.1 Topography

Cannon AFB is situated in the Southern High Plains Physiographic Province of the Llano Estacado sub province. The Llano Estacado is a nearly flat plain sloping gently (10 to 15 feet per mile) to the east and southeast. Elevations in the eastern New Mexico portion of the Llano

Estacado exceed 4,000 feet above mean sea level (msl). In the vicinity of Cannon AFB, elevations range from 4,250 feet to 4,350 feet above msl.

The most prominent geomorphic features in the vicinity of Cannon AFB are blowouts and broad, widely spaced valleys. Less common landforms are relict sand dunes located along the northern side of the Portales Valley to the south of the base. Relict dunes are not found on or near Cannon AFB.

Blowouts are broad shallow depressions, which form as the result of soil eroded by wind. Blowouts commonly collect surface runoff from small to moderate sized drainage areas. During periods of rainfall, runoff collects in blowouts to form ephemeral playa lakes. Playas have no external surface drainage. Water is lost by infiltration to the soil and evaporation; without recharge, playa lakes persist for only a few days or weeks. Three playas are located within the base, and several more are found to the north and east of the base.

2.2.2 Climate

The climate of east-central New Mexico is classified as semi-arid. Average monthly temperatures range from a January low of 25 degrees Fahrenheit (°F) to a July high of 91°F (US Climate Data, 2013). Extreme daily temperatures range from a historical low of –11°F to a historical high of 106°F (My Forecast, 2013). Average monthly precipitation ranges from 0.39 inches in February to 3.43 inches in July (US Climate Data, 2013). The maximum-recorded 24-hour rainfall is 4.8 inches. Rainfall occurs on an average of eight days per month during the summer precipitation maximum (My Forecast, 2013). Mean annual precipitation is approximately 18.51 inches (US Climate Data, 2013). The mean annual evapotranspiration rate is 112.56 inches per year (United States Environmental Protection Agency [USEPA], 2013a). Prevailing winds are from the southwest. Average wind speed is highest at an average of 14.5 miles per hour (mph) during the month of April (USDA, 2013).

The atmosphere around the area of Cannon AFB is generally well mixed. The seasonal and annual average mixing heights can vary from about 1,312.34 ft in the morning to 13,123.36 ft in the afternoon. The afternoon mixing heights are typically greater during the spring and fall seasons. The morning mixing heights are usually low, due to nighttime heat loss from the ground, producing surface-based temperature inversions. After sunrise, these inversions break up, and solar heating of the earth's surface causes vertical mixing in the atmosphere.

Dust is frequently entrained into the atmosphere in this region of the country because of gusty winds and the semiarid climate. The Texas Panhandle-eastern New Mexico area is considered the worst area in the United States for windblown dust. Occasionally, this windblown dust is of sufficient quantity to restrict visibility. Most of the seasonal dust storms occur in March and April, when the wind speeds are typically high (i.e., average 3.1 mph) (Woodward-Clyde, 1991).

2.2.3 Geology

The near surface stratigraphic units of interest at Cannon AFB are the Late Miocene-Late Pliocene-age Ogallala Formation and the Early Triassic Dockum Group.

The Dockum Group consists of three formations. Stratigraphically, the lowest unit is the Santa Rosa Sandstone. Overlying the Santa Rosa Sandstone are the Chinle and Redonda Formations. The Chinle and Redonda Formations are composed mainly of red shales with lesser interbedded sands, and are known locally as "redbeds." The top of the Dockum Group is marked by an erosional nonconformity having relief of up to several hundred feet (Lee Wan and Associates, Inc. [Lee Wan] 1990).

Overlying the Dockum Group redbeds is the Ogallala Formation. The Ogallala Formation extends from eastern New Mexico and Colorado into Texas, Oklahoma, Kansas, Nebraska, and South Dakota. Drillers' logs from Cannon AFB indicate that the Ogallala Formation varies from 360 feet to 415 feet in thickness. The incised upper surface of Triassic redbeds strongly influences Ogallala thickness. Paleo valleys in the post Triassic nonconformity are deep and trend dominantly east to west. Ogallala thickness may vary significantly over short north to south distances (Lee Wan, 1990).

The Ogallala Formation is composed of unconsolidated poorly sorted gravel, sand, silts, and clays. The base of the Ogallala is generally marked by a gravel, cobble, and boulder deposit. This basal member contains sediments derived from igneous and sedimentary rocks transported from the mountains to the west. The Ogallala Formation was laid down as stream and overbank deposits formed within coalescing alluvial fans. These fans form a broad pediment along the eastern flank of the Rocky Mountains. As is typical of alluvial deposits, Ogallala internal stratigraphy varies vertically and horizontally over short distances.

Caliche is a major feature of the Ogallala Formation, occurring as nearly continuous to discontinuous layers throughout. Caliche is hard, white to pale tan on fresh surfaces, weathering to gray, and has a chalky appearance. Caliche forms as calcium carbonate, leached from overlying sediments, and precipitates in the pore space of the host sediments. Precipitation is caused by the evaporation of downward percolating water. The caliche may thus mark the position of ancient vadose zones.

2.2.4 Surface Water Hydrology

Stream valleys tend to be fairly broad and widely spaced. Streams are ephemeral and drainages are poorly developed. No streams exist on or near Cannon AFB. Running Water Draw and Frio Draw (located about 10 and 20 miles, respectively, north of Cannon AFB) are the nearest streams. These are second-order streams. Both streams are very straight, flow southeast, and have rectilinear drainage patterns with short laterals (Woodward Clyde, 1991).

2.2.5 Groundwater Hydrology

The lower portion of the Ogallala Formation is the primary regional aquifer for both potable and irrigation water. No deeper aquifers are utilized in the vicinity of Cannon AFB. The Ogallala aquifer is part of the High Plains Aquifer that extends continuously from Wyoming and South Dakota into New Mexico and Texas. In east-central New Mexico, the Ogallala aquifer rests on Dockum Group redbeds, which serve as the basal confining layer. The Ogallala is a water table, or unconfined, aquifer. The Ogallala aquifer has a southeasterly regional gradient of about 17

feet per mile. Well yields vary from less than 1 gallon per minute (gpm) in thin silts and sands, and up to 1,600 gpm in thick sands and gravels. Water quality is generally good, with hardness and fluorides being somewhat high (Lee Wan, 1990).

Based on data from the 2012 base-wide sampling event, the depth to groundwater at Cannon AFB varies from 285 to 340 feet below ground surface (bgs) (Bhate, 2013). Saturated thickness is influenced by the configuration of the erosional nonconformity surface marking the top of the Dockum Group. The local groundwater gradient is southeasterly at 7.5 feet per mile. Yields in tests of Cannon AFB water wells have ranged from 205 gpm to 1,150 gpm. Specific capacities range from 11.4 gallons per foot (gal/ft) to 27.9 gal/ft (Lee Wan 1990).

The presence of interstitial clays may account for both the variability and the low values of hydraulic conductivities. Boring logs from Cannon AFB projects and published reports (Lee Wan 1990) indicated that interstitial and interstratified clays are abundant in the Ogallala Formation.

Recharge to the Ogallala is primarily through precipitation. Due to the high evapotranspiration rate and low precipitation, recharge probably occurs only during heavy rainfall events in which the infiltration capacity of the soil is exceeded and runoff occurs, or during cool months when precipitation exceeds evapotranspiration. Excess runoff flows to playas, and the presence of water in playas may allow deep percolation to the aquifer. The occurrence of this process is evidenced by the presence of clay deposits in, and thin or nonexistent caliche layers directly below, playas. Caliche is soluble in acidic rainwaters, and is leached over time to form percolation pathways (Lee Wan, 1990).

Discharge from the Ogallala occurs through well pumping and springs along the eroded margins of the formation. Spring discharge does not occur on or near Cannon AFB. Domestic and irrigation water wells are common on and around the base, however. The rate of discharge exceeds the rate of recharge. Water levels in the Ogallala have declined steadily from the 1930s to the present. A decline of 50 to 100 feet has been observed in the area around Clovis, New Mexico for the period from the 1930s to 1980. The largest area of water level decline exceeding 100 feet occurs south of the Canadian River extending from Curry County, New Mexico to Crosby County, Texas (Lee Wan, 1990).

The dominant uses of groundwater in the Cannon AFB area are as potable and irrigation water. Numerous wells are found in the Cannon AFB area, most of which provide only irrigation water.

The Ogallala will continue to be used as the primary source of potable and irrigation water for eastern New Mexico. The New Mexico State Engineer designated Curry County as a Water Basin in 1989. This designation allows for regulation of water rights, usage, and well drilling (Woodward Clyde, 1991).

2.2.6 Current and Projected Land Use

Cannon AFB is located just west of the City of Clovis, New Mexico, and just south of United States (U.S.) Highway 60/84. The majority of the land surrounding Cannon AFB is productive,

irrigated farmland or grassland. The major crops are wheat, sorghum, sugar beets, corn, cotton, alfalfa, barley, and peanuts. The land is also used for cattle grazing, both beef and dairy. According to 2010 U.S. census data, the population of Clovis was 37,775 while the population of Cannon AFB was 2,245. There are no planned changes in land use for the area, including Cannon AFB and surrounding lands. Based on all information received, there are no anticipated changes in land use for the specific facilities at the locations of the former OW541 & OW560.

2.3 PREVIOUS INVESTIGATIONS AND ACTIVITIES

OW541

The OW541 tank was removed in 2000 as detailed in the Technical Evaluation Report (AECOM, 2012). TPH and metals (chromium, zinc, copper, and lead) were detected in a single soil sample described as being collected from "below the OWS", but with an unspecified depth, as described below:

- TPH: 157 milligrams per kilogram (mg/kg)
- Chromium: 6.67 mg/kg
- Copper: 3.94 mg/kg
- Lead: 4.93 mg/kg
- Zinc 15.1 mg/kg

Appendix C provides the analytical lab report for this data (AECOM, 2012).

Site investigations have been limited to those described in the Technical Evaluation Report (AECOM, 2012). Photographs were taken of OW541 and several photographs were described in site data collection sheets. Additional documents identified during the review of historical information include: a diagram of the fuel yard, and the Summary of Soil Sampling and Tank Removal report that includes the analytical results presented above.

Additional adjacent sites near the POL yard have been under investigation. Site SS507 is the former rail and truck fueling area located outside the west edge of the POL yard, and incorporates the former underground storage tank site TU071. TU071 is currently being proposed for CAC without controls under a separate contract. Another site, SWMU 72 (corresponds to TU072), was also co-located with the current Site SS507, and is now listed as Corrective Action Complete without controls. The southeast corner of SS507 is located approximately 200 ft west of the former separator unit OW541. SS507 is being addressed with additional RFI work under a separate contract. Since OW541 is located outside the boundaries of site SS507, and is related to activities outside of the area of SS507, the sites will remain to be managed separately.

OW560

At site OW560, TPH-DRO was detected in soils when the units were removed in 2000. Suspected COPCs include VOCs, TPH-DRO, and metals. On the date of removal (2000), a soil sample was collected with 80 mg/kg of TPH-DRO detected. In 1996, a sample described as "organic liquid" was collected from one of the former sand traps (location described as "inside sand trap"). Notably, the sample contained TPH at 4,300 milligrams per liter (mg/L)(note – the analyte was non-specific TPH, as measured with EPA method 418.1). A soil (or sediment) collected at the same time from the location "outside sand trap", had TPH (also EPA method 418.1) at 5,710 mg/kg, and detected levels of several of the RCRA metals. In 1998, a sample described as "organic liquid" was collected from a location described as "At Facility 368". This sample had TPH (EPA method 418.1) detected at 4,100 mg/L, and limited detections of metals below screening levels. **Table 2-1** summarizes all the historical analytical data found for the two sand traps at OW560, and the unverified location of "At Facility 368". The historical record of these sites is limited and in many cases incomplete, details on sample collection locations and methods are incomplete.

Site ST-C502 consisted primarily of features in front of the former AFEES service station (the current Credit Union building), associated with the former gasoline underground storage tanks (USTs), pump islands and conveyance infrastructure. An RFA was completed at the site in 2014 and found no contamination that presented unacceptable risks. Site ST-C502 is now in the process of being moved to permit Table 3 in an upcoming Class 3 permit modification. As part of the previous RFA, soil samples (CA502-SB12 and CA502-SB13) were collected to 10 ft and 12 ft bgs, respectively, from locations adjacent to the hydraulic lift in the former south garage bay (now the south drive-through teller window of the Credit Union). These samples were below screening levels for all analytes, including TPH, PAHs, PCBs, VOCs, SVOCs and metals. TPH-DRO and TPH-ORO were detected at levels up to 120 mg/kg (TPH-ORO) from a depth of 10 ft bgs and 21 mg/kg (TPH-DRO) from a depth of 5 ft bgs, well below the NMED soil screening levels for TPH (NMED, 2015). These sample locations are from the same general area as the former sand trap (ST368A) and are depicted on Figure 5.

2.4 CONCEPTUAL SITE MODEL

Based on the information reviewed, the following describe the current conceptual site model (CSM) for sites OW541 & OW560.

2.4.1 Primary Release Mechanisms

The following release mechanisms apply to the sites included in this investigation.

- Fuel storage facilities or structures - surface spills and leaking storage tanks or piping
- Oil/water separators – potential discharge of contaminants with surface overflows and/or leaking infrastructure
- Stormwater run-off – potential concentration of chemicals such as pesticides, asphaltic pavement, etc., in stormwater conveyance or retention structures

2.4.2 Exposure Pathways

In general, exposure pathways are direct contact with contaminated environmental media, including soil, sediment, surface water, groundwater, and air. Due to the average depth of groundwater at Cannon AFB (over 300 feet bgs), exposure to groundwater is not a direct exposure pathway. The only current surface water bodies at Cannon AFB include a small pond on the Base golf course and a playa that receives sanitary treatment plant effluent, meaning direct contact is very limited. Based on a review of site data, as presented in this Work Plan, the primary exposure pathways at Sites OW541 and OW560 include direct contact and/or vapor inhalation of surface and/or shallow subsurface soil contaminants, and inhalation of dust. Primary COPCs at the sites include metals, TPH (DRO & ORO), VOCs, SVOCs and pesticides.

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3.1 VISUAL SITE INSPECTION

A visual site inspection was conducted on 15 September 2015 by AECOM personnel to determine the original location of the oil-water separators; to review potential release scenarios, transfer points, valves and pipe connections; and to identify the potential surface and sub-surface release migration pathways to determine optimal sampling locations and depths. The locations were noted of nearby facilities and infrastructure that would limit drilling and sampling logistics.

A health and safety tailgate meeting was conducted on the morning of 15 September 2015 before driving to Cannon AFB. The several key topics reviewed in the safety meeting were safe driving practices; slip, trip, and fall precautions; proper sun protection; and proper hydration.

3.1.1 OW541

Upon arrival to the fuels yard, two site personnel escorted AECOM personnel to the location of OW541. The suspected location as given in the request for proposal for contract FA3002-07-D-0015 was directly south of the MoGas tank. That location was confirmed as OW541 upon discovering a concrete vault 6 ft long by 4 ft wide with two 5.5 inch pipes that used to feed into another container which is no longer present. Within the square concrete bermed area directly north of the vault is a grate (Grate 541, **Figure 2**) that covers a sump with a pipe that ostensibly connects to the vault that replaced OW541. There are also structural saddles in the bermed area that held an aboveground storage tank that was removed sometime between August 2009 to October 2011. Power lines are present, which will limit rig access to the potential sample locations. Site personnel indicated that rainwater ponds on the dirt road south west of OW541 and ponds in the grassy area north of the parking lot directly southwest of OW541 before entering a culvert that crosses North Aderholt Loop. Site photographs are provided in **Appendix E**. Prospective sample locations were flagged during the site visit but have been revised based on full consideration of all the information compiled for this work plan. Survey data of the former OW541, the sump located on the bermed area (**Figure 2**) and the proposed sample locations are provided in **Figure 4**.

3.1.2 OW560

Three AECOM personnel visited the Cannon Federal Credit Union (former AAFES service station) parking lot to determine the former location of OW560. In the eastern corner of the property, a large area of patched concrete is visible in a topographically low area (**Figure 3**). Lengths of the concrete patch area stretch from the south corner of the Cannon Federal Credit Union to a 90 degree bend eventually leading to ST368B (**Appendix E**). Two clean-out pipes are located southwest of ST368B. Using the historical information documented in **Appendix D**, the location of ST368A (former inside sand trap) was determined to have been the northeastern garage bay of the former AAFES service station. Below grade conveyance piping connected ST368A to ST368B and finally to OW374 (now AIP) in the fenced area behind Bldgs 5144 and 374 (**Figure 3**). **Appendix E** contains all site photographs.

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4.1 SAMPLING STRATEGY AND RATIONALE

Surface samples will be collected from 0.0 to 0.5 ft bgs. Seven subsurface samples will be collected at 5 ft increments (5 ft, 10 ft, 15 ft, 20 ft, 25 ft, 30 ft, and 35 ft) down to 35 ft bgs. All sampling locations are subject to field adjustment based on safe distances from power lines, utility lines, sewer lines, berms, and fences.

4.1.1 OW541

Sample locations were selected based on the interpreted former location of OW541 as shown on **Figure 4**. The first proposed borehole (BH) location (BH-1) will be directly adjacent to OW541 (approximately 2 ft south) to evaluate the level of contamination nearest the oil-water separator from potential spillover and/or valve leaks. BH-2 and BH-3 will be on the west and east side of OW541, respectively, to assess the level of contamination on both sides of the OWS. No borings will be advanced within the concrete berm structure north of OW541. During site reconnaissance it was noted that the concrete structures appeared to be in good condition and free of large cracks and/or joint separations, with joint mastic still in place, and therefore leakage potential from within the bermed area is deemed low. Additionally, there is no surface evidence of concrete staining indicative of spills or leaks. The two proposed boreholes (BH-2 and BH-3), at 40 ft depth, will provide evidence of any spills that may have leaked and infiltrated from the bermed area. The rest of the locations were chosen down-gradient in order to follow the surficial flow path of the effluent water discharged to the ground. BH-4 is south of BH-1 between OW541 and the dirt road. BH-5 will be south to southwest of OW541 and on the north side of the dirt road that is bordered by the power lines. BH-5 has the lowest elevation in the surrounding area and is a known location for surficial water to pond. Due to proximity to the POL yard, fuels-related contaminants found at depth will not necessarily indicate a spill or release from OW541.

4.1.2 OW560

Proposed sample locations were selected based on the location of the former outside sand trap and associated piping and surface drainage characteristics (**Figure 5**). The former indoor sand trap, ST368A, could not be located since the credit union drive-through bays have new concrete floors/roadways. According to employees of the Cannon Federal Credit Union, rainwater does not pool in the credit union parking lot. Although, a low area is located east of the credit union building where water could escape down a sewer clean out that was uncapped during the site visit. The first borehole location (BH-1) is proposed adjacent to the former location of ST368B to the southeast. This location will be used to investigate contamination at the former sand trap from potential spill overs and/or leaking pipes or valves. BH-2 is proposed within the grass area along the former pipe connection between ST368B and OW374. BH-3 is proposed close to the 90 degree pipe bend presumed to have connected ST368A and ST368B as indicated by historical documents (**Appendix D**). The rationale for BH-3 through BH-5 is to follow the drain line between ST368A and ST368B. BH-5 is also adjacent to and immediately topographically down-gradient of the approximate former location of ST368A based on historical schematic drawings (**Appendix D**). No additional soil samples are proposed from within the existing drive-through bay near the former location of ST368A. That general area has been sampled during the 2000

sand trap removal and again during the RFA for site ST-C502, as shown on Figure 5, with all sample results well below NMED TPH screening levels.

4.2 FIELD SAMPLING PLAN

4.2.1 Surface Soil Sampling

This method of soil sample collection will be used at Sites OW541 and OW560. Soil samples will be collected from 0 to 0.5 feet bgs using a stainless steel spoon and stainless steel bowl. Before the sampling begins, vegetation or surface debris such as rock, will be cleared as necessary. When collecting surface soil samples, if additional soil is necessary to fill sample jars, the sample area will be expanded without increasing depth.

4.2.2 Soil Boring Advancement

Prior to advancing soil borings, a utility clearance permit will be obtained from the 27th Special Operations Civil Engineering Squadron (SOCES). A utility clearance will be performed at both sites, OW541 and OW560, in accordance with Cannon AFB procedure to determine the location of all subsurface utilities. Aerial photographs will be provided with the site name and boring locations to the 27th SOCES two weeks in advance. A dig permit meeting will be attended with on-site personnel for the utility clearance, and the New Mexico One Call (NM811) service will be used by providing electronic notification including maps with borehole coordinates. Drilling operations will be coordinated with the Credit Union management to minimize disruption of their normal operations. Alternative drilling dates and/or times may be sought such that boreholes nearest the Credit Union can be drilled during non-working hours of the Credit Union.

In areas of existing concrete surface cover (Portland Cement Concrete or asphalt), boreholes will be initiated by excavating a small area with hand tools and/or using a handheld or rig-mounted coring device. Borehole locations will be hand augured to 5 ft bgs to physically ensure that borings are clear of utilities. Sonic drilling will be used for borehole advancement and subsurface soil sample collection adjacent to the former oil water separator at OW541 as well as adjacent to the former sand traps and former drain lines (however it is not confirmed that the drain lines have been removed) at OW560 as described in **Section 4.1.1** and **4.1.2**.

4.2.3 Generation of Soil Classification Logs

All soil borings will be logged by a Field Geologist according to the unified soil classification system (USCS). The soil classification log will conform to industry standards and includes the following information:

- Project name and site location
- Project number
- Borehole name/number
- Approximate ground surface elevation
- Names of the drilling company and the operator

- Name of the geologist completing the log
- Dates drilling begins and ends
- Observed drilling conditions (e.g., hard or soft drilling, rig chattering, sticky conditions, etc.)
- Location where samples were collected (including information on the portion of the liner that was cut for sample collection), sample identification (ID), and time of collection

Soil descriptions and classification will conform to the USCS (American Society for Testing and Materials [ASTM] International, 2006), in accordance with Section 5.2.2.c of the Permit (NMED, 2003). The following information will be included in the soil classification logs:

- Depth interval
- Soil group name
- Grading term
- Lithologic name
- Color
- Moisture content
- Density
- Percentage and size range of coarse fraction (coarse sediments only)
- Maximum particle size
- Angularity (coarse sediments only)
- Percentage and plasticity of fines
- Consistency (fine sediments only)
- Percentage and size range of coarse fraction
- Maximum particle size

4.2.4 Rotary Sonic Drilling Technology Soil Sample Collection

A total of five soil borings at each site will be advanced using Sonic drilling methods as described in **Section 4.1** and shown on **Figures 4** and **5**. The Sonic drilling method will advance a continuous 4-inch-diameter core barrel for lithologic description and soil sample collection. Soil samples will be collected from the ground surface and every 5 feet to a total depth of 35 feet bgs. During sample collection, the field team will follow standard procedures, as described below. Sample collection methods for sampling from the Sonic core are summarized in the following steps:

1. Drilling and sampling equipment will be decontaminated prior to sampling activities at each borehole, as discussed in Section 4.4.

2. Borehole advancement will be conducted by advancing the Sonic core barrel at 5-foot sampling intervals and retrieving the core for lithologic description and sample collection. Following removal of the core barrel from the ground surface, a plastic sleeve will be placed over the outside of the core barrel. The plastic sleeve will be closed at both ends and marked with the depth interval. The soil will then be logged inside the plastic sleeve. Small holes may be cut into the plastic bag for the geologist to collect a sample for lithologic description and at changes in lithology. Care must be taken to ensure the core is disturbed as little as possible before the sample is collected.

3. The Field Geologist will collect discrete samples for laboratory analysis from the 5-foot interval that appears to contain the greatest degree of contamination based on visual observation and headspace VOC screening.

4. Using a calibrated photoionization detector, the geologist will obtain VOC headspace measurements by puncturing the plastic sleeve with the PID probe and collecting headspace measurements between the soil and plastic sleeve. The headspace measurements will be collected along the length of the 5-foot interval not more than one per foot. The soil sample will be collected at the interval where the highest PID measurements were recorded. If there are no indications of contamination then the soil sample will be collected from the bottom foot of the sampling interval.

5. The plastic sleeve will be cut open and the VOC sample immediately obtained using a 5 gram Encore ™ sampler:

   A. In accordance with the EnCore™ instructions, the sampler will be prepared to ensure that the plunger moves freely, and the coring body and T-handle with locking pins will be arranged correctly.

   B. Using the T-handle, the sampler will be pushed into target interval of the Sonic core until the coring body is completely full. Excess soil will be removed from the coring body exterior.

   C. Cap the coring body while still in the T-handle. Ensure cap is seated correctly.

   The VOC samples will be placed immediately on ice. Soil from the same discrete interval will be collected for TPH-DRO/TPH-ORO, SVOC, TAL metals, and pesticides analysis. Sample containers, preservation and hold time requirements are summarized in **Table 4-2**. The soil for SVOC, metals, and pesticides will be collected via a grab sample from the discrete sample interval and the soil will be packed into clean sample containers provided by the laboratory. Efforts will be made to minimize the time the soil is exposed to air prior to placing the sample into the appropriate container. Quality Assurance (QA)/Quality Control (QC) samples will be collected to validate of the collection procedures. Field duplicates (FD), matrix spike/matrix spike duplicate, equipment blanks, and field blanks (FB) will be collected at the rate of 1 for every 10 samples.

6. Each sample container will be labeled by the field geologist, the sample logged on the chain of custody, and the soil sample handled and packaged for shipping. Field documentation will follow procedures as described below.

4.2.5 Soil Boring Abandonment

The soil borings will be properly abandoned in accordance with New Mexico Office of the State Engineer requirements. The soil borings will be abandoned by pressure grouting from the bottom of the borehole up with a neat cement grout consisting of 25% solids by weight. After 24 hours, any grout settlement will be topped off and an asphalt or Portland cement concrete patch, based on the existing surface cover material, will be placed at the ground surface.

4.3 SAMPLING AND ANALYSIS

Soil samples collected during sampling activities will be submitted for chemical analysis of VOCs, TPH (ORO and DRO), SVOCs, TAL metals, and pesticides. **Table 4-1** presents the laboratory methods, sample quantities, and sample types for the soil sampling at OW541 and OW560. Proposed soil sampling/boring locations are presented in **Figures 4** and **5**. **Table 4-2** provides the Sample Containers, Preservation and Hold Time requirements, and **Table 4-3** provides the Reference Limits and Evaluations Table. **Table 4-4** provides background concentrations of selected metals in soils based on the approved background study (Woodward Clyde, 1997).

4.3.1 Quality Control Samples and Frequency

To ensure that the data collected meet project quality objectives, QA and QC practices will be applied to field activities and will follow the requirements in the Task Specific UFP-QAPP. Field QC samples will be collected and analyzed to provide indices of overall data accuracy and precision. Proposed quality control samples are identified in **Table 4-1**. The QAPP further describes QC sample requirements for the RFAs at OW541 and OW560. In summary, QA/QC samples will be collected according to the following schedule:

- QC blind field duplicates will be collected at a frequency of at least 10 percent of the total field samples. These samples will be submitted to the contract laboratory.
- MS/MSD field samples will be collected at a frequency of at least 5 percent and will be submitted to the contract laboratory.

4.4 DECONTAMINATION PROCEDURES

All sampling equipment will be decontaminated before starting work and after the collection of each individual sample. Sampling equipment decontamination will be done at the site.

The overall objective of a multimedia sampling program is to obtain samples that accurately depict the chemical, physical, and/or biological conditions at the sampling site. Extraneous contaminants can be brought onto the sampling location and/or introduced into the medium of interest during the sampling program (e.g. using sampling equipment that is not properly or fully decontaminated). Trace quantities of contaminants can consequently be captured in a sample and lead to false positive analytical results and, ultimately, to an incorrect assessment of the contaminant conditions associated with the site. Decontamination of sampling equipment (e.g.,

all non-disposable equipment that will come in direct contact with samples) and field support equipment (e.g., drill rigs, vehicles) is, therefore, required prior to, between, and after uses at Cannon AFB to ensure that sampling cross-contamination is prevented, and that on-site contaminants are not carried off-site.

The following sections present equipment decontamination procedures.

4.4.1 Sampling Equipment

The following steps will be used to decontaminate sampling equipment:

- Personnel will dress in suitable safety equipment to reduce personal exposure.
- Gross contamination on equipment will be scraped off at the sampling site.
- Equipment that cannot be damaged by water will be placed in a wash tub containing Alconox or low-sudsing non-phosphate detergent along with potable water and scrubbed with a bristle brush or similar utensil. Equipment will be rinsed with tap water in a second wash tub followed by a de-ionized water rinse.
- Equipment that may be damaged by water will be carefully wiped clean using a sponge and detergent water and rinsed with de-ionized water. Care will be taken to prevent equipment damage.

Following decontamination, equipment will be placed in a clean area or on clean plastic sheeting to prevent contact with contaminated soil. If the equipment is not used immediately after decontamination, the equipment will be covered or wrapped in plastic sheeting, foil, or heavy-duty trash bags to minimize potential contact with contaminants.

4.4.2 Drilling and Heavy Equipment

Drilling rigs and excavating equipment will be decontaminated at the decontamination station located near the designated staging area. Mobile decontamination trailers may be used to decontaminate heavy equipment at each site. The following steps will be used to decontaminate drilling and heavy equipment:

- Personnel will dress in suitable personal protective equipment to reduce personal exposure.
- Personnel will scrape equipment showing gross contamination or having caked-on drill cuttings with a flat-bladed scraper at the sampling or construction site.
- Personnel will wash equipment that cannot be damaged by water, such as drill rigs, augers, drill bits, and shovels, with a hot water, high-pressure sprayer then rinse with potable water. Care will be taken to clean the insides of the hollow stem augers.

Following decontamination, drilling equipment will be placed on the clean drill rig and moved to a clean area. If the equipment is not used immediately, it should be stored in a designated clean area.

4.4.3 Equipment Leaving the Site

Vehicles used for activities in non-contaminated areas will be cleaned on an as-needed basis, as determined by the Site Safety Officer (SSO), using soap and water on the outside and vacuuming the inside. On-site cleaning will be required for very dirty vehicles leaving the area. Construction equipment such as trucks, drilling rigs, trailer, etc., will be pressure washed in a designated decontamination area at each site before the equipment is removed from the site to limit exposure of off-site personnel to potential contaminants.

4.4.4 Decontamination Solutions

A decontamination solution should be capable of removing, or converting to a harmless substance, the contaminant of concern without harming the object being decontaminated. Decontamination will be performed according to standard procedures, as described in this section. The objective of the decontamination procedures is to minimize the potential for cross-contamination. A designated decontamination area will be established for decontamination of reusable sampling equipment. Sampling or measurement equipment, including but not limited to, stainless steel sampling tools, and other non-disposable sampling equipment, will be decontaminated in accordance with the following steps before each sampling event:

1. Field personnel will don appropriate personal protective equipment.
2. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter.
3. Wash with nonphosphate detergent or other detergent (examples include Liqui-Nox® or Alconox®) followed by a tap water rinse.
4. Triple rinse with deionized or distilled water
5. Allow to air dry.
6. The decontamination solution will be changed when it no longer foams or when it becomes extremely dirty. Rinse water will be changed when it becomes discolored, begins to foam, or when the decontamination solution cannot be removed.

All decontamination solutions will be collected and stored temporarily as described in **Section 4.7**. All decontamination activities will be documented in the field notebook as required.

4.5 FIELD OPERATIONS DOCUMENTATION

Records of field analytical or monitoring measurements will be recorded on data forms for documentation, at a minimum, and will consist of soil classification logs, field note books, sample collection logs, analytical request/chain-of-custody forms, waste tracking logs, and equipment calibration forms.

4.6 SAMPLE PACKAGING AND SHIPPING REQUIREMENTS

Soil samples will be packaged and shipped as nonhazardous environmental samples in accordance with standard procedures for Sample Handling, Shipping, and Documentation. This section summarizes the process of packaging and shipping samples.

Sample containers will be sealed and packed into plastic bags. Samples will be placed into a cooler for shipping. If applicable, absorbent material may be placed in the bottom of the cooler in order to contain any spillage from sample container breakage, melted ice, or condensation. Bubble wrap, bubble bags, or precut foam blocks will serve as cushioning material in each cooler. The ice will be double-bagged in plastic bags to contain meltwater and packed with the samples to provide adequate cooling until receipt at the laboratory. Chain-of-custody documents will be sealed in waterproof bags and included in the shipping cooler, which will be sealed and secured prior to being relinquished to the transport company. Samples will be packed and shipped overnight to the analytical laboratory by air express carrier as soon as possible after collection so as to not exceed the sample holding times.

Custody seals will be placed at two separate locations on the shipping cooler to provide evidence that the lid has not been opened prior to receipt by the laboratory. Custody seal information will be completed in indelible ink; the information on the custody seal will include the date and full signature of the person responsible for sealing the samples and cooler.

Field personnel are responsible for contacting and coordinating with an overnight express air carrier (e.g., FedEx or UPS) to arrange for sample shipment. Soil samples for chemical analysis will be shipped to TestAmerica for processing and analysis. TestAmerica is approved under the DOD Environmental Laboratory Approval Program (ELAP).

The shipping cooler and its contents will be inspected and inventoried upon receipt at the analytical laboratory. The temperature and condition of the samples will be documented upon receipt. The analytical laboratory will contact field personnel immediately if there are any discrepancies in the shipment documentation. The laboratory will provide sample receipt documentation with its analytical report.

4.7 MANAGEMENT OF INVESTIGATION – DERIVED WASTE

Investigation-Derived Waste (IDW) will be managed in accordance with the procedures described below. IDW will consist of remaining soil core and decontamination rinsate fluids. Unused soil cores will be drummed and labeled as IDW and stored at the 27th SOCES/CEIER designated laydown area, pending laboratory analysis. A composite soil sample for each matrix will be collected from each site for disposal analysis by TCLP VOCs, SVOCs metals, pesticides, herbicides, and paint filter test. If the soil contains petroleum contamination, one sample for every 100 cubic yards of soil will be analyzed for TPH-GRO, DRO, and Oil Range Organics. The waste characterization profile will be signed by Cannon AFB and sent to Oscar Macias (omacias@cityofclovis.org) at the Clovis Landfill. He will sign the form and send it back authorizing disposal. The waste handler will have a copy on hand when the soils are brought to the landfill.

Decontamination fluids generated will be containerized in a 55-gallon drum and temporarily stored at the 27th SOCES/CEIER designated storage laydown area pending laboratory analysis. A sample from each decontamination fluid container will be collected and analyzed for the COPCs identified at the sites where the decontamination water originated. If the decontamination water is contaminated, it will be disposed of at a licensed off-site facility. If the decontamination water is not contaminated, it will be disposed of at ground surface or in the sanitary sewer system.

PPE will be disposed of on the base as a solid waste. If IDW storage is required, storage locations will be identified by the 27 SOCES, Environmental Flight personnel.

4.8 SAMPLE NUMBERING SYSTEM

Each sample will be assigned a unique field ID nomenclature specific to each site either 541 or 560. Sample IDs will consist of a combination of the site number, borehole number, if necessary, and depth interval:

- Site Number: 541
- Borehole number: BH-1
- Depth interval: 0 = surface sample or 35 = 35 feet bgs
- Date: October 15, 2015 = 10152015

For example, a sample ID from for a soil sample near OW541collected from 35 feet bgs in borehole BH-1 with no subsamples on October 15, 2015 would therefore be 541-BH-1-35-10152015. QC samples will be labeled with the appropriate QC type sample at the beginning of the remainder of the sample ID. For example, a field duplicate sample from the example borehole from above would be labeled: FD-541-BH-1-35-10152015.

4.8.1 Sample Labels

Sample labels will be affixed to each sample container. Complete collection information, sample type, matrix, time, date, field number, analysis requested, and the sampler's name will be recorded with indelible ink.

4.8.2 Chain-of-Custody Records

Chain-of-custody documentation will be completed in the field to document sample collection, possession, and the chain of custody. A sample is considered to be in a person's custody while either under physical possession or safely secured in a controlled access location. Sample custody can be transferred by signature relinquishment and acceptance. Shipping company waybills or bills of lading are considered part of the custody record between the time of collection and receipt at the analytical laboratory. Chain-of-custody records will accompany the sample shipment until receipt at the contractor laboratory.

4.9 SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN

The site specific Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) is provided under separate cover, and presents information as required by the Air Force. The relevant information provided in the UFP-QAPP is included in the text of this work plan for review by NMED. QA/QC sampling requirements are summarized in Section 4.3.1.

5.1 PROJECT TEAM AND LINES OF AUTHORITY

The Project Team points of contact for key personnel are listed in **Table 5-1**. Points of contact with titles, phone number and email addresses are included for AFCEC, Cannon AFB, NMED, and AECOM personnel. The analytical laboratory is TestAmerica Inc., of Denver, CO will serve as the contract laboratory for all analytical work under the RFAs.

Lines of authority and communication for the key project personnel are illustrated in **Figure 6**. AECOM's Project Manager is Richard Wells (Phoenix, AZ) and the Task Leader is Steve Geiger (Los Alamos, NM). Field support will be provided by the AECOM offices in Albuquerque, NM and Omaha, NE.

5.2 FACILITY SAFETY REQUIREMENTS

AECOM will take preventative measures required for safe work activities at Cannon AFB. AECOM will follow all procedures necessary to ensure that the safe practices employed comply with Occupational Safety and Health Administration (OSHA), American National Standards Institute (ANSI), and Cannon AFB regulations.

AECOM will provide a SSO at all times during completion of the investigations. The SSO, as well as all project personnel, will observe the safety procedures to provide a safe work environment. The Field Team Leader may double as the SSO.

Prior to the start of field activities, a site walk will be completed at each site to identify possible safety concerns. Possible safety concerns may include physical hazards (e.g., underground/overhead utilities, holes, or uneven terrain), or biological hazards.

All personnel on Site will be required to read and sign off and adhere to the AECOM Site Specific Health and Safety Plan.

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TABLE 2-1
PREVIOUS SAMPLING RESULTS AT BLDG 368 (OW560)

Location	Matrix	Sample Date	TPH	Tot. Solids	Ignitibility (deg F)	pH Measured in Water	Total Arsenic (mg/kg)	Total Barium	Total Cadmium (mg/kg)	Total Chromium (mg/kg)	Total Lead (mg/kg)	Tetrachloroethylene (µg/L)
Outside Sand Trap*	Soil	10/4/1996	5710 mg/kg	70	>180	8.1	2.1	330 mg/kg	2.1	19	110	
At Facility 368	Organic Liquid	7/15/1998	4100 mg/L	1.25		8.2		0.6 mg/L				73.7
Inside Sand Trap	Organic Liquid	10/4/1996	4300 mg/L		>180	9.2		0.16 mg/L				
OWS #1	Soil	12/6/2000	80 mg/kg**									

*Lab report indicates an asterisk on all results except Tot Solids, Ignitibility, and pH

**Lab result for TPH-DRO

Notes:

deg = degrees

F = Fahrenheit

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

µg/L = microgram per liter

OWS = oil/water seperator

Tot. Solids = Total Solids

TPH = Total Petroleum Hydrocarbons

TABLE 4-1
SAMPLING LOCATIONS AND METHODS / SOP REQUIREMENTS OW541 & BLDG 368

Site	Proposed Sample Location	Depth (ft bgs)	Sample ID	Matrix	Analytical Group	Northing (UTM meters)	Easting (UTM meters)	Estimated Number of Samples (identify field duplicates)
541	1	0-0.5	541-BH-1-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	1	5	541-BH-1-5-Date	Soil				1
	1	10	541-BH-1-10-Date	Soil				1
	1	15	541-BH-1-15-Date	Soil				1
	1	20	541-BH-1-20-Date	Soil				1
	1	25	541-BH-1-25-Date	Soil				1
	1	30	541-BH-1-30-Date	Soil				2 (primary sample + 1 FD)
	1	35	541-BH-1-35-Date	Soil				2 (primary sample + 1 FB)
	2	0-0.5	541-BH-2-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	2 (primary sample + 1 EB)
	2	5	541-BH-2-5-Date	Soil				2 (primary sample + 1 MS/MSD)
	2	10	541-BH-2-10-Date	Soil				1
	2	15	541-BH-2-15-Date	Soil				1
	2	20	541-BH-2-20-Date	Soil				1
	2	25	541-BH-2-25-Date	Soil				1
	2	30	541-BH-2-30-Date	Soil				1
	2	35	541-BH-2-35-Date	Soil				1
	3	0-0.5	541-BH-3-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	2 (primary sample + 1 FD)
	3	5	541-BH-3-5-Date	Soil				2 (primary sample + 1 FB)
	3	10	541-BH-3-10-Date	Soil				2 (primary sample + 1 EB)
	3	15	541-BH-3-15-Date	Soil				2 (primary sample + 1 MS/MSD)
	3	20	541-BH-3-20-Date	Soil				1
	3	25	541-BH-3-25-Date	Soil				1
	3	30	541-BH-3-30-Date	Soil				1
	3	35	541-BH-3-35-Date	Soil				1
	4	0-0.5	541-BH-4-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	4	5	541-BH-4-5-Date	Soil				1
	4	10	541-BH-4-10-Date	Soil				2 (primary sample + 1 FD)
	4	15	541-BH-4-15-Date	Soil				2 (primary sample + 1 FB)
	4	20	541-BH-4-20-Date	Soil				2 (primary sample + 1 EB)
	4	25	541-BH-4-25-Date	Soil				2 (primary sample + 1 MS/MSD)
	4	30	541-BH-4-30-Date	Soil				1
	4	35	541-BH-4-35-Date	Soil				1

TABLE 4-1
SAMPLING LOCATIONS AND METHODS / SOP REQUIREMENTS OW541 & BLDG 368

Site	Proposed Sample Location	Depth (ft bgs)	Sample ID	Matrix	Analytical Group	Northing (UTM meters)	Easting (UTM meters)	Estimated Number of Samples (identify field duplicates)
541	5	0-0.5	541-BH-5-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	5	5	541-BH-5-5-Date	Soil				1
	5	10	541-BH-5-10-Date	Soil				1
	5	15	541-BH-5-15-Date	Soil				1
	5	20	541-BH-5-20-Date	Soil				2 (primary sample + 1 FD)
	5	25	541-BH-5-25-Date	Soil				2 (primary sample + 1 FB)
	5	30	541-BH-5-30-Date	Soil				2 (primary sample + 1 EB)
	5	35	541-BH-5-35-Date	Soil				2 (primary sample + 1 MS/MSD)
368	1	0-0.5	368-BH-1-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	1	5	368-BH-1-5-Date	Soil				1
	1	10	368-BH-1-10-Date	Soil				1
	1	15	368-BH-1-15-Date	Soil				1
	1	20	368-BH-1-20-Date	Soil				1
	1	25	368-BH-1-25-Date	Soil				1
	1	30	368-BH-1-30-Date	Soil				2 (primary sample + 1 FD)
	1	35	368-BH-1-35-Date	Soil				2 (primary sample + 1 FB)
	2	0-0.5	368-BH-2-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	2 (primary sample + 1 EB)
	2	5	368-BH-2-5-Date	Soil				2 (primary sample + 1 MS/MSD)
	2	10	368-BH-2-10-Date	Soil				1
	2	15	368-BH-2-15-Date	Soil				1
	2	20	368-BH-2-20-Date	Soil				1
	2	25	368-BH-2-25-Date	Soil				1
	2	30	368-BH-2-30-Date	Soil				1
	2	35	368-BH-2-35-Date	Soil				1
	3	0-0.5	368-BH-3-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	2 (primary sample + 1 FD)
	3	5	368-BH-3-5-Date	Soil				2 (primary sample + 1 FB)
	3	10	368-BH-3-10-Date	Soil				2 (primary sample + 1 EB)
	3	15	368-BH-3-15-Date	Soil				2 (primary sample + 1 MS/MSD)
	3	20	368-BH-3-20-Date	Soil				1
	3	25	368-BH-3-25-Date	Soil				1
	3	30	368-BH-3-30-Date	Soil				1
	3	35	368-BH-3-35-Date	Soil				1

TABLE 4-1
SAMPLING LOCATIONS AND METHODS / SOP REQUIREMENTS OW541 & BLDG 368

Site	Proposed Sample Location	Depth (ft bgs)	Sample ID	Matrix	Analytical Group	Northing (UTM meters)	Easting (UTM meters)	Estimated Number of Samples (identify field duplicates)
368	4	0-0.5	368-BH-4-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	4	5	368-BH-4-5-Date	Soil				1
	4	10	368-BH-4-10-Date	Soil				2 (primary sample + 1 FD)
	4	15	368-BH-4-15-Date	Soil				2 (primary sample + 1 FB)
	4	20	368-BH-4-20-Date	Soil				2 (primary sample + 1 EB)
	4	25	368-BH-4-25-Date	Soil				2 (primary sample + 1 MS/MSD)
	4	30	368-BH-4-30-Date	Soil				1
	4	35	368-BH-4-35-Date	Soil				1
	5	0-0.5	368-BH-5-0-Date	Soil	EPA Methods 5035 and 8015C: TPH-GRO EPA Method 3550B: TPH-DRO EPA Methods 3010A, 6010C, and 7470A : TAL metals EPA Methods 5035 and 8260C: VOCs EPA Methods 3540C and 8270D: SVOCs EPA Methods 3540C and 8081A: pesticides	TBD	TBD	1
	5	5	368-BH-5-5-Date	Soil				1
	5	10	368-BH-5-10-Date	Soil				1
	5	15	368-BH-5-15-Date	Soil				1
	5	20	368-BH-5-20-Date	Soil				2 (primary sample + 1 FD)
	5	25	368-BH-5-25-Date	Soil				2 (primary sample + 1 FB)
	5	30	368-BH-5-30-Date	Soil				2 (primary sample + 1 EB)
	5	35	368-BH-5-35-Date	Soil				2 (primary sample + 1 MS/MSD)

Notes:

* U.S. Environmental Protection Agency (EPA). 1986. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd ed., Including All Promulgated Updates and New Methods, U.S. Environmental Protection Agency, Washington, D.C., July 2010.

Note: One FD sample will be taken every 10 samples; however, a FD sample will be taken with the primary sample if any contamination is found.

bgs = Below ground surface
BH = Borehole
COPC = Contaminants of Potential Concern
DRO = Diesel range organics
EB = Equipment Blank
EPA = Environmental Protection Agency
FB = Field Blank
FD = Field Duplicate
ft = Foot (feet)
GRO = Gasoling range organics
ID = Identification
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QC = Quality Control
SOP = Standard Operating Procedure
SVOCs = Semivolatile organic compounds
TAL = Target analyte list
TBD = To be determined
TPH = Total petroleum hydrocarbons
UTM = Universal Transverse Mercator
VOC = Volatile Organic Compound

Table 4-2 – Sample Containers, Preservation, and Hold Times

Matrix	Analytical Group	Method SOP Reference	Containers (number, size, and type)	Sample volume[3] (units)	Preservation Requirements (chemical, temperature, light protected)	Maximum Holding Time[2] (preparation / analysis)
Soil	GC Semi VOA (DRO and ORO)	Diesel and Residual Range Organics (DRO & RRO) by GC/FID (SW846 Method 8015)	1, 4oz, glass jar	60 grams	Cool ≤ 6°C	14 days to extract 40 days from extract
Soil	GC Semi VOA (Pesticides)	Chlorinated Pesticides (SW846 Method 8081A & 8081B)	1, 4oz, glass jar	60 grams	Cool ≤ 6°C	14 days to extract – 40 days from extract
Soil	GC VOA (GRO)	Gasoline Range Organics (GRO) by GC/FID (SW846 Method 8015)	2, 5g EnCore™ 3, VOA Vials –Terra Core	10 grams 15 grams	DI water/frozen or Methanol or sodium bisulfate; Cool ≤ 6°C	48 hour from sampling to preservation / 14 days from preservation to analysis
Soil	MS VOA (VOCs)	Determination of Volatile Organics by GC/MS (SW846 8260B and EPA 624)	3, 5g EnCore™ 3, VOA Vials –Terra Core	15 grams 15 grams	DI water/frozen or Methanol or sodium bisulfate; Cool ≤ 6°C	48 hour from sampling to preservation/ 14 days from preservation to analysis
Soil	MS Semi VOA (SVOCs)	GC/MS Analysis Based on Method 8270D	1, 4oz, glass jar	60 grams	Cool ≤ 6°C	14 days to extract – 40 days from extract
Soil	Metals Mercury	Mercury in Solids by Cold Vapor Atomic Absorption (SW-846 7471A)	1, 4oz, glass jar	5 grams	Cool ≤ 6°C	28 days
Soil	Metals Method 6010C	ICP Analysis for Trace Elements by SW-846 Method 6010C	1, 4oz, glass jar	20 grams	Cool ≤ 6°C	180 days

[2] Maximum holding time is calculated from the time the sample is collected to the time the sample is prepared/extracted.

[3] The minimum sample size is based on analysis allowing for sufficient sample for reanalysis. Additional volume is needed for the laboratory Matrix Spike/Matrix Spike Duplicate sample analysis.

°C = degrees Celsius
DRO = diesel range organics
ORO – Oil Range Organics
SVOCs = Semi-Volatile Organic Compounds
≤ = less than or equal to
GC = Gas Chromatography
oz = ounce
VOA = Volatile Organic Analysis
ORO = oil range organics
GRO = Gasoline range
SOP – Standard Operating Procedure
VOC = volatile organic compound

TABLE 4-3 – REFERENCE LIMITS AND EVALUATION TABLE

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Gasoline Range Organics (GRO)												
Gasoline Range Organics (GRO)-C6-C10	8006-61-9	1.2	1.1	0.325	mg/kg	N/A	N/A	N/A	3,000	SNI	1,000	SNR
Mercury (CVAA)												
Mercury	7439-97-6	17	13.3	5.53	µg/kg	20.7	0.645	2.1	112	SNI	23.8	SNR
Diesel Range Organics (DRO) and Oil Range Organics (ORO)												
Diesel Range Organics (C10-C28)	STL00143	4	2	0.678	mg/kg	N/A	N/A	N/A	3,000	SNI	1,000	SNR
Motor Oil (C20-C38)	STL02073	12	10	3.91	mg/kg	N/A	N/A	N/A	3,000	SNI	1,000	SNR
Metals ICP												
Aluminum	7429-90-5	50	6	1.55	mg/kg	41,400	597,000	N/A	1.29E+06	SNI	78,000	SNR
Antimony	7440-36-0	2	1.5	0.38	mg/kg	142	6.56	N/A	519	SNI	31.3	SNR
Arsenic	7440-38-2	2.5	2.5	0.66	mg/kg	57.4	0.299	5.8	21.5	SNI	4.25	SNR
Barium	7440-39-3	2	0.3	0.076	mg/kg	4,390	2,700	1,700	2.55E+05	SNI	15,600	SNR
Beryllium	7440-41-7	0.5	0.12	0.033	mg/kg	148	196	63	2,580	SNI	156	SNR
Cadmium	7440-43-9	0.5	0.15	0.041	mg/kg	72.1	9.39	7.5	1,110	SNI	70.5	SNR
Calcium	7440-70-2	100	50	14.1	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	7440-47-3	3.5	0.2	0.058	mg/kg	134	201,000	3.60 E+06	505	SNI	96.6	SNR
Cobalt	7440-48-4	1	0.4	0.1	mg/kg	N/A	N/A	N/A	350	SEI	23	SNR
Copper	7440-50-8	5	0.8	0.217	mg/kg	14,200	556	920	51,900	SNI	3,130	SNR
Iron	7439-89-6	80	15	3.8	mg/kg	248,000	6,960	N/A	9.08E+05	SNI	54,800	SNR
Lead	7439-92-1	0.9	0.8	0.27	mg/kg	800	N/A	N/A	800	SNI	400	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Magnesium	7439-95-4	30	14	3.7	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	7439-96-5	4.5	0.4	0.1	mg/kg	464	2,630	N/A	1.6 E6	SNI	10,500	SNR
Nickel	7440-02-0	4	0.45	0.123	mg/kg	753	485	N/A	25,700	SNI	1,560	SNR
Potassium	7440-09-7	300	160	41	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium	7782-49-2	3	3	0.86	mg/kg	1,750	10.2	N/A	SNI	SNI	391	SNR
Silver	7440-22-4	1.5	0.6	0.16	mg/kg	1,770	13.8	N/A	SNI	SNI	391	SNR
Sodium	7440-23-5	500	200	59	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium	7440-28-0	3	2.5	0.65	mg/kg	3.54	0.281	N/A	13	SNI	0.782	SNR
Vanadium	7440-62-2	2	0.35	0.094	mg/kg	614	1260	N/A	6,530	SNI	394	SNR
Zinc	7440-66-6	8	1.5	0.398	mg/kg	106,000	7410	N/A	389,000	SNI	23,500	SNR
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	630-20-6	5	1.6	0.56	µg/kg	659,000	35.9	N/A	137,000	SNI	28,100	SNR
1,1,1-Trichloroethane	71-55-6	5	1.6	0.52	µg/kg	1.36E+07	51,100	1,400	7.25E+07	SNI	1.44+E7	SNR
1,1,2,2-Tetrachloroethane	79-34-5	5	1.6	0.61	µg/kg	197,000	4.8	N/A	39,400	SNI	7,980	SNR
1,1,2-Trichloroethane	79-00-5	5	3.2	0.88	µg/kg	2,300	2.23	32	12,400	SNI	2,610	SNR
1,1-Dichloroethane	75-34-3	5	0.8	0.21	µg/kg	1.82+06	136	N/A	383,000	SNI	78,600	SNR
1,1-Dichloroethene	75-35-4	5	1.6	0.59	µg/kg	424,000	1,950	50	2.26+E06	SNI	440,000	SNR
1,1-Dichloropropene	563-58-6	5	1.6	0.54	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2,3-Trichlorobenzene	87-61-6	5	1.6	0.75	µg/kg	N/A	N/A	N/A	930,000	SEI	63,000	SER
1,2,3-Trichloropropane	96-18-4	5	3.2	0.81	µg/kg	6,310	0.0521	N/A	1,210	SNI	51	SNR
1,2,4-Trichlorobenzene	120-82-1	5	1.6	0.73	µg/kg	79,100	176	4,100	423,000	SNI	82,900	SNR
1,2,4-Trimethylbenzene	95-63-6	5	1.6	0.58	µg/kg	N/A	N/A	N/A	240,000	SEI	58,000	SER

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
1,2-Dibromo-3-Chloropropane	96-12-8	10	1.6	0.6	µg/kg	5530	0.0234	1.7	1,180	SNI	85.8	SNR
1,2-Dichlorobenzene	95-50-1	5	1.6	0.45	µg/kg	2.50E+06	4,580	12,000	1.30E+07	SNI	2.15E+06	SNR
1,2-Dichloroethane	107-06-2	5	1.6	0.7	µg/kg	53,800	8.14	28	40,700	SNI	8,320	SNR
1,2-Dichloroethene, Total	540-59-0	5	1.6	0.39	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloropropane	78-87-5	5	1.6	0.55	µg/kg	25,400	24.3	33	86,800	SNI	17,800	SNR
1,3,5-Trimethylbenzene	108-67-8	5	1.6	0.57	µg/kg	N/A	N/A	N/A	1.20E+07	SEI	780,000	SER
1,3-Dichlorobenzene	541-73-1	5	1.6	0.48	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichloropropane	142-28-9	5	1.6	0.51	µg/kg	N/A	N/A	N/A	2.30E+07	SEI	1.60E+06	SER
1,4-Dichlorobenzene	106-46-7	5	1.6	0.78	µg/kg	746,000	72	1,400	159,000	SNI	32,800	SNR
2,2-Dichloropropane	594-20-7	5	1.6	0.44	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Butanone (MEK)	78-93-3	20	6.4	1.83	µg/kg	9.17E+07	20,100	N/A	4.11E+08	SNI	3.74E+07	SNR
2-Chlorotoluene	95-49-8	5	1.6	0.51	µg/kg	7.08E+06	3,560	N/A	2.60E+07	SNI	1,560,000	SNR
2-Hexanone	591-78-6	20	12.8	4.89	µg/kg	N/A	N/A	N/A	1.30E+06	SEI	200,000	SER
4-Chlorotoluene	106-43-4	5	1.6	0.78	µg/kg	N/A	N/A	N/A	2.30E+07	SEI	1.60E+06	SER
4-Isopropyltoluene	99-87-6	5	1.6	0.49	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Methyl-2-pentanone (MIBK)	108-10-1	20	12.8	4.36	µg/kg	2.02E+07	4,800	N/A	8.16E+07	SNI	5.81E+06	SNR
Acetone	67-64-1	20	12.8	5.38	µg/kg	2.42E+08	49,800	N/A	9.60E+08	SNI	6.63E+07	SNR
Benzene	71-43-2	5	1.6	0.47	µg/kg	142,000	38	51	87,200	SNI	17,800	SNR
Bromobenzene	108-86-1	5	1.6	0.49	µg/kg	N/A	N/A	N/A	1.80E+06	SEI	290,000	SER
Bromoform	75-25-2	5	0.8	0.23	µg/kg	5.38E+06	411	430	3.25E+06	SNI	674,000	SNR
Bromomethane	74-83-9	10	1.6	0.5	µg/kg	17,900	34.3	N/A	94,500	SNI	17,700	SNR
Carbon disulfide	75-15-0	5	1.6	0.42	µg/kg	1.62E+06	4,420	N/A	8.54E+06	SNI	1.55 E+6	SNR
Carbon tetrachloride	56-23-5	5	1.6	0.63	µg/kg	202,000	33.3	39	52,500	SNI	10,700	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Chlorobenzene	108-90-7	5	1.6	0.54	µg/kg	412,000	836	1,400	2.16E+06	SNI	378,000	SNR
Bromochloromethane	74-97-5	5	0.8	0.3	µg/kg	N/A	N/A	N/A	630,000	SEI	150,000	SER
Dibromochloromethane	124-48-1	5	1.6	0.57	µg/kg	340,000	7.54	430	67,400	SNI	13,900	SNR
Chloroethane	75-00-3	10	3.2	0.89	µg/kg	1.66E+07	107,000	N/A	8.95E+07	SNI	1.90E+07	SNR
Chloroform	67-66-3	10	0.8	0.29	µg/kg	134,000	10.9	440	28,700	SNI	5,900	SNR
Chloromethane	74-87-3	10	1.6	0.77	µg/kg	235,000	95.1	N/A	201,000	SNI	41,100	SNR
cis-1,2-Dichloroethene	156-59-2	5	1.6	0.56	µg/kg	708,000	184	410	2.60E+06	SNI	156,000	SNR
cis-1,3-Dichloropropene	10061-01-5	5	3.2	1.29	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibromomethane	74-95-3	5	3.2	0.84	µg/kg	53,900	33.5	N/A	288,000	SNI	57,900	SNR
Bromodichloromethane	75-27-4	5	0.8	0.22	µg/kg	143,000	6.21	430	30,200	SNI	6,190	SNR
Dichlorodifluoromethane	75-71-8	10	1.6	0.52	µg/kg	161,000	7,230	N/A	865,000	SNI	182,000	SNR
Ethylbenzene	100-41-4	5	1.6	0.67	µg/kg	1.77E+06	262	16,000	368,000	SNI	75,100	SNR
Ethylene Dibromide	106-93-4	5	1.6	0.52	µg/kg	16,300	0.352	N/A	3,310	SNI	672	SNR
Hexachlorobutadiene	87-68-3	5	1.6	0.55	µg/kg	269,000	87.9	N/A	53,000	SEI	12,000	SER
Isopropylbenzene	98-82-8	5	1.6	0.59	µg/kg	2.74E+06	11,400	N/A	1.42E+08	SNI	2.36E+06	SNR
Methyl tert-butyl ether	1634-04-4	20	0.8	0.34	µg/kg	2.42E+07	553	N/A	4.82 E+6	SNI	975,000	SNR
Methylene Chloride	75-09-2	5	3.2	1.6	µg/kg	1.21E+06	471	26	5.13E+06	SNI	409,000	SNR
m-Xylene & p-Xylene	179601-23-1	3.2	3.2	1.04	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Naphthalene	91-20-3	5	1.6	0.63	µg/kg	159,000	82.3	N/A	241,000	SNI	49,700	SNR
n-Butylbenzene	104-51-8	5	1.6	0.56	µg/kg	N/A	N/A	N/A	5.80E+07	SEI	3.90E+06	SER
N-Propylbenzene	103-65-1	5	1.6	0.58	µg/kg	N/A	N/A	N/A	2.40E+07	SEI	3.80E+06	SER
o-Xylene	95-47-6	5	1.6	0.61	µg/kg	736,000	2,980	N/A	3.94E+06	SNI	805,000	SNR
sec-Butylbenzene	135-98-8	5	1.6	0.77	µg/kg	N/A	N/A	N/A	1.20E+08	SEI	7.80E+06	SER
Styrene	100-42-5	5	1.6	0.63	µg/kg	1.02E+07	20,600	2,200	5.13E+07	SNI	7.26E+06	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
tert-Butylbenzene	98-06-6	5	1.6	0.5	µg/kg	N/A	N/A	N/A	1.20E+07	SEI	7.80E+06	SER
Tetrachloroethene	127-18-4	5	1.6	0.59	µg/kg	120,000	321	46	629,000	SNI	111,000	SNR
Toluene	108-88-3	5	1.6	0.69	µg/kg	1.40E+07	12,100	14,000	6.13E+07	SNI	5.23E+06	SNR
trans-1,2-Dichloroethene	156-60-5	5	0.8	0.39	µg/kg	305,000	469	630	1.61E+06	SNI	295,000	SNR
trans-1,3-Dichloropropene	10061-02-6	5	1.6	0.67	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethene	79-01-6	5	0.8	0.23	µg/kg	6,900	17.5	36	36,500	SNI	6,770	SNR
Trichlorofluoromethane	75-69-4	10	3.2	1.04	µg/kg	1.13E+06	15,700	N/A	6.03E+06	SNI	1.23E+06	SNR
Vinyl chloride	75-01-4	5	3.2	1.34	µg/kg	161,000	1.35	14	28,400	SNI	742	SNR
Semi - Volatile Organic Compounds												
1,2,4,5-Tetrachlorobenzene	95-94-3	330	133	49	µg/kg	80,700	117	N/A	2.75E+08	SNI	1.85E+07	SNR
1,2,4-Trichlorobenzene	120-82-1	330	67	28	µg/kg	79,100	176	4,100	423,000	SNI	82,900	SNR
1,2-Dichlorobenzene	95-50-1	330	67	22	µg/kg	2.50E+06	4,580	12,000	1.30E+07	SNI	2.15E+06	SNR
1,2-Diphenylhydrazine	122-66-7	330	67	22	µg/kg	234,000	37.6	N/A	3.21E+07	SNI	6.66E+06	SNR
1,3-Dichlorobenzene	541-73-1	330	33	12	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	106-46-7	330	33	13.6	µg/kg	746,000	72	1,400	159,000	SNI	32,800	SNR
2,2'-oxybis[1-chloropropane]	108-60-1	330	67	23	µg/kg	3.54E+06	47.3	N/A	220,000	SEI	49,000	SER
2,4,5-Trichlorophenol	95-95-4	330	33	10	µg/kg	2.69E+07	66,200	N/A	9.16E+07	SNI	6.16E+06	SNR
2,4,6-Trichlorophenol	88-06-2	330	33	10	µg/kg	269,000	674	N/A	916,000	SNI	61,600	SNR
2,4-Dichlorophenol	120-83-2	330	33	10	µg/kg	807,000	825	N/A	2.75E+06	SNI	185,000	SNR
2,4-Dimethylphenol	105-67-9	330	133	66	µg/kg	5.83E+06	6,450	N/A	1.83E+07	SNI	1.23E+06	SNR
2,4-Dinitrophenol	51-28-5	1,600	1,000	333	µg/kg	538,000	671	N/A	1.83E+06	SNI	123,000	SNR
2,4-Dinitrotoluene	121-14-2	330	133	66	µg/kg	536,000	49.1	N/A	82,300	SNI	17,100	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
2,6-Dichlorophenol	87-65-0	330	167	69	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,6-Dinitrotoluene	606-20-2	330	67	28	µg/kg	80,900	10.2	N/A	17,200	SNI	3,560	SNR
2-Chloronaphthalene	91-58-7	330	33	10	µg/kg	2.83E+07	57,000	N/A	1.04E+08	SNI	6.26E+06	SNR
2-Chlorophenol	95-57-8	330	67	21	µg/kg	1.77E+06	1,150	N/A	6.49E+06	SNI	391,000	SNR
2-Methylnaphthalene	91-57-6	330	67	19	µg/kg	N/A	N/A	N/A	3.00E+06	SEI	240,000	SER
2-Methylphenol	95-48-7	330	33	13	µg/kg	N/A	N/A	N/A	4.10E+07	SEI	3.20E+06	SER
3 & 4 Methylphenol	15831-10-4	330	67	33	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	91-94-1	1,600	267	90	µg/kg	410,000	123	N/A	57,000	SNI	11,800	SNR
3-Nitroaniline	99-09-2	1,600	267	73	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,6-Dinitro-2-methylphenol	534-52-1	1,600	1,000	330	µg/kg	21,500	39.4	N/A	73,300	SNI	4,930	SNR
4-Chloroaniline	106-47-8	330	267	81.9	µg/kg	N/A	N/A	N/A	110,000	SEI	27,000	SER
4-Chlorophenyl phenyl ether	7005-72-3	330	67	21	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Nitroaniline	100-01-6	1,600	267	72.5	µg/kg	N/A	N/A	N/A	1.10E+06	SEI	250,000	SER
4-Nitrophenol	100-02-7	1,600	267	97	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthene	83-32-9	330	33	10.3	µg/kg	1.51E+07	82,500	N/A	5.05E+07	SNI	3.48E+06	SNR
Acenaphthylene	208-96-8	330	67	17	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anthracene	120-12-7	330	67	17	µg/kg	7.53E+06	851,000	N/A	2.53E+08	SNI	1.74E+07	SNR
Benzidine	92-87-5	4,000	2,000	990	µg/kg	812	0.0417	N/A	112	SNI	5.18	SNR
Benzo[a]anthracene	56-55-3	330	67	20	µg/kg	240,000	1,820	N/A	32,300	SNI	1,530	SNR
Benzo[a]pyrene	50-32-8	330	67	20	µg/kg	24,000	605	4,700	3,230	SNI	153	SNR
Benzo[b]fluoranthene	205-99-2	330	67	26.2	µg/kg	240,000	6,170	N/A	32,300	SNI	1,530	SNR
Benzo[g,h,i]perylene	191-24-2	330	33	16	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo[k]fluoranthene	207-08-9	330	133	40	µg/kg	2.31E+06	60,500	N/A	323,000	SNI	15,300	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Benzoic acid	65-85-0	1,600	1,000	330	µg/kg	N/A	N/A	N/A	3.30E+09	SEI	2.50E+08	SER
Benzyl alcohol	100-51-6	330	33	10	µg/kg	N/A	N/A	N/A	8.20E+07	SEI	6.30E+06	SER
Bis(2-chloroethoxy)methane	111-91-1	330	67	23	µg/kg	N/A	N/A	N/A	2.50E+06	SEI	190,000	SER
Bis(2-chloroethyl)ether	111-44-4	330	33	16.6	µg/kg	1,950	0.605	N/A	15,700	SNI	3,110	SNR
Bis(2-ethylhexyl) phthalate	117-81-7	330	133	46	µg/kg	5.38E+06	200,000	29,000	1.83E+06	SNI	380,000	SNR
Butyl benzyl phthalate	85-68-7	330	133	43	µg/kg	N/A	N/A	N/A	1.20E+07	SEI	2.90E+06	SER
Carbazole	86-74-8	330	133	36	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	218-01-9	330	67	27	µg/kg	2.31E+07	186,000	N/A	3.23E+06	SNI	153,000	SNR
Dibenz(a,h)anthracene	53-70-3	330	67	19	µg/kg	24,000	6,110	N/A	3,230	SNI	153	SNR
Dibenzofuran	132-64-9	330	67	20	µg/kg	N/A	N/A	N/A	1.00E+06	SEI	73,000	SER
Diethyl phthalate	84-66-2	660	67	26	µg/kg	2.15E+08	97,900	N/A	7.33E+08	SNI	4.93E+07	SNR
Dimethyl phthalate	131-11-3	330	67	23	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Di-n-butyl phthalate	84-74-2	330	67	29	µg/kg	2.69E+07	33,800	N/A	9.16E+07	SNI	6.16E+06	SNR
Di-n-octyl phthalate	117-84-0	330	66	14.4	µg/kg	N/A	N/A	N/A	8.20E+06	SEI	630,000	SER
Fluoranthene	206-44-0	330	133	36	µg/kg	1.00E+08	1.34E+06	N/A	3.37E+07	SNI	2.32E+06	SNR
Fluorene	86-73-7	330	67	18	µg/kg	1.00E+07	80,000	N/A	3.37E+07	SNI	2.32E+06	SNR
Hexachlorobenzene	118-74-1	330	67	29	µg/kg	117,000	92.2	250	16,000	SNI	3,330	SNR
Hexachlorobutadiene	87-68-3	330	33	10	µg/kg	269,000	87.9	N/A	53,000	SEI	12,000	SER
Hexachlorocyclopentadiene	77-47-4	1700	133	50	µg/kg	867,000	1,340	3,100	5.49E+06	SNI	370,000	SNR
Hexachloroethane	67-72-1	330	67	21.3	µg/kg	188,000	66.2	N/A	641,000	SNI	43,100	SNR
Indeno[1,2,3-cd]pyrene	193-39-5	330	67	22	µg/kg	240,000	20,100	N/A	32,300	SNI	1,530	SNR
Isophorone	78-59-1	330	67	17	µg/kg	5.37E+07	4,220	N/A	2.70E+07	SNI	5.61E+06	SNR
Naphthalene	91-20-3	330	67	31	µg/kg	159,000	82.3	N/A	241,000	SNI	49,700	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Nitrobenzene	98-95-3	330	67	22	µg/kg	353,000	14.4	N/A	293,000	SNI	60,400	SNR
N-Nitrosodimethylamine	62-75-9	520	133	37	µg/kg	2,140	0.0203	N/A	503	SNI	23.4	SNR
N-Nitrosodi-n-propylamine	621-64-7	330	67	31	µg/kg	N/A	N/A	N/A	3,300	SEI	780	SER
N-Nitrosodiphenylamine	86-30-6	330	67	21	µg/kg	3.79E+07	9,950	N/A	5.24E+06	SNI	1.09E+06	SNR
N-Nitrosopyrrolidine	930-55-2	330	167	64	µg/kg	88,900	2.3	N/A	12,200	SNI	2,540	SNR
Pentachlorophenol	87-86-5	1600	1000	330	µg/kg	346,000	60.8	200	44,500	SNI	9,850	SNR
Phenanthrene	85-01-8	330	67	17	µg/kg	7.53E+06	85,900	N/A	2.53E+07	SNI	1.74E+06	SNR
Phenol	108-95-2	330	67	18	µg/kg	7.74+7	52,300	N/A	2.75E+08	SNI	1.85E+07	SNR
Pyrene	129-00-0	400	33	12.1	µg/kg	7.53E+06	192,000	N/A	2.53E+07	SNI	1.74E+06	SNR
Organochlorine Pesticides												
4,4'-DDD	72-54-8	1.7	1.67	0.546	µg/kg	778,000	1,080	N/A	107,000	SNI	22,200	SNR
4,4'-DDE	72-55-9	1.7	0.67	0.238	µg/kg	549,000	8,080	N/A	75,500	SNI	15,700	SNR
4,4'-DDT	50-29-3	2	1.67	0.59	µg/kg	162,000	11,600	N/A	95,000	SNI	18,700	SNR
Aldrin	309-00-2	1.7	0.67	0.251	µg/kg	8,070	112	N/A	1,500	SNI	311	SNR
alpha-BHC	319-84-6	1.7	0.67	0.214	µg/kg	N/A	N/A	N/A	3,600	SEI	860	SER
alpha-Chlordane	5103-71-9	1.7	0.67	0.323	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
beta-BHC	319-85-7	1.7	1.67	0.664	µg/kg	104,000	20.9	N/A	14,300	SNI	2,960	SNR
delta-BHC	319-86-8	1.7	1	0.401	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	60-57-1	1.7	0.67	0.21	µg/kg	11,700	10.4	N/A	1,600	SNI	333	SNR
Endosulfan I	959-98-8	1.7	0.67	0.176	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan II	33213-65-9	1.7	0.67	0.287	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan sulfate	1031-07-8	1.7	0.67	0.276	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin	72-20-8	1.7	0.67	0.306	µg/kg	80,700	1,350	1,600	275,000	SNI	18,500	SNR

Analyte	CAS Number	LOQ Limit	LOD Limit	DL Limit	Units	NMED Construction	2014 SO NMED DAF=20	2015 SO EPA MCL	Soil Industrial	STD ref	Soil Residential	STD ref
Endrin aldehyde	7421-93-4	1.7	0.67	0.171	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)	58-89-9	1.7	1	0.464	µg/kg	29,700	5.96	23	4,070	SNI	845	SNR
gamma-Chlordane	5103-74-2	1.7	0.67	0.266	µg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	1.7	0.67	0.214	µg/kg	41,500	54.5	660	5,700	SNI	1,180	SNR
Heptachlor epoxide	1024-57-3	1.7	1	0.426	µg/kg	N/A	N/A	82	3,300	SEI	700	SER
Methoxychlor	72-43-5	3.3	1	0.45	µg/kg	N/A	N/A	43,000	4.10E+06	SEI	320,000	SER
Toxaphene	8001-35-2	170	33	15.8	µg/kg	170,000	354	9,300	23,300	SNI	4,840	SNR

Notes:
CAS - Chemical Abstracts Number
CVAA - Cold Vapor Atomic Adsorption
DL – Detection Limit
DRO – Diesel Range Organics
GRO – Gasoline Range Organics
ICP - Inductively Coupled Plasma
LOQ – Limit of Qualification
LOD – Limit of Detection
NMED –New Mexico Environmental Department
µg/Kg – Microgram/Kilogram
N/A = Not Available
ORO – Oil Range Organics
Ref – Reference
SEI = Adjusted EPA Soil Screening Levels (TR = 1E-05; TH = 1) Industrial Soil
SER = Adjusted EPA Soil Screening Levels (TR = 1E-05; TH = 1) Residential Soil
SNI = Table A-1: NMED Soil Screening Levels Industrial/Occupational
SO = Soils
Soil SNR = Table A-1: NMED Soil Screening Levels Residential Soil
STD – Standard
µg/kg – Microgram per kilogram

TABLE 4-4

SUMMARY OF BACKGROUND ELEMENTAL CONCENTRATIONS[1] IN SOIL SAMPLES[2] AT CANNON AFB, NEW MEXICO

	Mean (x)		Standard Deviation (s)		95% Upper Tolerance Limit of Background Concentrations	
Element	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil	Surface Soil	Subsurface Soil
Aluminum	5,508	5,932	1,964	2,183	8,950	12,214
Antimony	ND [3]	ND [3]	ND [3]	ND [3]	3.15 [3]	16 [3]
Arsenic	2.1	2.1[4]	0.48	0.96 [4]	3.6	4.3 [4]
Barium	100	210	165	199	670	890
Beryllium	0.35 [4]	0.35 [4]	0.13 [4]	0.17 [4]	0.78 [4]	0.73 [4]
Cadmium	ND [3]	ND [3]	ND [3]	ND [3]	0.435 [3]	1.3 [3]
Calcium	5,645	89,410	11,366	64,611	44,800	237,498
Chromium (total)	7.1	5.6	1.3	2.33	10.5	13.3
Cobalt	2.9	2.6 [4]	1.0	1.4 [4]	6.6	4.7 [4]
Copper	6.8	3.8 [4]	4.6	1.97 [4]	18.3	8.3 [4]
Iron	6,458	5,148	1,349	2,262	10,100	13,148
Lead	6.8	4.7	1.6	1.7	12	8.7
Magnesium	1,066	4,260	390	3,856	1,930	19,300
Manganese	139	83	51	50	307	333
Mercury	0.025 [4]	ND [3]	0.016 [4]	ND [3]	0.056 [4]	0.019 [3]
Nickel	5.5	5.9 [4]	1.6	2.41 [4]	11	14.9 [4]
Potassium	1,345	1,222	413	417	2,691	2,512
Selenium	ND [3]	0.47 [4]	ND [3]	0.31 [4]	0.26 [3]	1.1 [4]

Silver	--- [5]	ND [3]	--- [5]	ND [3]	0.4 [5]	2.65 [3]
Sodium	91	351[4]	10	253 [4]	102	1,227 [4]
Thallium	ND [3]	ND [3]	ND [3]	ND [3]	0.6 [3]	2.65 [3]
Vanadium	14.9	16	2.8	5.2	23.3	32.8
Zinc	15.4	12.1	5.2	4.8	32.2	30.6

NOTES:

[1] All concentrations are in mg/kg.

[2] From report entitled "Naturally Occurring Concentrations of Inorganics and Background Concentrations of Organochlorine Pesticides at Cannon Air Force Base, New Mexico" (W-C 1997).

[3] All analytical samples were nondetect; therefore, a mean and standard deviation were not calculated. One-half the highest reporting limit is used as the 95% UTL. The actual mean, standard deviation, and UTL may be less than these values.

[4] Values determined from a data set including one-half of the reporting limits for nondetects.

[5] Silver was detected in only one sample; therefore, a mean and standard deviation were not calculated. The single concentration was used as the 95% UTL.

ND = nondetect

S = Standard Deviation

X = Mean

--- = No Data

TABLE 5-1 KEY PROJECT PERSONNEL
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Name	Title	Address	Phone Number	Email Address
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0 0.25 0.5 1 Miles

Source: ESRI World Imagery Server
http://services.arcgisonline.com/ArcGIS/rest/services

SITE LOCATION MAP
Cannon Air Force Base, NM

OW541 & OW560
RCRA FACILITY
ASSESSMENT
Proj No. 60440693

FIGURE 1

9/16/15

AECOM
6501 Americas Parkway NE
Suite 900
Albuquerque, NM 87110

N
W E
S

0 25 50 100 150 200
Feet

Source: ESRI World Imagery Server
http://services.arcgisonline.com/ArcGIS/rest/services

OW541 SITE MAP

Cannon Air Force Base, NM

OW541 & OW560
RCRA FACILITY
ASSESSMENT
Proj No. 60440693

FIGURE 2

12/09/15

AECOM

6501 Americas Parkway NE
Suite 900
Albuquerque, NM 87110

N
W E
S

0 20 40 80 120 160
Feet

Source: ESRI World Imagery Server
http://services.arcgisonline.com/ArcGIS/rest/services

OW560 SITE MAP
Cannon Air Force Base, NM

OW541 & OW560
RCRA FACILITY
ASSESSMENT
Proj No. 60440693

FIGURE 3

12/09/15

AECOM
6501 Americas Parkway NE
Suite 900
Albuquerque, NM 87110

N
W E
S

0 25 50 100 150 200
Feet

Source: ESRI World Imagery Server
http://services.arcgisonline.com/ArcGIS/rest/services

OW541 SITE MAP

Cannon Air Force Base, NM

OW541 & OW560
RCRA FACILITY
ASSESSMENT
Proj No. 60440693

FIGURE 4

12/09/15

AECOM
6501 Americas Parkway NE
Suite 900
Albuquerque, NM 87110

N
W E
S

0 15 30 60 90 120
Feet

Source: ESRI World Imagery Server
http://services.arcgisonline.com/ArcGIS/rest/services

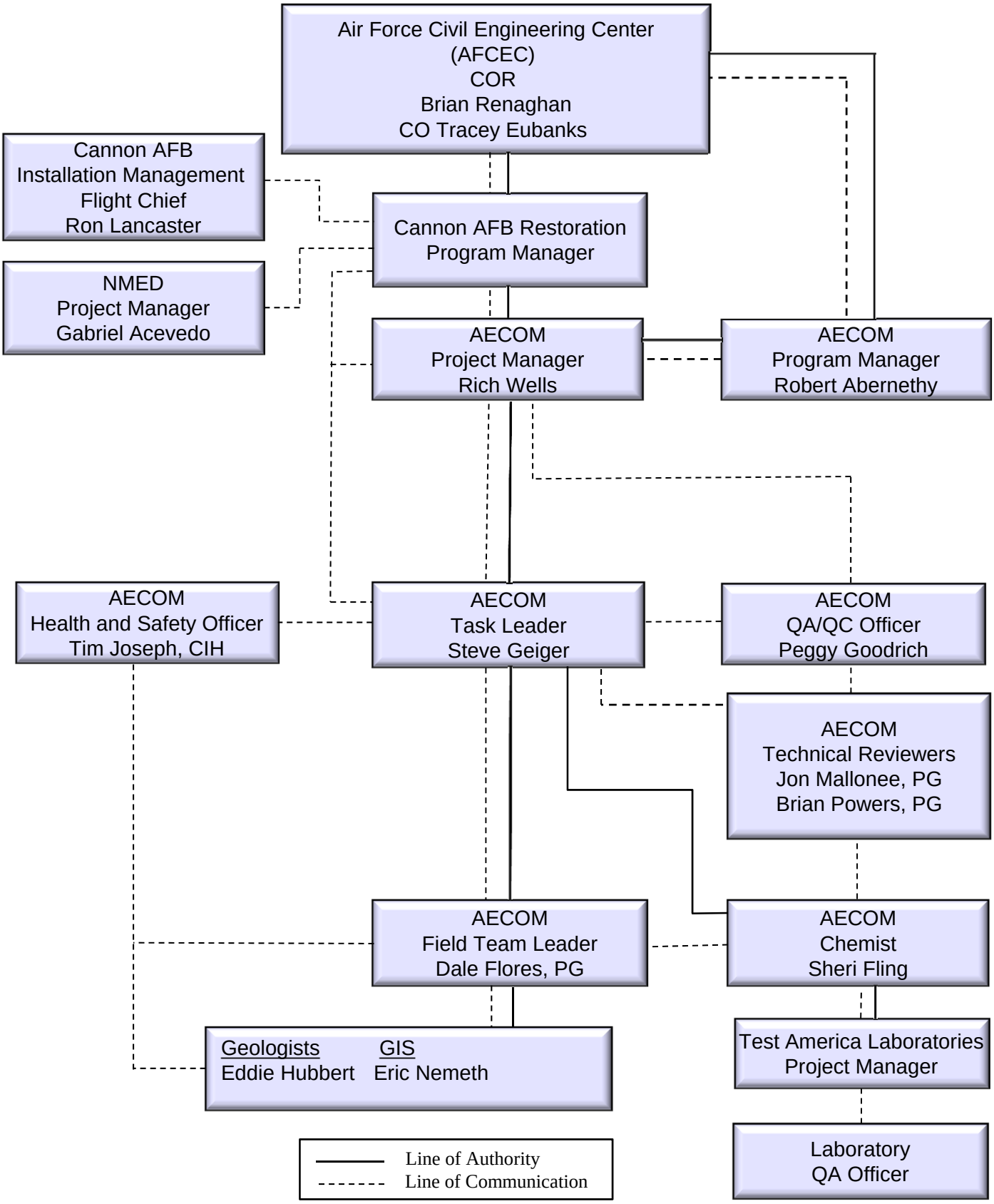
OW560 SITE MAP
Cannon Air Force Base, NM

OW541 & OW560
RCRA FACILITY
ASSESSMENT
Proj No. 60440693

FIGURE 5

12/09/15

FIGURE 6
PROJECT TEAM AND LINES OF AUTHORITY AND COMMUNICATION
CANNON AFB, NEW MEXICO



ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Panhandle Region

4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

27CES/CEV
506 N. D.L. Ingram
Contr. F2960599A0010
Cannon AFB, NM 88103-5136
Attention: Tommy Downing

Sample Identification: ***FAC 378 O/W Tank***
Date & Time Taken: ***06/06/2000*** ***0830***
Collected By: ***Client***
Sample Matrix: ***Soil***
Received: ***06/09/2000*** *Client:* ***CAFB*** *Report Date:* ***06/23/2000***

Results for Sample 451767

	Parameter	Result	Unit	MAL
01	TPH by Weight	157 *	mg/kg	112
02	Total Antimony	ND *	mg/kg	0.28
03	Total Cadmium	ND *	mg/kg	0.0562
04	Total Chromium	6.66 *	mg/kg	0.281
05	Total Copper	3.94 *	mg/kg	1.41
06	Total Lead	4.93 *	mg/kg	0.281
07	Total Zinc	15.1 *	mg/kg	1.41
	Benzene	ND *	ug/kg	56.2
	Ethylbenzene	ND *	ug/kg	281
	Toluene	ND *	ug/kg	281
	Xylenes, Total	ND *	ug/kg	281
	Acenaphthene	ND *	ug/kg	375
	Acenaphthylene	ND *	ug/kg	375
	Anthracene	ND *	ug/kg	375
	Benzidine	ND *	ug/kg	375
	Benzo(a)anthracene	ND *	ug/kg	375
	Benzo(a)pyrene	ND *	ug/kg	375
	Benzo(b)fluoranthene	ND *	ug/kg	375
	Benzo(ghi)perylene	ND *	ug/kg	375
	Benzo(k)fluoranthene	ND *	ug/kg	375
	Benzyl Butyl phthalate	ND *	ug/kg	375
	4-Bromophenyl phenyl ether	ND *	ug/kg	375
	2-Chloronaphthalene	ND *	ug/kg	375
	2-Chlorophenol	ND *	ug/kg	375
	4-Chlorophenyl phenyl ether	ND *	ug/kg	375
	Chrysene	ND *	ug/kg	375
	1,2-DPH (as azobenzene)	ND *	ug/kg	375
	Dibenz(a,h)anthracene	ND *	ug/kg	375
	1,3-Dichlorobenzene	ND *	ug/kg	375
	1,2-Dichlorobenzene	ND *		

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Panhandle Region

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TEST REPORT: 451767

Results for Sample 451767

	Parameter	Result	Unit	MAL
031	1,4-Dichlorobenzene	ND *	ug/kg	375
032	3,3'-Dichlorobenzidine	ND *	ug/kg	750
033	2,4-Dichlorophenol	ND *	ug/kg	375
034	Diethyl phthalate	ND *	ug/kg	375
035	Dimethyl phthalate	ND *	ug/kg	375
036	2,4-Dimethylphenol	ND *	ug/kg	375
037	2,4-Dinitrophenol	ND *	ug/kg	375
038	2,4-Dinitrotoluene	ND *	ug/kg	1880
039	2,6-Dinitrotoluene	ND *	ug/kg	375
040	Fluoranthene	ND *	ug/kg	375
041	Fluorene	ND *	ug/kg	375
042	Hexachlorobenzene	ND *	ug/kg	375
043	Hexachlorobutadiene	ND *	ug/kg	375
044	Hexachlorocyclopentadiene	ND *	ug/kg	375
045	Hexachloroethane	ND *	ug/kg	375
046	Isophorone	ND *	ug/kg	375
047	Naphthalene	ND *	ug/kg	375
048	Nitrobenzene	ND *	ug/kg	375
049	2-Nitrophenol	ND *	ug/kg	375
	4-Nitrophenol	ND *	ug/kg	375
	N-Nitrosodimethylamine	ND *	ug/kg	1880
	N-Nitrosodiphenylamine (as DPA)	ND *	ug/kg	375
	Pentachlorophenol	ND *	ug/kg	375
	Phenanthrene	ND *	ug/kg	1880
	Phenol	ND *	ug/kg	375
	Pyrene	ND *	ug/kg	375
	1,2,4-Trichlorobenzene	ND *	ug/kg	375
	2,4,6-Trichlorophenol	ND *	ug/kg	375
	2,4,5-Trichlorophenol	ND *	ug/kg	375
	Di-n-butylphthalate	ND *	ug/kg	375
	Indeno(1,2,3-cd)pyrene	ND *	ug/kg	375
	Bis(2-chloroethoxy)methane	ND *	ug/kg	375
	Bis(2-chloroethyl)ether	ND *	ug/kg	375
	Bis(2-chloroisopropyl)ether	ND *	ug/kg	375
	Bis(2-ethylhexyl)phthalate	ND *	ug/kg	750
	4-Chloro-3-methylphenol	ND *	ug/kg	1880
	4,6-Dinitro-2-methylphenol	ND *	ug/kg	375
	Di-n-octylphthalate	ND *	ug/kg	375
	N-Nitrosodi-n-propylamine	ND *	ug/kg	375
	Total Solids	88.9	%	0.1

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TEST REPORT: 451767

Analytical Details for Sample 451767

	Parameter	CAS	Method	Bottle	Analyzed	By
)01	TPH by Weight		EPA Method 1664 A	11	06/16/2000	MAM
)02	Total Antimony	7440-36-0	EPA Method 6020A	07	06/15/2000	WOB
)03	Total Cadmium	7440-43-9	EPA Method 6020A	07	06/15/2000	WOB
)04	Total Chromium	7440-47-3	EPA Method 6020A	07	06/15/2000	WOB
)05	Total Copper	7440-50-8	EPA Method 6020A	07	06/15/2000	WOB
06	Total Lead	7439-92-1	EPA Method 6020A	07	06/15/2000	WOB
07	Total Zinc	7440-66-6	EPA Method 6020A	07	06/15/2000	WOB
)8	Benzene	71-43-2	EPA Method 8260B	01	06/11/2000	KLB
)9	Ethylbenzene	100-41-4	EPA Method 8260B	01	06/11/2000	KLB
10	Toluene	108-88-3	EPA Method 8260B	01	06/11/2000	KLB
1	Xylenes, Total	95-47-6, etc.	EPA Method 8260B	01	06/11/2000	KLB
2	Acenaphthene	83-32-9	EPA Method 8270C	08	06/15/2000	KLB
3	Acenaphthylene	208-96-8	EPA Method 8270C	08	06/15/2000	KLB
4	Anthracene	120-12-7	EPA Method 8270C	08	06/15/2000	KLB
5	Benzidine	92-87-5	EPA Method 8270C	08	06/15/2000	KLB
6	Benzo(a)anthracene	56-55-3	EPA Method 8270C	08	06/15/2000	KLB
7	Benzo(a)pyrene	50-32-8	EPA Method 8270C	08	06/15/2000	KLB
8	Benzo(b)fluoranthene	205-99-2	EPA Method 8270C	08	06/15/2000	KLB
9	Benzo(ghi)perylene	191-24-2	EPA Method 8270C	08	06/15/2000	KLB
0	Benzo(k)fluoranthene	207-08-9	EPA Method 8270C	08	06/15/2000	KLB
	Benzyl Butyl phthalate	85-68-7	EPA Method 8270C	08	06/15/2000	KLB
	4-Bromophenyl phenyl ether	101-55-3	EPA Method 8270C	08	06/15/2000	KLB
	2-Chloronaphthalene	91-58-7	EPA Method 8270C	08	06/15/2000	KLB
	2-Chlorophenol	95-57-8	EPA Method 8270C	08	06/15/2000	KLB
	4-Chlorophenyl phenyl ether	7005-72-3	EPA Method 8270C	08	06/15/2000	KLB
	Chrysene	218-01-9	EPA Method 8270C	08	06/15/2000	KLB
	1,2-DPH (as azobenzene)	122-66-7	EPA Method 8270C	08	06/15/2000	KLB
	Dibenz(a,h)anthracene	53-70-3	EPA Method 8270C	08	06/15/2000	KLB
	1,3-Dichlorobenzene	541-73-1	EPA Method 8270C	08	06/15/2000	KLB
	1,2-Dichlorobenzene	95-50-1	EPA Method 8270C	08	06/15/2000	KLB
	1,4-Dichlorobenzene	106-46-7	EPA Method 8270C	08	06/15/2000	KLB
	3,3'-Dichlorobenzidine	91-94-1	EPA Method 8270C	08	06/15/2000	KLB
	2,4-Dichlorophenol	120-83-2	EPA Method 8270C	08	06/15/2000	KLB
	Diethyl phthalate	84-66-2	EPA Method 8270C	08	06/15/2000	KLB
	Dimethyl phthalate	131-11-3	EPA Method 8270C	08	06/15/2000	KLB
	2,4-Dimethylphenol	105-67-9	EPA Method 8270C	08	06/15/2000	KLB
	2,4-Dinitrophenol	51-28-5	EPA Method 8270C	08	06/15/2000	KLB
	2,4-Dinitrotoluene	121-14-2	EPA Method 8270C	08	06/15/2000	KLB
	2,6-Dinitrotoluene	606-20-2	EPA Method 8270C	08	06/15/2000	KLB
	Fluoranthene	206-44-0	EPA Method 8270C	08	06/15/2000	KLB

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Panhandle Region
4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

Analytical Details for Sample 451767

	Parameter	CAS	Method	Bottle	Analyzed	By
)41	Fluorene	86-73-7	EPA Method 8270C	08	06/15/2000	KLB
)42	Hexachlorobenzene	118-74-1	EPA Method 8270C	08	06/15/2000	KLB
)43	Hexachlorobutadiene	87-68-3	EPA Method 8270C	08	06/15/2000	KLB
)44	Hexachlorocyclopentadiene	77-47-4	EPA Method 8270C	08	06/15/2000	KLB
45	Hexachloroethane	67-72-1	EPA Method 8270C	08	06/15/2000	KLB
46	Isophorone	78-59-1	EPA Method 8270C	08	06/15/2000	KLB
47	Naphthalene	91-20-3	EPA Method 8270C	08	06/15/2000	KLB
48	Nitrobenzene	98-95-3	EPA Method 8270C	08	06/15/2000	KLB
49	2-Nitrophenol	88-75-5	EPA Method 8270C	08	06/15/2000	KLB
50	4-Nitrophenol	100-08-7	EPA Method 8270C	08	06/15/2000	KLB
51	N-Nitrosodimethylamine	62-75-9	EPA Method 8270C	08	06/15/2000	KLB
52	N-Nitrosodiphenylamine (as DPA)	86-30-6	EPA Method 8270C	08	06/15/2000	KLB
53	Pentachlorophenol	87-86-5	EPA Method 8270C	08	06/15/2000	KLB
54	Phenanthrene	85-01-8	EPA Method 8270C	08	06/15/2000	KLB
55	Phenol	108-95-2	EPA Method 8270C	08	06/15/2000	KLB
56	Pyrene	129-00-0	EPA Method 8270C	08	06/15/2000	KLB
57	1,2,4-Trichlorobenzene	120-82-1	EPA Method 8270C	08	06/15/2000	KLB
58	2,4,6-Trichlorophenol	88-06-2	EPA Method 8270C	08	06/15/2000	KLB
59	2,4,5-Trichlorophenol	95-95-4	EPA Method 8270C	08	06/15/2000	KLB
60	Di-n-butylphthalate	84-74-2	EPA Method 8270C	08	06/15/2000	KLB
	Indeno(1,2,3-cd)pyrene	193-39-5	EPA Method 8270C	08	06/15/2000	KLB
	Bis(2-chloroethoxy)methane	111-91-1	EPA Method 8270C	08	06/15/2000	KLB
	Bis(2-chloroethyl)ether	111-44-4	EPA Method 8270C	08	06/15/2000	KLB
	Bis(2-chloroisopropyl)ether	108-60-1	EPA Method 8270C	08	06/15/2000	KLB
	Bis(2-ethylhexyl)phthalate	117-81-7	EPA Method 8270C	08	06/15/2000	KLB
	4-Chloro-3-methylphenol	59-50-7	EPA Method 8270C	08	06/15/2000	KLB
	4,6-Dinitro-2-methylphenol	534-52-1	EPA Method 8270C	08	06/15/2000	KLB
	Di-n-octylphthalate	117-84-0	EPA Method 8270C	08	06/15/2000	KLB
	N-Nitrosodi-n-propylamine	621-64-7	EPA Method 8270C	08	06/15/2000	KLB
	Total Solids		SM 18th 2540 G	01	06/12/2000	CDH

Sample Preparation Steps for 451767

imeter	Result	Unit	Bottle	Date	Time	Tech
ceived to Dry Weight Basis	Converted			06/19/2000	16:29	CAL
ie Sonication for 1664	30	gram	01	06/16/2000	1500	DLH
- Metals Digestion	50/1	ml/g	01	06/13/2000	1500	PJD
Sonic Extraction	1/30 AS/BS	mL/g	01	06/14/2000	1020	DLH
by GC/MS	Verified			06/11/2000	17[illegible]	KLB
Volatile Hydrocarbons	Verified			06/15/2000	1555	KLB

ANA-LAB CORP. THE COMPLETE SERVICE LAB

Panhandle Region

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806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

Bottle Data for Sample 451767

Bottle	Derived in Lab From
01 - Glass	
02 - Glass	
03 - Glass	
04 - Glass	
05 - Glass 4 oz w/Teflon lined lid	
06 - Glass 4 oz w/Teflon lined lid	
07 - Prepared Bottle: ICP Preparation for Metals	
08 - Prepared Bottle: 2 mL Autosampler Vial	01(1g)
09 - Prepared Bottle: 2 mL Autosampler Vial	01(30g)
10 - Prepared Bottle: 2 mL Autosampler Vial	01(30g)
11 - Prepared Bottle: Sonication for 1664	01(30g)
	01(30gram)

Quality Assurance for the SET with Sample 451767

ample	Description	Result	Value	Unit	%
otal Cadmium (Analyzed: 06/15/2000 1101 WOB Verified: 08/16/2000 17:26 SAH)					
	Blank	<0.000200		ppm	
	Blank	<0.000200		ppm	
	Blank	0.00122		ppm	
	Blank	0.00111		ppm	
	Blank	<0.00100		ppm	
	Blank	<0.00100		ppm	
	Standard	0.0984	0.100	ppm	98
	Standard	0.301	0.300	ppm	100
	Standard	0.307	0.300	ppm	102
	Standard	0.305	0.300	ppm	102
	Standard	0.302	0.300	ppm	101
	Standard	0.300	0.300	ppm	100
	Standard	0.299	0.300	ppm	100
	Standard	0.301	0.300	ppm	100
	Standard	0.296	0.300	ppm	99
	Standard	0.0996	0.100	ppm	100
	Standard	0.312	0.300	ppm	104
	Standard	0.307	0.300	ppm	102
	Standard	0.306	0.300	ppm	102
	Standard	0.307	0.300	ppm	102
	Standard	0.303	0.300	ppm	101
	Standard	0.314	0.300	ppm	105
3	Standard	0.305	0.300	ppm	102
3	Spike		0.0250	ppm	100
	Spike				

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TEST REPORT: 451767

Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
Total Cadmium (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
151826	Spike		0.0500	ppm	109
51826	Spike		0.0500	ppm	104
51992	Spike		0.250	ppm	96.7
51992	Spike		0.250	ppm	96.3
52003	Spike		0.0500	ppm	103
52003	Spike		0.0500	ppm	98.4
52026	Spike		0.250	ppm	104
52026	Spike		0.250	ppm	101
52284	Spike		0.250	ppm	88.4
52284	Spike		0.250	ppm	97.2
52285	Spike		0.250	ppm	92.2
52285	Spike		0.250	ppm	102
52291	Spike		0.250	ppm	102
52291	LCS	0.266	0.250	ppm	91.6
	LCS	0.273	0.250	ppm	106
	LCS	0.260	0.250	ppm	109
	LCS	0.236	0.250	ppm	104
	LCS	0.0485	0.0500	ppm	94
	LCS	0.0493	0.0500	ppm	97
tal Chromium (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					99
	Blank	<0.00100		ppm	
	Blank	<0.00100		ppm	
	Blank	0.00324		ppm	
	Blank	0.00239		ppm	
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Standard	0.0996	0.100	ppm	100
	Standard	0.301	0.300	ppm	100
	Standard	0.296	0.300	ppm	99
	Standard	0.294	0.300	ppm	98
	Standard	0.276	0.300	ppm	92
	Standard	0.283	0.300	ppm	94
	Standard	0.286	0.300	ppm	95
	Standard	0.302	0.300	ppm	101
	Standard	0.313	0.300	ppm	104
	Standard	0.317	0.300	ppm	106
	Standard	0.0996	0.100	ppm	100
	Standard	0.304	0.300		

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Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
Total Chromium (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Standard	0.304	0.300	ppm	101
	Standard	0.308	0.300	ppm	103
	Standard	0.303	0.300	ppm	101
	Standard	0.311	0.300	ppm	104
	Standard	0.304	0.300	ppm	101
	Standard	0.308	0.300	ppm	103
51823	Spike		0.0500	ppm	134
51823	Spike		0.0500	ppm	98.0
51826	Spike		0.100	ppm	155
51826	Spike		0.100	ppm	149
51992	Spike		0.500	ppm	99.4
51992	Spike		0.500	ppm	100
52003	Spike		0.100	ppm	108
52003	Spike		0.100	ppm	105
52026	Spike		0.500	ppm	106
52026	Spike		0.500	ppm	105
52284	Spike		0.500	ppm	96.3
52284	Spike		0.500	ppm	95 1
52285	Spike		0.500	ppm	96.8
52285	Spike		0.500	ppm	97.6
52291	Spike		0.500	ppm	96.0
52291	Spike		0.500	ppm	97 8
	LCS	0.550	0.500	ppm	110
	LCS	0.555	0.500	ppm	111
	LCS	0.511	0.500	ppm	102
	LCS	0.491	0.500	ppm	98
	LCS	0.107	0.100	ppm	107
	LCS	0.101	0.100	ppm	101
al Copper (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Blank	<0.0250		ppm	
	Blank	<0.0250		ppm	
	Standard	0.101	0.100	ppm	101
	Standard	0.305	0.300	ppm	102
	Standard	0 302	0.300	ppm	A-7101
	Standard	0.295	0.300		

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Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
Total Copper (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Standard	0.278	0.300	ppm	93
	Standard	0.289	0.300	ppm	96
	Standard	0.296	0.300	ppm	99
	Standard	0.310	0.300	ppm	103
	Standard	0.322	0.300	ppm	107
	Standard	0.328	0.300	ppm	109
	Standard	0.0993	0.100	ppm	99
	Standard	0.305	0.300	ppm	102
	Standard	0.306	0.300	ppm	102
	Standard	0.305	0.300	ppm	102
	Standard	0.295	0.300	ppm	98
	Standard	0.309	0.300	ppm	103
	Standard	0.298	0.300	ppm	99
	Standard	0.297	0.300	ppm	99
51823	Spike		0.0500	ppm	88.6
51823	Spike		0.0500	ppm	95.4
51826	Spike		0.100	ppm	109
51826	Spike		0.100	ppm	116
1992	Spike		0.500	ppm	96.4
1992	Spike		0.500	ppm	95.2
2003	Spike		0.100	ppm	86.0
2003	Spike		0.100	ppm	91.0
2026	Spike		0.500	ppm	110
2026	Spike		0.500	ppm	106
2284	Spike		0.500	ppm	93.5
2284	Spike		0.500	ppm	101
2285	Spike		0.500	ppm	97.2
2285	Spike		0.500	ppm	107
2291	Spike		0.500	ppm	107
2291	Spike		0.500	ppm	96.1
	LCS	0.563	0.500	ppm	113
	LCS	0.577	0.500	ppm	115
	LCS	0.535	0.500	ppm	107
	LCS	0.484	0.500	ppm	97
	LCS	0.110	0.100	ppm	110
	LCS	0.101	0.100	ppm	101
l Lead (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Blank	<0.00100			
	Blank	<0.00100		ppm	

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Panhandle Region
4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
Total Lead (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Blank	0.00231		ppm	
	Blank	0.00226		ppm	
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Standard	0.0994	0.100	ppm	99
	Standard	0.311	0.300	ppm	104
	Standard	0.313	0.300	ppm	104
	Standard	0.310	0.300	ppm	103
	Standard	0.309	0.300	ppm	103
	Standard	0.308	0.300	ppm	103
	Standard	0.310	0.300	ppm	103
	Standard	0.310	0.300	ppm	103
	Standard	0.313	0.300	ppm	104
	Standard	0.312	0.300	ppm	104
	Standard	0.100	0.100	ppm	100
	Standard	0.315	0.300	ppm	105
	Standard	0.312	0.300	ppm	104
	Standard	0.311	0.300	ppm	104
	Standard	0.314	0.300	ppm	105
	Standard	0.317	0.300	ppm	106
	Standard	0.316	0.300	ppm	105
1823	Standard	0.310	0.300	ppm	103
1823	Spike		0.0500	ppm	102
1826	Spike		0.0500	ppm	101
1826	Spike		0.100	ppm	111
1992	Spike		0.100	ppm	106
992	Spike		0.500	ppm	108
'003	Spike		0.500	ppm	106
003	Spike		0.100	ppm	36.0
026	Spike		0.100	ppm	72.0
026	Spike		0.500	ppm	107
284	Spike		0.500	ppm	102
284	Spike		0.500	ppm	95.2
285	Spike		0.500	ppm	102
285	Spike		0.500	ppm	93.3
291	Spike		0.500	ppm	102
291	Spike		0.500	ppm	102
	LCS	0.531	0.500	ppm	A-9 93.8

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Panhandle Region
4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
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TEST REPORT: 451767

Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit		%
Total Lead (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)						
	LCS	0.534	0.500	ppm		107
	LCS	0.515	0 500	ppm		103
	LCS	0.468	0.500	ppm		94
	LCS	0 0996	0.100	ppm		100
	LCS	0.0990	0.100	ppm		99
Total Antimony (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)						
	Standard	0.0985	0.100	ppm		99
	Standard	0 301	0.300	ppm		100
	Standard	0.301	0.300	ppm		100
	Standard	0.295	0.300	ppm		98
	Standard	0.292	0.300	ppm		97
	Standard	0.294	0.300	ppm		98
	Standard	0.303	0.300	ppm		101
	Standard	0.302	0.300	ppm		101
	Standard	0.308	0.300	ppm		103
	Standard	0.307	0.300	ppm		102
	Standard	0.101	0.100	ppm		101
	Standard	0.315	0.300	ppm		105
	Standard	0.310	0.300	ppm		103
	Standard	0.315	0.300	ppm		105
	Standard	0.306	0.300	ppm		102
	Standard	0.303	0 300	ppm		101
	Standard	0.306	0.300	ppm		102
	Standard	0.312	0.300	ppm		104
1823	Spike		0 0500	ppm		29.6
1823	Spike		0.0500	ppm		29.4
:826	Spike		0.100	ppm		97.1
826	Spike		0.100	ppm		96.6
992	Spike		0.500	ppm		100
992	Spike		0.500	ppm		99.8
003	Spike		0.100	ppm		92.0
003	Spike		0.100	ppm		86 0
026	Spike		0.500	ppm		101
026	Spike		0.500	ppm		98.5
284	Spike		0.500	ppm		92.3
284	Spike		0.500	ppm		93.7
285	Spike		0.500	ppm		95.3
285	Spike		0.500	ppm	A-10	98.5
291	Spike		0.500			

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Panhandle Region

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806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
Total Antimony (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
52291	Spike		0.500	ppm	97.7
Total Zinc (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	Blank	<0.00500		ppm	
	Blank	<0.00500		ppm	
	Blank	0.00694		ppm	
	Blank	0.816		ppm	
	Blank	0.0331		ppm	
	Blank	<0.0250		ppm	
	Standard	0.102	0.100	ppm	102
	Standard	0.302	0.300	ppm	101
	Standard	0.301	0.300	ppm	100
	Standard	0.297	0.300	ppm	99
	Standard	0.275	0.300	ppm	92
	Standard	0.288	0.300	ppm	96
	Standard	0.312	0.300	ppm	104
	Standard	0.317	0.300	ppm	106
	Standard	0.326	0.300	ppm	109
	Standard	0.298	0.300	ppm	99
	Standard	0.300	0.300	ppm	100
	Standard	0.291	0.300	ppm	97
	Standard	0.288	0.300	ppm	96
	Standard	0.303	0.300	ppm	101
	Standard	0.284	0.300	ppm	95
	Standard	0.290	0.300	ppm	97
823	Spike		0.0500	ppm	90.6
323	Spike		0.0500	ppm	88.6
326	Spike		0.100	ppm	147
326	Spike		0.100	ppm	139
92	Spike		0.500	ppm	90.8
92	Spike		0.500	ppm	88.8
26	Spike		0.500	ppm	110
26	Spike		0.500	ppm	108
84	Spike		0.500	ppm	64.2
84	Spike		0.500	ppm	66.0
85	Spike		0.500	ppm	93.9
85	Spike		0.500	ppm	103
31	Spike		0.500	ppm	107
31	Spike		0.500	ppm	98.0
	LCS	0.573	0.500	ppm	

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Panhandle Region 4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
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TEST REPORT: 451767

Quality Assurance for the SET with Sample 451767

Sample	Description	Result	Value	Unit	%
otal Zinc (Analyzed: 06/15/2000 1101 WOB Verified: 06/16/2000 17:26 SAH)					
	LCS	0.586	0.500	ppm	117
	LCS	0.554	0.500	ppm	111
	LCS	0.865	0.500	ppm	173
	LCS	0.118	0.100	ppm	118
	LCS	0.101	0.100	ppm	101
PH by Weight (Analyzed: 06/16/2000 1500 MAM Verified: 06/19/2000 16:28 NGT)					
	Blank	0.00030		grams	
	Blank	0.00010		grams	
lexane Sonication for 1664 (Analyzed: 06/16/2000 1500 DLH Verified: 06/19/2000 16:25 NGT)					
	Blank	30		G	
	Blank	30		G	
52012	Duplicate	30	30	G	0
otal Solids (Analyzed: 06/12/2000 1710 CDH Verified: 06/13/2000 17:45 NGT)					
	Blank	0.0000		grams	
51700	Duplicate	16.1	16.0	%	1
51820	Duplicate	82.1	83.0	%	1

Bottle Tracking for Sample 451767

ottle #: 01 Glass			
1/09/2000	18:06	AAJ	Login
1/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 02 Glass			
1/09/2000	18:06	AAJ	Login
1/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 03 Glass			
/09/2000	18:06	AAJ	Login
/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 04 Glass			
/09/2000	18:06	AAJ	Login
/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 05 Glass 4 oz w/Teflon lined lid			
/09/2000	18:06	AAJ	Login
/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 06 Glass 4 oz w/Teflon lined lid			
/09/2000	18:06	AAJ	Login
/09/2000	18:06	AAJ	Main walk-in cooler
ottle #: 07 Prepared Bottle: ICP Preparation for Metals			
/13/2000	1500	PJD	Prep/Wet Lab
/13/2000	17:42	PJD	Instrument Room
ottle #: 08 Prepared Bottle: 2 mL Autosampler Vial			

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Panhandle Region 4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
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TEST REPORT: 451767

Bottle Tracking for Sample 451767

Bottle #: 08 Prepared Bottle: 2 mL Autosampler Vial			
6/14/2000	1020	DLH	Distillation/Extraction Lab
6/14/2000	13:49	DLH	GC, GCMS Semi-Volatile Lab
Bottle #: 09 Prepared Bottle: 2 mL Autosampler Vial			
6/14/2000	1020	DLH	Distillation/Extraction Lab
6/14/2000	13:49	DLH	GC, GCMS Semi-Volatile Lab
Bottle #: 10 Prepared Bottle: 2 mL Autosampler Vial			
6/14/2000	1020	DLH	Distillation/Extraction Lab
6/14/2000	13:49	DLH	GC, GCMS Semi-Volatile Lab
Bottle #: 11 Prepared Bottle: Sonication for 1664			
6/16/2000	1500	DLH	Distillation/Extraction Lab
6/16/2000	16:33	DLH	Main Lab

Quality Assurance for the Shift with Sample 451767

Name	Mass	Minimum	Maximum	Result	Status
Instrument Tune					
FTPP Mass 51	198	30.0	60.0	58.8	PASS
FTPP Mass 68	69	0	2.00	0.0	PASS
FTPP Mass 69	198	0	100	55.4	PASS
FTPP Mass 70	69	0	2.00	0.5	PASS
FTPP Mass 127	198	40.0	60.0	54.1	PASS
FTPP Mass 197	198	0	1.00	0.1	PASS
FTPP Mass 198	198	100	100	100.0	PASS
FTPP Mass 199	198	5.00	9.00	6.7	PASS
FTPP Mass 275	198	10.0	30.0	27.8	PASS
FTPP Mass 365	198	1.00	100	5.0	PASS
FTPP Mass 441	443	0	100	82.6	PASS
FTPP Mass 442	198	40.0	100	60.2	PASS
FTPP Mass 443	442	17.0	23.0	19.0	PASS

Compound	Maximum	Deviation(%)	Status
Instrument Calibration Check			
Acenaphthene	20.0	8.0	PASS
Benzo(a)pyrene	20.0	9.4	PASS
4-Chloro-3-methylphenol	20.0	5.2	PASS
1,4-Dichlorobenzene	20.0	4.3	PASS
2,4-Dichlorophenol	20.0	5.7	PASS
Di-n-octylphthalate	20.0	16.7	PASS
Fluoranthene	20.0	9.2	PASS
Hexachlorobutadiene	20.0	9.1	PASS
4-Nitrophenol	20.0	2.8	PASS
N-Nitrosodiphenylamine (as DPA)	20.0	12.9	PASS
Pentachlorophenol	20.0	9.6	PASS

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Panhandle Region

4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 451767

certify the above results were obtained using the methods specified.

H. Whiteside, Ph. D., President

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

27CES/CEV
111 Engineers Way
Contr. F2960594A0014
Cannon AFB, NM 88103-5136
Attention: Paige Wilson

TEST REPORT: 331583

Sample Identification: ***Call 679***
Date & Time Taken: ***10/04/96***
Collected By: ***MG***
Sample Matrix: ***Soil***
Received: ***10/07/96*** *Client:* ***CAFB*** *Report Date:* ***10/24/96***

Results for Sample 331583

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
Total Petroleum Hydrocarbon	5710 *	mg/kg	143	EPA Method 418.1	03	
Total Solids	70	%	1	APHA 18th 2540 G	01	
SPONTANEOUS COMBUSTION	Non-Combustib			DOT 49CFR P173 APP E	01	
Ignitibility (Reg.Limit 140.0 F)	>180	degrees F		EPA 1010	01	
pH Measured in Water	8.1	SU		EPA 9045 B	01	
Total Arsenic	2.1 *	mg/kg	1.4	EPA Method 6010	08	7440-38-2
Total Barium	330 *	mg/kg	8.6	EPA Method 6010	08	7440-39-3
Total Cadmium	2.1 *	mg/kg	0.14	EPA Method 6010	08	7440-43-9
Total Chromium	19 *	mg/kg	0.29	EPA Method 6010	08	7440-47-3
Total Lead	110 *	mg/kg	1.4	EPA Method 6010	08	7439-92-1
Total Selenium	ND *	mg/kg	1.4	EPA Method 6010	08	7782-49-2
Total Silver	ND *	mg/kg	0.14	EPA Method 6010	08	7440-22-4
Reactivity Cyanide (RL 250)	ND *	mg/kg	14	EPA Method 7.3.3	04	
Total Mercury	ND *	mg/kg	0.0357	EPA Method 7470	06	7439-97-6
1,1,1,2-Tetrachloroethane	ND *	ug/kg	3600	EPA Method 8260	01	630-20-6
1,1,1-Trichloroethane	ND *	ug/kg	3600	EPA Method 8260	01	71-55-6
1,1,2,2-Tetrachloroethane	ND *	ug/kg	3600	EPA Method 8260	01	79-34-5
1,1,2-Trichloroethane	ND *	ug/kg	3600	EPA Method 8260	01	79-00-5
1,1-Dichloroethane	ND *	ug/kg	3600	EPA Method 8260	01	75-34-3
1,1-Dichloroethene	ND *	ug/kg	3600	EPA Method 8260	01	75-35-4
1,1-Dichloropropene	ND *	ug/kg	3600	EPA Method 8260	01	563-58-6

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 331583

Results for Sample 331583

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
1,2,3-Tichlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	87-61-6
1,2,3-Trichloropropane	ND *	ug/kg	3600	EPA Method 8260	01	96-18-4
1,2,4-Trichlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	120-82-1
1,2,4-Trimethylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	95-63-6
1,2-Dibromo-3-chloropropane	ND *	ug/kg	3600	EPA Method 8260	01	96-12-8
1,2-Dibromoethane	ND *	ug/kg	3600	EPA Method 8260	01	106-93-4
1,2-Dichlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	95-50-1
1,2-Dichloroethane	ND *	ug/kg	3600	EPA Method 8260	01	107-06-2
1,2-Dichloropropane	ND *	ug/kg	3600	EPA Method 8260	01	78-87-5
1,3,5-Trimethylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	108-67-8
1,3-Dichlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	541-73-1
1,3-Dichloropropane	ND *	ug/kg	3600	EPA Method 8260	01	142-28-9
1,4-Dichlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	106-46-7
2,2-Dichloropropane	ND *	ug/kg	3600	EPA Method 8260	01	594-20-7
2-Chloroethylvinyl ether	ND *	ug/kg	3600	EPA Method 8260	01	110-75-8
2-Chlorotoluene	ND *	ug/kg	3600	EPA Method 8260	01	95-49-8
4-Chlorotoluene	ND *	ug/kg	3600	EPA Method 8260	01	106-43-4
Acrolein	ND *	ug/kg	36000	EPA Method 8260	01	107-02-8
Acrylonitrile	ND *	ug/kg	14000	EPA Method 8260	01	107-13-1
Benzene	ND *	ug/kg	3600	EPA Method 8260	01	71-43-2
Bromobenzene	ND *	ug/kg	3600	EPA Method 8260	01	108-86-1
Bromochloromethane	ND *	ug/kg	3600	EPA Method 8260	01	74-97-5
Bromodichloromethane	ND *	ug/kg	3600	EPA Method 8260	01	75-27-4
Bromoform	ND *	ug/kg	7100	EPA Method 8260	01	75-25-2
Bromomethane	ND *	ug/kg	3600	EPA Method 8260	01	74-83-9
Carbon Tetrachloride	ND *	ug/kg	3600	EPA Method 8260	01	56-23-5
Chlorobenzene	ND *	ug/kg	3600	EPA Method 8260	01	108-90-7
Chloroethane	ND *	ug/kg	3600	EPA Method 8260	01	75-00-3
Chloroform	ND *	ug/kg	3600	EPA Method 8260	01	67-66-3
Chloromethane	ND *	ug/kg	3600	EPA Method 8260	01	74-87-3
Cis-1,2-Dichloroethene	ND *	ug/kg	3600	EPA Method 8260	01	156-59-2
Dibromochloromethane	ND *	ug/kg	3600	EPA Method 8260	01	75-27-4
Dibromomethane	ND *	ug/kg	3600	EPA Method 8260	01	74-95-3
Dichlorodiflouromethane	ND *	ug/kg	3600	EPA Method 8260	01	75-71-8
Ethyl benzene	ND *	ug/kg	3600	EPA Method 8260	01	100-41-4
Hexachlorobutadiene	ND *	ug/kg	3600	EPA Method 8260	01	87-68-3
Isopropyl Benzene	ND *	ug/kg	3600	EPA Method 8260	01	98-82-8

Continued

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THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 331583

Results for Sample 331583

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
Methyl Ethyl Ketone	ND *	ug/kg	36000	EPA Method 8260	01	78-93-3
Methyl Isobutyl Ketone	ND *	ug/kg	3600	EPA Method 8260	01	108-10-1
Methylene Chloride	ND *	ug/kg	3600	EPA Method 8260	01	75-09-2
Naphthalene	ND *	ug/kg	3600	EPA Method 8260	01	91-20-3
Styrene	ND *	ug/kg	3600	EPA Method 8260	01	100-42-5
Tetrachloroethene	ND *	ug/kg	3600	EPA Method 8260	01	127-18-4
Toluene	ND *	ug/kg	3600	EPA Method 8260	01	108-88-3
Trichloroethene	ND *	ug/kg	3600	EPA Method 8260	01	79-01-6
Trichlorofluoromethane	ND *	ug/kg	3600	EPA Method 8260	01	75-69-4
Vinyl Chloride	ND *	ug/kg	3600	EPA Method 8260	01	75-01-4
Xylenes	ND *	ug/kg	3600	EPA Method 8260	01	95-47-6, etc.
cis-1,3-Dichloropropene	ND *	ug/kg	3600	EPA Method 8260	01	10061-01-5
n-Butylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	104-51-8
n-Propylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	103-65-1
p-Isopropyltoluene	ND *	ug/kg	3600	EPA Method 8260	01	25155-15-1
sec-Butylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	135-98-8
tert-Butylbenzene	ND *	ug/kg	3600	EPA Method 8260	01	98-06-6
trans-1,2-Dichloroethene	ND *	ug/kg	3600	EPA Method 8260	01	156-60-5
trans-1,3-Dichloropropene	ND *	ug/kg	3600	EPA Method 8260	01	10061-02-6
Reactivity	Non-Reactive			SW-846		
Reactivity Sulfide (RL 500)	560 *	mg/kg	140	SW-846 7.3.4	04	
Corrosivity (Reg. Limit 6.4)	non-corrosive			SW-846 Ch 7, 7.2.2	01	

Sample Preparation Steps for 331583

PARAMETER	RESULTS	DATE	TIME	TECH
As Received to Dry Weight Basis	Converted	10/24/96	10:13	WJP
Metals Digestion - Solids	50/4	10/11/96	0600	KLG
Hydrocarbon Sonication Extract.	100/30	10/08/96	0900	LMB
Metals Digestion - Hg Solid	50/1 S/B/A	10/10/96	0800	KLG
Volatile Hydrocarbons by GC/MS	Verified	10/10/96	1717	KLB
Reactivity Distillation	250/10	10/09/96	1900	PCT

Bottle Data for Sample 331583

Bottle	Derived in Lab From

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

OS368S1(A)

27CES/CEV
111 Engineers Way
Contr. F2960594A0014
Cannon AFB, NM 88103-5136
Attention: Paige Wilson

TEST REPORT: 331582

Sample Identification: ***Call 678***
Date & Time Taken: ***10/04/96***
Collected By: ***MG***
Sample Matrix: ***Organic Liquid***
Received: ***10/07/96*** *Client:* ***CAFB*** *Report Date:* ***10/24/96***

Results for Sample 331582

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
Total Petroleum Hydrocarbon	4300	mg/l	200	EPA Method 418.1	06	
Ignitibility (Reg.Limit 140.0 F)	>180	degrees F		EPA 1010	03	
pH Measured in Water	9.2	SU		EPA 9045 B	01	
Total Arsenic	ND	mg/kg	1	EPA Method 6010	07	7440-38-2
Total Barium	0.16	mg/kg	0.1	EPA Method 6010	07	7440-39-3
Total Cadmium	ND	mg/kg	0.1	EPA Method 6010	07	7440-43-9
Total Chromium	ND	mg/kg	0.2	EPA Method 6010	07	7440-47-3
Total Lead	ND	mg/kg	1	EPA Method 6010	07	7439-92-1
Total Selenium	ND	mg/kg	1	EPA Method 6010	07	7782-49-2
Total Silver	ND	mg/kg	0.1	EPA Method 6010	07	7440-22-4
Reactivity Cyanide (RL 250)	ND	mg/kg	10	EPA Method 7.3.3	04	
Total Mercury	ND	mg/kg	0.025	EPA Method 7470	05	7439-97-6
1,1,1,2-Tetrachloroethane	ND	ug/kg	250	EPA Method 8260	01	630-20-6
1,1,1-Trichloroethane	ND	ug/kg	250	EPA Method 8260	01	71-55-6
1,1,2,2-Tetrachloroethane	ND	ug/kg	250	EPA Method 8260	01	79-34-5
1,1,2-Trichloroethane	ND	ug/kg	250	EPA Method 8260	01	79-00-5
1,1-Dichloroethane	ND	ug/kg	250	EPA Method 8260	01	75-34-3
1,1-Dichloroethene	ND	ug/kg	250	EPA Method 8260	01	75-35-4
1,1-Dichloropropene	ND	ug/kg	250	EPA Method 8260	01	563-58-6
1,2,3-Tichlorobenzene	ND	ug/kg	250	EPA Method 8260	01	87-61-6
1,2,3-Trichloropropane	ND	ug/kg	250	EPA Method 8260	01	96-18-4

Continued

ANA·LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 331582

Results for Sample 331582

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
1,2,4-Trichlorobenzene	ND	ug/kg	250	EPA Method 8260	01	120-82-1
1,2,4-Trimethylbenzene	ND	ug/kg	250	EPA Method 8260	01	95-63-6
1,2-Dibromo-3-chloropropane	ND	ug/kg	250	EPA Method 8260	01	96-12-8
1,2-Dibromoethane	ND	ug/kg	250	EPA Method 8260	01	106-93-4
1,2-Dichlorobenzene	ND	ug/kg	250	EPA Method 8260	01	95-50-1
1,2-Dichloroethane	ND	ug/kg	250	EPA Method 8260	01	107-06-2
1,2-Dichloropropane	ND	ug/kg	250	EPA Method 8260	01	78-87-5
1,3,5-Trimethylbenzene	ND	ug/kg	250	EPA Method 8260	01	108-67-8
1,3-Dichlorobenzene	ND	ug/kg	250	EPA Method 8260	01	541-73-1
1,3-Dichloropropane	ND	ug/kg	250	EPA Method 8260	01	142-28-9
1,4-Dichlorobenzene	ND	ug/kg	250	EPA Method 8260	01	106-46-7
2,2-Dichloropropane	ND	ug/kg	250	EPA Method 8260	01	594-20-7
2-Chloroethylvinyl ether	ND	ug/kg	250	EPA Method 8260	01	110-75-8
2-Chlorotoluene	ND	ug/kg	250	EPA Method 8260	01	95-49-8
4-Chlorotoluene	ND	ug/kg	250	EPA Method 8260	01	106-43-4
Acrolein	ND	ug/kg	2500	EPA Method 8260	01	107-02-8
Acrylonitrile	ND	ug/kg	1000	EPA Method 8260	01	107-13-1
Benzene	ND	ug/kg	250	EPA Method 8260	01	71-43-2
Bromobenzene	ND	ug/kg	250	EPA Method 8260	01	108-86-1
Bromochloromethane	ND	ug/kg	250	EPA Method 8260	01	74-97-5
Bromodichloromethane	ND	ug/kg	250	EPA Method 8260	01	75-27-4
Bromoform	ND	ug/kg	500	EPA Method 8260	01	75-25-2
Bromomethane	ND	ug/kg	250	EPA Method 8260	01	74-83-9
Carbon Tetrachloride	ND	ug/kg	250	EPA Method 8260	01	56-23-5
Chlorobenzene	ND	ug/kg	250	EPA Method 8260	01	108-90-7
Chloroethane	ND	ug/kg	250	EPA Method 8260	01	75-00-3
Chloroform	ND	ug/kg	250	EPA Method 8260	01	67-66-3
Chloromethane	ND	ug/kg	250	EPA Method 8260	01	74-87-3
Cis-1,2-Dichloroethene	ND	ug/kg	250	EPA Method 8260	01	156-59-2
Dibromochloromethane	ND	ug/kg	250	EPA Method 8260	01	75-27-4
Dibromomethane	ND	ug/kg	250	EPA Method 8260	01	74-95-3
Dichlorodiflouromethane	ND	ug/kg	250	EPA Method 8260	01	75-71-8
Ethyl benzene	ND	ug/kg	250	EPA Method 8260	01	100-41-4
Hexachlorobutadiene	ND	ug/kg	250	EPA Method 8260	01	87-68-3
Isopropyl Benzene	ND	ug/kg	250	EPA Method 8260	01	98-82-8
Methyl Ethyl Ketone	ND	ug/kg	2500	EPA Method 8260	01	78-93-3
Methyl Isobutyl Ketone	ND	ug/kg	250	EPA Method 8260	01	108-10-1

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 331582

Results for Sample 331582

PARAMETER	RESULTS	UNITS	EQL	METHOD	BOTTLE	CAS
Methylene Chloride	ND	ug/kg	250	EPA Method 8260	01	75-09-2
Naphthalene	ND	ug/kg	250	EPA Method 8260	01	91-20-3
Styrene	ND	ug/kg	250	EPA Method 8260	01	100-42-5
Tetrachloroethene	ND	ug/kg	250	EPA Method 8260	01	127-18-4
Toluene	ND	ug/kg	250	EPA Method 8260	01	108-88-3
Trichloroethene	ND	ug/kg	250	EPA Method 8260	01	79-01-6
Trichlorofluoromethane	ND	ug/kg	250	EPA Method 8260	01	75-69-4
Vinyl Chloride	ND	ug/kg	250	EPA Method 8260	01	75-01-4
Xylenes	ND	ug/kg	250	EPA Method 8260	01	95-47-6, etc.
cis-1,3-Dichloropropene	ND	ug/kg	250	EPA Method 8260	01	10061-01-5
n-Butylbenzene	ND	ug/kg	250	EPA Method 8260	01	104-51-8
n-Propylbenzene	ND	ug/kg	250	EPA Method 8260	01	103-65-1
p-Isopropyltoluene	ND	ug/kg	250	EPA Method 8260	01	25155-15-1
sec-Butylbenzene	ND	ug/kg	250	EPA Method 8260	01	135-98-8
tert-Butylbenzene	ND	ug/kg	250	EPA Method 8260	01	98-06-6
trans-1,2-Dichloroethene	ND	ug/kg	250	EPA Method 8260	01	156-60-5
trans-1,3-Dichloropropene	ND	ug/kg	250	EPA Method 8260	01	10061-02-6
Reactivity	Non-Reactive			SW-846		
Reactivity Sulfide (RL 500)	ND	mg/kg	100	SW-846 7.3.4	04	
Corrosivity (Reg. Limit 6.4)	non-corrosive			SW-846 Ch 7, 7.2.2	01	

Sample Preparation Steps for 331582

PARAMETER	RESULTS	DATE	TIME	TECH
Reactivity with Water	NON-REACTIVE	10/08/96	1135	RHC
Metals Digestion - Organic Liq	50/4	10/18/96	1430	PJD
Hydrocarbon Liquid Extraction	200/730	10/13/96	0730	WMB
Metal Digestion - 7471	50/1	10/10/96	0800	KLG
Volatile Hydrocarbons by GC/MS	Verified	10/11/96	1143	KLB
Reactivity Distillation	250/10	10/09/96	1900	PCT

Bottle Data for Sample 331582

Bottle	Derived in Lab From
#01 - Unpreserved Glass	

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

OS 368 SIC

27CES/CEV
111 Engineers Way
Contr. F2960594A0014
Cannon AFB, NM 88103-5136
Attention: Paige Wilson

TEST REPORT: 337778

Sample Identification: ***Call 755***
Date & Time Taken: ***01/17/97***
Collected By: ***JF***
Sample Matrix: ***Solid***
Received: ***01/19/97*** *Client:* ***CAFB*** *Report Date:* ***01/30/97***

Results for Sample 337778

PARAMETER	RESULTS	UNITS	EQL	METHOD	VIAL	ANALYZED	BY
Ignitibility (Reg.Limit 140.0 F)	>180	degrees F		EPA 1010	01	01/20/97 1430	BRB
pH Measured in Water	6.9	SU		EPA 9045 B	01	01/22/97 2205	LMK
TCLP Arsenic (Reg. Limit 5.0)	ND	mg/l	0.500	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Barium (Reg. Limit 100.0)	1.3	mg/l	0.0500	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Cadmium (Reg. Limit 1.0)	ND	mg/l	0.0500	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Chromium (Reg. Limit 5.0)	ND	mg/l	0.100	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Lead (Reg. Limit 5.0)	ND	mg/l	0.250	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Selenium (Reg. Limit 1.0)	ND	mg/l	0.350	EPA Method 6010	09	01/28/97 0903	WOB
TCLP Silver (Reg. Limit 5.0)	ND	mg/l	0.0500	EPA Method 6010	09	01/28/97 0903	WOB
Reactivity Cyanide (RL 250)	ND	mg/kg	10	EPA Method 7.3.3	03	01/24/97 0900	RSV
TCLP Mercury (Reg. Limit 0.2)	ND	mg/l	0.0005	EPA Method 7470	07	01/28/97 0945	GDG
Reactivity	Reactive			SW-846		01/29/97 1400	SKL
Reactivity Sulfide (RL 500)	1400	mg/kg	1000	SW-846 7.3.4	03	01/23/97 0900	RSV
Corrosivity (Reg. Limit 6.4)	Non-Corrosive			SW-846 Ch 7, 7.2.2	01	01/23/97 2130	BRB

Sample Preparation Steps for 337778

PARAMETER	RESULTS	DATE	TIME	TECH
Reactivity with Water	NON-REACTIVE	01/28/97	1300	EAH
TCLP Extraction: Non-Volatile	SOLID EXT #1	01/21/97	1400	EAH

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Sample Preparation Steps for 337778

PARAMETER	RESULTS	DATE	TIME	TECH
Metals Digestion TCLP 3010	50/10 A/S	01/27/97	1830	PJD
Metals Digestion - TCLP 7470	50/50 A/S	01/27/97	1100	KLG
Fax This Report AS Soon As DONE!	FAXED	01/29/97	17:41	KEK
Reactivity Distillation	250/10 A/B	01/20/97	1500	PCT

Bottle Data for Sample 337778

Bottle	Derived in Lab From
#01 - Unpreserved Glass	
#02 - Unpreserved Glass	
#03 - TRAACS Autosampler vial	01 (10 g)
#04 - TRAACS Autosampler vial	01 (10 g)
#05 - TCLP Extract	01 (100 G)
#06 - TCLP Extract for Metals	05 (500 MLS)
#07 - Mercury Preparation	06 (50 ml)
#08 - Mercury Preparation	06 (50 ml)
#09 - ICP Preparation	06 (10 ml)
#10 - ICP Preparation	06 (10 ml)

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
	Ignitibility (Reg.Limit 140.0 F) (Analyzed: 01/20/97 1430 BRB Verified: 01/21/97 11:12 SAH)				
	Standard	84	81	degrees F	104
337528	Duplicate	<39	<39	degrees F	
	Reactivity Cyanide (RL 250) (Analyzed: 01/24/97 0900 RSV Verified: 01/24/97 15:59 NGT)				
	Blank	<0.02		ppm	
	Blank	<0.02		ppm	
	Standard	0.21	0.20	ppm	105
	Standard	0.40	0.40	ppm	100
	Standard	0.40	0.40	ppm	100
	Standard	0.40	0.40	ppm	100
337371	Duplicate	ND	ND	mg/kg	
337778	Duplicate	ND	ND	mg/kg	
337896	Duplicate	ND	ND	mg/l	
337958	Duplicate	ND	ND	mg/kg	
R16158	Duplicate	ND	ND	mg/l	
337900	Spike		.06	ppm	120
R16161	Spike		.06	ppm	110
LCS	LCS	0.0517	.05	ppm	103
LCS	LCS	0.0543	.05	ppm	109

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
	Reactivity Sulfide (RL 500) (Analyzed: 01/23/97 0900 RSV Verified: 01/24/97 16:28 NGT)				
	Standard	2.8	3.0	ppm	93
	Standard	5.0	5.0	ppm	100
337371	Duplicate	ND	ND	mg/kg	
337778	Duplicate	1310	1480	mg/kg	12
	TCLP Arsenic (Reg. Limit 5.0) (Analyzed: 01/28/97 0903 WOB Verified: 01/29/97 17:36 NGT)				
	Blank	<.1		ppm	
	Standard	9.83	10.0	ppm	98
	Standard	1.04	1.00	ppm	104
	Standard	0.999	1.00	ppm	100
	Standard	0.993	1.00	ppm	99
	Standard	1.03	1.00	ppm	103
	Standard	1.00	1.00	ppm	100
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	ND	ND	mg/l	
337513	Spike		5.00	ppm	100
337742	Spike		5.00	ppm	100
337773	Spike		5.00	ppm	98
337774	Spike		5.00	ppm	99
337776	Spike		5.00	ppm	98
337777	Spike		5.00	ppm	95
337778	Spike		5.00	ppm	98
337779	Spike		5.00	ppm	100
337780	Spike		5.00	ppm	97
337785	Spike		5.00	ppm	98
337789	Spike		5.00	ppm	95
337795	Spike		5.00	ppm	99
337958	Spike		5.00	ppm	100
337959	Spike		5.00	ppm	98
337960	Spike		5.00	ppm	97
337961	Spike		5.00	ppm	102
337962	Spike		5.00	ppm	97
R16176	Spike		5.00	ppm	102
	LCS	4.73	5.00	ppm	95
	TCLP Barium (Reg. Limit 100.0) (Analyzed: 01/28/97 0903 WOB Verified: 01/29/97 17:36 NGT)				
	Blank	<.01		ppm	
	Standard	10.0	10.0	ppm	100
	Standard	1.05	1.00	ppm	105
	Standard	1.03	1.00	ppm	103
	Standard	1.02	1.00	ppm	102
	Standard	1.04	1.00	ppm	104
	Standard	1.01	1.00	ppm	101
337513	Duplicate	0.510	0.490	mg/l	4
337779	Duplicate	0.635	0.195	mg/l	106
337513	Spike		5.00	ppm	102
337742	Spike		5.00	ppm	100
337773	Spike		5.00	ppm	101
337774	Spike		5.00	ppm	101
337776	Spike		5.00	ppm	99
337777	Spike		5.00	ppm	98
337778	Spike		5.00	ppm	99
337779	Spike		5.00	ppm	100

Continued

ANA·LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
337780	Spike		5.00	ppm	102
337785	Spike		5.00	ppm	99
337789	Spike		5.00	ppm	101
337795	Spike		5.00	ppm	100
337958	Spike		5.00	ppm	100
337959	Spike		5.00	ppm	101
337960	Spike		5.00	ppm	99
337961	Spike		5.00	ppm	100
337962	Spike		5.00	ppm	101
R16176	Spike		5.00	ppm	101
	LCS	4.89	5.00	ppm	98
TCLP Cadmium (Reg. Limit 1.0)	**(Analyzed: 01/28/97 0903 WOB**		**Verified: 01/29/97 17:36 NGT)**		
	Blank	<.01		ppm	
	Standard	4.98	5.00	ppm	100
	Standard	0.533	0.500	ppm	107
	Standard	0.521	0.500	ppm	104
	Standard	0.508	0.500	ppm	102
	Standard	0.530	0.500	ppm	106
	Standard	0.507	0.500	ppm	101
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	0.0550	0.0600	mg/l	9
337513	Spike		1.000	ppm	108
337742	Spike		1.000	ppm	106
337773	Spike		1.000	ppm	103
337774	Spike		1.000	ppm	99
337776	Spike		1.000	ppm	108
337777	Spike		1.000	ppm	98
337778	Spike		1.000	ppm	103
337779	Spike		1.000	ppm	109
337780	Spike		1.000	ppm	105
337785	Spike		1.000	ppm	103
337789	Spike		1.000	ppm	101
337795	Spike		1.000	ppm	102
337958	Spike		1.000	ppm	107
337959	Spike		1.000	ppm	104
337960	Spike		1.000	ppm	101
337961	Spike		1.000	ppm	110
337962	Spike		1.000	ppm	105
R16176	Spike		1.000	ppm	106
	LCS	1.07	1.000	ppm	107
TCLP Chromium (Reg. Limit 5.0)	**(Analyzed: 01/28/97 0903 WOB**		**Verified: 01/29/97 17:36 NGT)**		
	Blank	<.02		ppm	
	Standard	10.0	10.0	ppm	100
	Standard	1.02	1.00	ppm	102
	Standard	1.00	1.00	ppm	100
	Standard	0.975	1.00	ppm	98
	Standard	1.01	1.00	ppm	101
	Standard	0.971	1.00	ppm	97
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	ND	ND	mg/l	
337513	Spike		5.00	ppm	99
337742	Spike		5.00	ppm	98

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
337773	Spike		5.00	ppm	97
337774	Spike		5.00	ppm	99
337776	Spike		5.00	ppm	98
337777	Spike		5.00	ppm	94
337778	Spike		5.00	ppm	98
337779	Spike		5.00	ppm	101
337780	Spike		5.00	ppm	100
337785	Spike		5.00	ppm	98
337789	Spike		5.00	ppm	98
337795	Spike		5.00	ppm	98
337958	Spike		5.00	ppm	98
337959	Spike		5.00	ppm	101
337960	Spike		5.00	ppm	97
337961	Spike		5.00	ppm	100
337962	Spike		5.00	ppm	100
R16176	Spike		5.00	ppm	101
	LCS	4.90	5.00	ppm	98
TCLP Lead (Reg. Limit 5.0) (Analyzed: 01/28/97 0903 WOB Verified: 01/29/97 17:36 NGT)					
	Blank	<.05		ppm	
	Standard	10.1	10.0	ppm	101
	Standard	1.06	1.00	ppm	106
	Standard	1.03	1.00	ppm	103
	Standard	1.04	1.00	ppm	104
	Standard	1.06	1.00	ppm	106
	Standard	1.01	1.00	ppm	101
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	ND	ND	mg/l	
337513	Spike		5.00	ppm	104
337742	Spike		5.00	ppm	101
337773	Spike		5.00	ppm	102
337774	Spike		5.00	ppm	101
337776	Spike		5.00	ppm	102
337777	Spike		5.00	ppm	96
337778	Spike		5.00	ppm	101
337779	Spike		5.00	ppm	106
337780	Spike		5.00	ppm	104
337785	Spike		5.00	ppm	101
337789	Spike		5.00	ppm	102
337795	Spike		5.00	ppm	102
337958	Spike		5.00	ppm	104
337959	Spike		5.00	ppm	103
337960	Spike		5.00	ppm	100
337961	Spike		5.00	ppm	104
337962	Spike		5.00	ppm	103
R16176	Spike		5.00	ppm	101
	LCS	5.06	5.00	ppm	101
TCLP Mercury (Reg. Limit 0.2) (Analyzed: 01/28/97 0945 GDG Verified: 01/28/97 16:00 NGT)					
	Blank	<0.50		ppb	
	Standard	20.1	20.0	ppb	101
	Standard	5.04	5.00	ppb	101
	Standard	5.12	5.00	ppb	102
	Standard	4.72	5.00	ppb	94

ACCREDITED

Continued

MEMBER ACIL

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
337785	Duplicate	ND	0.000651	mg/l	200
337438	Spike		10.0	ppb	72
337513	Spike		10.0	ppb	81
337778	Spike		10.0	ppb	74
337779	Spike		10.0	ppb	67
337780	Spike		10.0	ppb	72
337785	Spike		10.0	ppb	77
337795	Spike		10.0	ppb	84
R16176	Spike		10.0	ppb	87
	LCS	7.03	10.0	ppb	70
	TCLP Selenium (Reg. Limit 1.0)	**(Analyzed: 01/28/97 0903 WOB**		**Verified: 01/29/97 17:36 NGT)**	
	Blank	<.07		ppm	
	Standard	10.4	10.0	ppm	104
	Standard	1.07	1.00	ppm	107
	Standard	1.02	1.00	ppm	102
	Standard	1.02	1.00	ppm	102
	Standard	1.00	1.00	ppm	100
	Standard	1.03	1.00	ppm	103
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	ND	ND	mg/l	
337513	Spike		1.00	ppm	101
337742	Spike		1.00	ppm	104
337773	Spike		1.00	ppm	104
337774	Spike		1.00	ppm	96
337776	Spike		1.00	ppm	101
337777	Spike		1.00	ppm	100
337778	Spike		1.00	ppm	97
337779	Spike		1.00	ppm	102
337780	Spike		1.00	ppm	96
337785	Spike		1.00	ppm	96
337789	Spike		1.00	ppm	101
337795	Spike		1.00	ppm	98
337958	Spike		1.00	ppm	102
337959	Spike		1.00	ppm	102
337960	Spike		1.00	ppm	99
337961	Spike		1.00	ppm	105
337962	Spike		1.00	ppm	99
R16176	Spike		1.00	ppm	102
	LCS	1.03	1.00	ppm	103
	TCLP Silver (Reg. Limit 5.0)	**(Analyzed: 01/28/97 0903 WOB**		**Verified: 01/29/97 17:36 NGT)**	
	Blank	<.01		ppm	
	Standard	1.97	2.00	ppm	99
	Standard	0.201	0.200	ppm	101
	Standard	0.198	0.200	ppm	99
	Standard	0.201	0.200	ppm	101
	Standard	0.201	0.200	ppm	101
	Standard	0.196	0.200	ppm	98
337513	Duplicate	ND	ND	mg/l	
337779	Duplicate	ND	ND	mg/l	
337513	Spike		1.000	ppm	105
337742	Spike		1.000	ppm	103
337773	Spike		1.000	ppm	100

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P. O. BOX 9000 – KILGORE, TEXAS 75663-9000 – 903/984-0551 – FAX 903/984-5914

Analytical Chemistry • Utility Operations

TEST REPORT: 337778

Quality Assurance for the SET with Sample 337778

Sample	Description	Result	Value	Units	%
337774	Spike		1.000	ppm	106
337776	Spike		1.000	ppm	101
337777	Spike		1.000	ppm	101
337778	Spike		1.000	ppm	100
337779	Spike		1.000	ppm	102
337780	Spike		1.000	ppm	104
337785	Spike		1.000	ppm	100
337789	Spike		1.000	ppm	100
337795	Spike		1.000	ppm	102
337958	Spike		1.000	ppm	100
337959	Spike		1.000	ppm	102
337960	Spike		1.000	ppm	100
337961	Spike		1.000	ppm	100
337962	Spike		1.000	ppm	101
R16176	Spike		1.000	ppm	104
	LCS	1.03	1.000	ppm	103
	pH Measured in Water (Analyzed: 01/22/97 2205 LMK Verified: 01/23/97 11:41 NGT)				
	Standard	Calibrate	7.00	SU	0
	Standard	Calibrate	4.00	SU	0
	Standard	5.97	6.00	SU	100
	Standard	7.01	7.00	SU	100
	Standard	4.01	4.00	SU	100
	Standard	5.98	6.00	SU	100
P10154	Duplicate	6.9	6.9	SU	0

Bottle Tracking for Sample 337778

Bottle #: 03 TRAACS Autosampler vial			
01/20/97	1500	PCT	Distillation/Extraction lab
01/20/97	15:55	PCT	Main Walk In Cooler
Bottle #: 04 TRAACS Autosampler vial			
01/20/97	1500	PCT	Distillation/Extraction lab
01/20/97	15:55	PCT	Main Walk In Cooler
Bottle #: 07 Mercury Preparation			
01/27/97	1100	KLG	Wet Lab - Bldg1
01/27/97	13:53	KLG	Instrument Room 1
Bottle #: 08 Mercury Preparation			
01/27/97	1100	KLG	Wet Lab - Bldg1
01/27/97	13:54	KLG	Instrument Room 1
Bottle #: 09 ICP Preparation			
01/27/97	1830	PJD	Wet Lab - Bldg1
01/27/97	19:01	PJD	Instrument Room 1
Bottle #: 10 ICP Preparation			
01/27/97	1830	PJD	Wet Lab - Bldg1
01/27/97	19:01	PJD	Instrument Room 1

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CAS is Chemical Abstract Service Registry Number. EQL is Estimated Quantitation Limit. The EQL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL). Our analytical result must be above our EQL before we report a value for any parameter. Otherwise, we report ND (Not Detected above EQL).

I certify that the results were generated using the above specified methods.

Bill Peery, Jr., M.S., Lab Manager

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TEST REPORT: 378458

27CES/CEV
506 N. D.L. Ingram
Contr. F2960594A0014
Cannon AFB, NM 88103-5136
Attention: Tommy Downing

28 JUL 1998

Sample Identification: ***Call 1208***
Date & Time Taken: ***07/14/1998*** ***1140***
Collected By: ***MS***
Sample Matrix: ***Organic Liquid***
Received: ***07/15/1998*** *Client:* ***CAFB*** *Report Date:* ***07/25/1998***

Results for Sample 378458

	Parameter	Result	Unit	MAL
001	Total Petroleum Hydrocarbon	4100	mg/L	60
002	Total Solids	1.25	%	.1
003	pH Measured in Water	8.2	SU	
004	Flash Point (Reg. Limit 140.0 F)	> 200	Degrees F	
005	Total Arsenic	ND	mg/kg	0.625
006	Total Barium	0.600	mg/kg	0.125
007	Total Cadmium	ND	mg/kg	0.125
008	Total Chromium	ND	mg/kg	0.250
009	Total Lead	ND	mg/kg	0.625
010	Total Selenium	ND	mg/kg	0.625
011	Total Silver	ND	mg/kg	0.125
012	Reactivity Cyanide (RL 250)	ND	mg/kg	4.0
013	Total Mercury	ND	mg/kg	0.0100
014	Volatile Halogenated Organics	Verified		
015	Bromobenzene	ND	ug/kg	50.0
016	Bromochloromethane	ND	ug/kg	50.0
017	Bromodichloromethane	ND	ug/kg	50.0
018	Bromoform	ND	ug/kg	100
019	Bromomethane (Methyl Bromide)	ND	ug/kg	50.0
020	Carbon Tetrachloride	ND	ug/kg	50.0
021	Chlorobenzene	ND	ug/kg	50.0
022	Chloroethane	ND	ug/kg	50.0
023	2-Chloroethylvinyl ether	ND	ug/kg	50.0
024	Chloroform	ND	ug/kg	50.0
025	Chloromethane (Methyl Chloride)	ND	ug/kg	50.0
026	2-Chlorotoluene	ND	ug/kg	50.0
027	4-Chlorotoluene	ND	ug/kg	50.0
028	Dibromochloromethane	ND	ug/kg	50.0
029	1,2-Dibromoethane	ND	ug/kg	50.0

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Results for Sample 378458

	Parameter	Result	Unit	MAL
030	Dibromomethane	ND	ug/kg	50.0
031	1,3-Dichlorobenzene	ND	ug/kg	50.0
032	1,2-Dichlorobenzene	ND	ug/kg	50.0
033	1,4-Dichlorobenzene	ND	ug/kg	50.0
034	Dichlorodifluoromethane	ND	ug/kg	50.0
035	1,1-Dichloroethane	ND	ug/kg	50.0
036	1,2-Dichloroethane	ND	ug/kg	50.0
037	trans-1,2-Dichloroethene	ND	ug/kg	50.0
038	cis-1,2-Dichloroethene	ND	ug/kg	50.0
039	1,1-Dichloroethylene	ND	ug/kg	50.0
040	1,2-Dichloropropane	ND	ug/kg	50.0
041	2,2-Dichloropropane	ND	ug/kg	50.0
042	1,3-Dichloropropane	ND	ug/kg	50.0
043	cis-1,3-Dichloropropene	ND	ug/kg	50.0
044	trans-1,3-Dichloropropene	ND	ug/kg	50.0
045	1,1-Dichloropropene	ND	ug/kg	50.0
046	Hexachlorobutadiene	ND	ug/kg	50.0
047	Methylene Chloride	ND	ug/kg	50.0
048	1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0
049	1,1,1,2-Tetrachloroethane	ND	ug/kg	50.0
050	Tetrachloroethylene	73.7	ug/kg	50.0
051	1,2,4-Trichlorobenzene	ND	ug/kg	50.0
052	1,2,3-Trichlorobenzene	ND	ug/kg	50.0
053	1,1,1-Trichloroethane	ND	ug/kg	50.0
054	1,1,2-Trichloroethane	ND	ug/kg	50.0
055	Trichloroethylene	ND	ug/kg	50.0
056	Trichlorofluoromethane	ND	ug/kg	50.0
057	1,2,3-Trichloropropane	ND	ug/kg	50.0
058	Vinyl Chloride	ND	ug/kg	50.0
059	1,2-Dibromo-3-chloropropane	ND	ug/kg	50.0
060	Reactivity	Non-Reactive		
061	Reactivity Sulfide (RL 500)	ND	mg/kg	10
062	Corrosivity	Non-corrosive		

Analytical Details for Sample 378458

	Parameter	CAS	Method	Bottle	Analyzed	By
001	Total Petroleum Hydrocarbon		EPA Method 418.1	06	07/21/1998	KLB
002	Total Solids		APHA 18th 2540 G	01	07/21/1998	BAP
003	pH Measured in Water		EPA 9045B	01	07/22/1998	LMK
004	Flash Point (Reg. Limit 140.0 F)		EPA Method 1010	02	07/22/1998	BAP

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Analytical Details for Sample 378458

	Parameter	CAS	Method	Bottle	Analyzed	By
005	Total Arsenic	7440-38-2	EPA Method 6010B	04	07/21/1998	WOB
006	Total Barium	7440-39-3	EPA Method 6010B	04	07/21/1998	WOB
007	Total Cadmium	7440-43-9	EPA Method 6010B	04	07/21/1998	WOB
008	Total Chromium	7440-47-3	EPA Method 6010B	04	07/21/1998	WOB
009	Total Lead	7439-92-1	EPA Method 6010B	04	07/21/1998	WOB
010	Total Selenium	7782-49-2	EPA Method 6010B	04	07/21/1998	WOB
011	Total Silver	7440-22-4	EPA Method 6010B	04	07/21/1998	WOB
012	Reactivity Cyanide (RL 250)		EPA Method 7.3.3	05	07/20/1998	RSV
013	Total Mercury	7439-97-6	EPA Method 7471A	03	07/17/1998	WOB
014	Volatile Halogenated Organics		EPA Method 8260		07/16/1998	FGO
015	Bromobenzene	108-86-1	EPA Method 8260B	01	07/16/1998	FGO
016	Bromochloromethane	74-97-5	EPA Method 8260B	01	07/16/1998	FGO
017	Bromodichloromethane	75-27-4	EPA Method 8260B	01	07/16/1998	FGO
018	Bromoform	75-25-2	EPA Method 8260B	01	07/16/1998	FGO
019	Bromomethane (Methyl Bromide)	74-83-9	EPA Method 8260B	01	07/16/1998	FGO
020	Carbon Tetrachloride	56-23-5	EPA Method 8260B	01	07/16/1998	FGO
021	Chlorobenzene	108-90-7	EPA Method 8260B	01	07/16/1998	FGO
022	Chloroethane	75-00-3	EPA Method 8260B	01	07/16/1998	FGO
023	2-Chloroethylvinyl ether	110-75-8	EPA Method 8260B	01	07/16/1998	FGO
024	Chloroform	67-66-3	EPA Method 8260B	01	07/16/1998	FGO
025	Chloromethane (Methyl Chloride)	74-87-3	EPA Method 8260B	01	07/16/1998	FGO
026	2-Chlorotoluene	95-49-8	EPA Method 8260B	01	07/16/1998	FGO
027	4-Chlorotoluene	106-43-4	EPA Method 8260B	01	07/16/1998	FGO
028	Dibromochloromethane	75-27-4	EPA Method 8260B	01	07/16/1998	FGO
029	1,2-Dibromoethane	106-93-4	EPA Method 8260B	01	07/16/1998	FGO
030	Dibromomethane	74-95-3	EPA Method 8260B	01	07/16/1998	FGO
031	1,3-Dichlorobenzene	541-73-1	EPA Method 8260B	01	07/16/1998	FGO
032	1,2-Dichlorobenzene	95-50-1	EPA Method 8260B	01	07/16/1998	FGO
033	1,4-Dichlorobenzene	106-46-7	EPA Method 8260B	01	07/16/1998	FGO
034	Dichlorodifluoromethane	75-71-8	EPA Method 8260B	01	07/16/1998	FGO
035	1,1-Dichloroethane	75-34-3	EPA Method 8260B	01	07/16/1998	FGO
036	1,2-Dichloroethane	107-06-2	EPA Method 8260B	01	07/16/1998	FGO
037	trans-1,2-Dichloroethene	156-60-5	EPA Method 8260B	01	07/16/1998	FGO
038	cis-1,2-Dichloroethene	156-59-2	EPA Method 8260B	01	07/16/1998	FGO
039	1,1-Dichloroethylene	75-35-4	EPA Method 8260B	01	07/16/1998	FGO
040	1,2-Dichloropropane	78-87-5	EPA Method 8260B	01	07/16/1998	FGO
041	2,2-Dichloropropane	594-20-7	EPA Method 8260B	01	07/16/1998	FGO
042	1,3-Dichloropropane	142-28-9	EPA Method 8260B	01	07/16/1998	FGO
043	cis-1,3-Dichloropropene	10061-01-5	EPA Method 8260B	01	07/16/1998	FGO
044	trans-1,3-Dichloropropene	10061-02-6	EPA Method 8260B	01	07/16/1998	FGO

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Analytical Details for Sample 378458

	Parameter	CAS	Method	Bottle	Analyzed	By
045	1,1-Dichloropropene	563-58-6	EPA Method 8260B	01	07/16/1998	FGO
046	Hexachlorobutadiene	87-68-3	EPA Method 8260B	01	07/16/1998	FGO
047	Methylene Chloride	75-09-2	EPA Method 8260B	01	07/16/1998	FGO
048	1,1,2,2-Tetrachloroethane	79-34-5	EPA Method 8260B	01	07/16/1998	FGO
049	1,1,1,2-Tetrachloroethane	630-20-6	EPA Method 8260B	01	07/16/1998	FGO
050	Tetrachloroethylene	127-18-4	EPA Method 8260B	01	07/16/1998	FGO
051	1,2,4-Trichlorobenzene	120-82-1	EPA Method 8260B	01	07/16/1998	FGO
052	1,2,3-Trichlorobenzene	87-61-6	EPA Method 8260B	01	07/16/1998	FGO
053	1,1,1-Trichloroethane	71-55-6	EPA Method 8260B	01	07/16/1998	FGO
054	1,1,2-Trichloroethane	79-00-5	EPA Method 8260B	01	07/16/1998	FGO
055	Trichloroethylene	79-01-6	EPA Method 8260B	01	07/16/1998	FGO
056	Trichlorofluoromethane	75-69-4	EPA Method 8260B	01	07/16/1998	FGO
057	1,2,3-Trichloropropane	96-18-4	EPA Method 8260B	01	07/16/1998	FGO
058	Vinyl Chloride	75-01-4	EPA Method 8260B	01	07/16/1998	FGO
059	1,2-Dibromo-3-chloropropane	96-12-8	EPA Method 8260B	01	07/16/1998	FGO
060	Reactivity		SW-846		07/25/1998	CAL
061	Reactivity Sulfide (RL 500)		SW-846 7.3.4	05	07/24/1998	RSV
062	Corrosivity		SW-846 Ch. 7, 7.2.2		07/23/1998	SKL

Sample Preparation Steps for 378458

Parameter	Result	Unit	Bottle	Date	Time	Tech
Reactivity with Water	NON REACTIVE		01	07/17/1998	1400	MWV
Metals Digestion - Solids	50/4	ml/g	02	07/17/1998	0900	FGO
Hydrocarbon Liquid Extraction	100/830	ml/ml	01	07/21/1998	1000	MWV
Metals Digestion - Hg Solid	50/1	mL/g	01	07/16/1998	1200	FGO
Reactivity Distillation	100/10	ml/g	01	07/20/1998	1000	FGO

Bottle Data for Sample 378458

Bottle	Derived in Lab From
#01 - Glass Qt. w/Teflon Lined Lid (Gray Label)	
#02 - Glass Qt. w/Teflon Lined Lid (Gray Label)	
#03 - Prepared Bottle: Mercury Preparation	01(1g)
#04 - Prepared Bottle: ICP Preparation	02(4g)
#05 - Prepared Bottle: CN TRAACS Autosampler Vial	01(10g)
#06 - Prepared Bottle: 40 mL VIAL EXTRACT	01(830ml)

Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Flash Point (Reg. Limit 140.0 F) (Analyzed: 07/22/1998 1000 BAP Verified: 07/22/1998 14:22 NGT)					
	Standard	82	81	degrees F	101
378212	Duplicate	192	190	degrees F	1

Total Silver (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)

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Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Total Silver (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0100		ppm	
	Blank	<0.0100		ppm	
	Blank	<0.0100		ppm	
	Standard	1.97	2.00	ppm	99
	Standard	0.987	1.00	ppm	99
	Standard	0.972	1.00	ppm	97
	Standard	0.984	1.00	ppm	98
	Standard	1.00	1.00	ppm	100
	Standard	0.993	1.00	ppm	99
	Standard	1.01	1.00	ppm	101
	Standard	1.03	1.00	ppm	103
378058	Duplicate	ND	ND	mg/kg	
378496	Duplicate	ND	ND	mg/kg	
378591	Duplicate	ND	ND	ug/L	
378790	Duplicate	ND	ND	ug/L	
378058	Spike		0.800	ppm	85
378496	Spike		0.800	ppm	88
378591	Spike		0.800	ppm	99
378790	Spike		0.800	ppm	98
	LCS	0.835	0.800	ppm	104
	LCS	0.811	0.800	ppm	101
	LCS	0.671	0.800	ppm	84
Total Arsenic (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Standard	9.72	10.0	ppm	97
	Standard	5.02	5.00	ppm	100
	Standard	4.90	5.00	ppm	98
	Standard	4.87	5.00	ppm	97
	Standard	4.99	5.00	ppm	100
	Standard	4.90	5.00	ppm	98
	Standard	5.05	5.00	ppm	101
	Standard	5.25	5.00	ppm	105
	Standard	4.67	5.00	ppm	93
	Standard	5.06	5.00	ppm	101
378058	Duplicate	2.51	2.21	mg/kg	13
378496	Duplicate	13.5	11.1	mg/kg	20
378591	Duplicate	ND	ND	ug/L	

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Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Total Arsenic (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
378790	Duplicate	ND	ND	ug/L	
378496	Spike		4.00	ppm	75
378591	Spike		4.00	ppm	94
378790	Spike		4.00	ppm	97
	LCS	4.02	4.00	ppm	101
	LCS	4.03	4.00	ppm	101
	LCS	3.05	4.00	ppm	76
378058	Direct SPK		4.00	ppm	80
Total Barium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	0.025		ppm	
	Blank	<0.0100		ppm	
	Blank	<0.0100		ppm	
	Standard	9.96	10.0	ppm	100
	Standard	4.98	5.00	ppm	100
	Standard	4.90	5.00	ppm	98
	Standard	4.91	5.00	ppm	98
	Standard	4.96	5.00	ppm	99
	Standard	5.01	5.00	ppm	100
	Standard	4.99	5.00	ppm	100
	Standard	5.00	5.00	ppm	100
	Standard	4.98	5.00	ppm	100
	Standard	5.03	5.00	ppm	101
378058	Duplicate	99.9	99.8	mg/kg	0
378496	Duplicate	3530	3200	mg/kg	10
378591	Duplicate	92.0	92.0	ug/L	0
378790	Duplicate	155	159	ug/L	3
378058	Spike		4.00	ppm	107
378591	Spike		4.00	ppm	99
378790	Spike		4.00	ppm	97
	LCS	4.23	4.00	ppm	106
	LCS	4.02	4.00	ppm	101
	LCS	3.63	4.00	ppm	91
378496	Direct SPK		4.00	ppm	101
Total Cadmium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0100		ppm	
	Blank	<0.0100		ppm	
	Blank	<0.0100		ppm	
	Standard	4.81	5.00	ppm	96
	Standard	2.50	2.50	ppm	100

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Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Total Cadmium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Standard	2.43	2.50	ppm	97
	Standard	2.42	2.50	ppm	97
	Standard	2.48	2.50	ppm	99
	Standard	2.52	2.50	ppm	101
	Standard	2.53	2.50	ppm	101
	Standard	2.58	2.50	ppm	103
	Standard	2.31	2.50	ppm	92
	Standard	2.46	2.50	ppm	98
378058	Duplicate	3.28	3.05	mg/kg	7
378496	Duplicate	5.61	5.62	mg/kg	0
378591	Duplicate	ND	ND	ug/L	
378790	Duplicate	ND	ND	ug/L	
378591	Spike		2.00	ppm	93
378790	Spike		2.00	ppm	94
	LCS	2.07	2.00	ppm	104
	LCS	2.01	2.00	ppm	101
	LCS	1.53	2.00	ppm	77
378058	Direct SPK		2.00	ppm	66
378496	Direct SPK		2.00	ppm	44
Total Chromium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0200		ppm	
	Blank	<0.0200		ppm	
	Blank	<0.0200		ppm	
	Standard	9.83	10.0	ppm	98
	Standard	5.02	5.00	ppm	100
	Standard	4.87	5.00	ppm	97
	Standard	4.97	5.00	ppm	99
	Standard	5.02	5.00	ppm	100
	Standard	5.04	5.00	ppm	101
	Standard	5.12	5.00	ppm	102
	Standard	5.08	5.00	ppm	102
378058	Duplicate	12.1	10.6	mg/kg	13
378496	Duplicate	13.6	12.9	mg/kg	5
378591	Duplicate	ND	ND	ug/L	
378735	Duplicate	ND	ND	ug/L	
378790	Duplicate	ND	ND	ug/L	
378058	Spike		4.00	ppm	80
378496	Spike		4.00	ppm	75
378591	Spike		4.00	ppm	96

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Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Total Chromium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
378735	Spike		4.00	ppm	99
378790	Spike		4.00	ppm	97
	LCS	4.14	4.00	ppm	104
	LCS	4.02	4.00	ppm	101
	LCS	3.51	4.00	ppm	88
Total Mercury (Analyzed: 07/17/1998 1008 WOB Verified: 07/17/1998 14:10 SAH)					
	Blank	<0.20		ppb	
	Standard	19.7	20.0	ppb	99
	Standard	4.87	5.00	ppb	97
	Standard	4.67	5.00	ppb	93
	Standard	4.76	5.00	ppb	95
378217	Duplicate	0.0214	0.0255	mg/kg	17
378496	Duplicate	0.0206	0.0242	mg/kg	16
378217	Spike		10.0	ppb	72
378496	Spike		10.0	ppb	96
	LCS	8.88	10.0	ppb	89
Total Lead (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Standard	9.98	10.0	ppm	100
	Standard	5.05	5.00	ppm	101
	Standard	4.91	5.00	ppm	98
	Standard	5.06	5.00	ppm	101
	Standard	5.00	5.00	ppm	100
	Standard	5.03	5.00	ppm	101
	Standard	5.12	5.00	ppm	102
	Standard	5.17	5.00	ppm	103
378058	Duplicate	10.6	9.69	mg/kg	9
378496	Duplicate	5.94	6.50	mg/kg	9
378591	Duplicate	ND	ND	ug/L	
378790	Duplicate	ND	ND	ug/L	
378058	Spike		4.00	ppm	78
378496	Spike		4.00	ppm	76
378591	Spike		4.00	ppm	98
378790	Spike		4.00	ppm	98
	LCS	4.12	4.00	ppm	103
	LCS	4.04	4.00	ppm	101
	LCS	3.21	4.00	ppm	80

Continued

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Corporate Office
P.O. Box 9000 -- Kilgore, TX 75663-9000
903/984-0551 FAX 903/984-5914

TEST REPORT: 378458

Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Total Selenium (Analyzed: 07/21/1998 0913 WOB Verified: 07/22/1998 10:32 SAH)					
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Blank	<0.0500		ppm	
	Standard	10.1	10.0	ppm	101
	Standard	5.27	5.00	ppm	105
	Standard	5.22	5.00	ppm	104
	Standard	5.20	5.00	ppm	104
	Standard	5.23	5.00	ppm	105
	Standard	5.11	5.00	ppm	102
	Standard	5.36	5.00	ppm	107
	Standard	5.23	5.00	ppm	105
	Standard	4.74	5.00	ppm	95
	Standard	5.08	5.00	ppm	102
378058	Duplicate	ND	ND	mg/kg	
378496	Duplicate	ND	ND	mg/kg	
378591	Duplicate	ND	ND	ug/L	
378790	Duplicate	ND	ND	ug/L	
378591	Spike		4.00	ppm	97
378790	Spike		4.00	ppm	100
	LCS	4.05	4.00	ppm	101
	LCS	4.06	4.00	ppm	102
	LCS	3.06	4.00	ppm	77
378058	Direct SPK		4.00	ppm	70
378496	Direct SPK		4.00	ppm	64
Reactivity Distillation (Analyzed: 07/20/1998 1000 FGO Verified: 07/20/1998 15:51 SAH)					
	Blank	100/250		mL/mL	
Reactivity Cyanide (RL 250) (Analyzed: 07/20/1998 1400 RSV Verified: 07/20/1998 16:00 SAH)					
	Blank	<0.005		ppm	
	Blank	<0.005		ppm	
	Standard	0.211	0.20	ppm	106
	Standard	0.402	0.40	ppm	101
	Standard	0.402	0.40	ppm	101
378454	Duplicate	ND	ND	mg/kg	
378456	Duplicate	ND	ND	mg/kg	
Reactivity Sulfide (RL 500) (Analyzed: 07/24/1998 1100 RSV Verified: 07/24/1998 14:52 NGT)					
	Blank	<0.05		ppm	
	Blank	<0.05		ppm	
	Standard	3.06	3.0	ppm	102
	Standard	4.92	5.0	ppm	98

Continued

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Corporate Office
P.O. Box 9000 -- Kilgore, TX 75663-9000
903/984-0551 FAX 903/984-5914

TEST REPORT: 378458

Quality Assurance for the SET with Sample 378458

Sample	Description	Result	Value	Unit	%
Reactivity Sulfide (RL 500) (Analyzed: 07/24/1998 1100 RSV Verified: 07/24/1998 14:52 NGT)					
	Standard	4.92	5.0	ppm	98
378454	Duplicate	ND	ND	mg/kg	
378464	Duplicate	ND	ND	mg/kg	
Total Petroleum Hydrocarbon (Analyzed: 07/21/1998 1600 KLB Verified: 07/22/1998 11:43 SAH)					
	Blank	<.5		mg/l	
	Blank	<10		mg/l	
	Blank	<10		mg/l	
	Blank	<.5		mg/l	
	Blank	<.5		mg/l	
	Blank	<10		mg/l	
	Blank	<.5		mg/l	
	Standard	205	200	mg/l	103
	Standard	204	200	mg/l	102
	Standard	206	200	mg/l	103
377668	Duplicate	510000	480000	mg/kg	6
378144	Duplicate	760	230	mg/l	107
378454	Duplicate	1200	1200	mg/kg	0
Hydrocarbon Liquid Extraction (Analyzed: 07/21/1998 1000 MWV Verified: 07/22/1998 11:43 SAH)					
	Blank	100/1000		ml/ml	
Total Solids (Analyzed: 07/21/1998 1356 BAP Verified: 07/21/1998 14:49 NGT)					
	Blank	0.0001		grams	
378058	Duplicate	79.3	79.9	%	1
378888	Duplicate	88.0	88.5	%	1
pH Measured in Water (Analyzed: 07/22/1998 2100 LMK Verified: 07/23/1998 08:46 SAH)					
	Standard	8.01	8.00	SU	100
	Standard	7.01	7.00	SU	100
	Standard	10.04	10.00	SU	100
	Standard	8.00	8.00	SU	100
	Standard	8.03	8.00	SU	100
	Standard	7.01	7.00	SU	100
	Standard	10.03	10.00	SU	100
	Standard	8.02	8.00	SU	100
378058	Duplicate	7.3	7.3	SU	0
378940	Duplicate	7.6	7.6	SU	0

Bottle Tracking for Sample 378458

Bottle #: 03 Prepared Bottle: Mercury Preparation

07/16/1998	1200	FGO	Wet Lab - Bldg1
07/16/1998	13:42	FGO	Instrument Room 1

Bottle #: 04 Prepared Bottle: ICP Preparation

Continued

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TEST REPORT: 378458

Bottle Tracking for Sample 378458

Bottle #: 04 Prepared Bottle: ICP Preparation			
07/17/1998	0900	FGO	Wet Lab - Bldg1
07/17/1998	12:45	FGO	Instrument Room 1
Bottle #: 05 Prepared Bottle: CN TRAACS Autosampler Vial			
07/20/1998	1000	MWV	Distillation/Extraction Lab
07/20/1998	13:49	MWV	Wet Lab - Bldg1
Bottle #: 06 Prepared Bottle: 40 mL VIAL EXTRACT			
07/21/1998	1000	MWV	Wet Lab - Bldg1
07/21/1998	11:09	MWV	Instrument Room 1

Quality Assurance for the Shift with Sample 378458

Compound	Result
Blank	
Benzene	ND
Chlorobenzene	ND
1,1-Dichloroethylene	ND
Methylene Chloride	ND
Toluene	ND
Trichloroethylene	ND

Name	Mass	Minimum	Maximum	Result	Status
Instrument Tune					
BFB Mass 50	95	15.0	40.0	32.1	PASS
BFB Mass 75	95	30.0	60.0	55.0	PASS
BFB Mass 95	95	100	100	100.0	PASS
BFB Mass 96	95	5.00	9.00	6.6	PASS
BFB Mass 173	174	0	2.00	0.0	PASS
BFB Mass 174	95	50.0	100	64.2	PASS
BFB Mass 175	174	5.00	9.00	6.8	PASS
BFB Mass 176	174	95.0	101	96.5	PASS
BFB Mass 177	176	5.00	9.00	6.2	PASS

Compound	Maximum	Deviation(%)	Status
Instrument Calibration Check			
Chloroform	25.0	-1.0	PASS
1,1-Dichloroethylene	20.0	5.2	PASS
1,2-Dichloropropane	20.0	-1.3	PASS
Ethyl benzene	20.0	4.0	PASS
Toluene	20.0	4.2	PASS
Vinyl Chloride	20.0	-18.0	PASS

Compound	Result1(%)	Result2(%)	RPD%
Spike/Duplicate on Sample 378458			
Benzene	105	101	3.9
Chlorobenzene	96.4	95.0	1.5
1,1-Dichloroethylene	105	102	2.9

Continued

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903/984-0551 FAX 903/984-5914

TEST REPORT: 378458

Quality Assurance for the Shift with Sample 378458

Compound	Result1(%)	Result2(%)	RPD%
Spike/Duplicate on Sample 378458			
Toluene	106	101	4.8
Trichloroethylene	101	100	1.0
Compound	**Result**	**Amount**	**Recovery(%)**
Surrogate/Spike on Sample 378458			
Dibromofluoromethane	39.6	40.0	99
Toluene-d8	40.4	40.0	100
Bromofluorobenzene-SURR	39.2	40.0	98
Compound	**Sample**	**CCC**	**Status**
Internal Standard Areas on Sample 378458			
Pentafluorobenzene-ISTD	89840	93280	
1,4-Difluorobenzene-ISTD	170900	183200	
Clorobenzene-d5-ISTD	171100	183500	
1,4-Dichlorobenzene-d4-ISTD	71310	78200	

MAL is the Minimum Analytical Level or Minimum Quantitation level (MQL). The MAL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL) as well as any dilutions or concentrations associated with this sample. Our analytical result must be above this MAL before we report a value for any parameter. Otherwise, we report ND (Not Detected above MAL) or "<" (less than) the quantitation limit listed in the MAL column. CAS is Chemical Abstract Service Registry Number.

I certify that the results were generated using the above specified methods.

Bill Peery, Jr., M.S., Lab Manager

3 tons Soil Removed

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Panhandle Region
4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 474629

27CES/CEV
506 N. D.L. Ingram
Contr. F2960599A0010
Cannon AFB, NM 88103-5136
Attention: Tommy Downing

Sample Identification: ***Call 1839, OWS #1***
Date & Time Taken: ***12/06/2000*** ***1400***
Collected By: ***Gene A Smith***
Sample Matrix: ***Soil***
Received: ***12/08/2000*** *Client:* ***CAFB*** *Report Date:* ***12/21/2000***
Other Data: ***CFCU/Bldg 368, Cannon AFB***

Results for Sample 474629

	Parameter	Result	Unit	MAL
001	TPH Diesel Range Organics (DRO)	80	mg/kg	1.0

Analytical Details for Sample 474629

	Parameter	CAS	Method	Bottle	Analyzed	By
001	TPH Diesel Range Organics (DRO)		EPA Method 8015B MOD		12/18/2000	KLB

Sample Preparation Steps for 474629

Parameter	Result	Unit	Bottle	Date	Time	Tech
GC TPH Liquid-Solid Extraction	1/30 A/B	ml/g	01	12/11/2000	0830	DLH

Bottle Data for Sample 474629

Bottle	Derived in Lab From
#01 - Glass 8 oz w/Teflon lined lid	
#02 - Prepared Bottle: 2 mL Autosampler Vial	01(30g)
#03 - Prepared Bottle: 2 mL Autosampler Vial	01(30g)

Quality Assurance for the SET with Sample 474629

Sample	Description	Result	Value	Unit	%
TPH Diesel Range Organics (DRO) (Analyzed: 12/18/2000 1030 KLB Verified: 12/20/2000 18:30 LES)					
	Blank	<1.0		mg/l	
	Standard	969	1000	mg/l	97
	Standard	928	1000	mg/l	93

Bottle Tracking for Sample 474629

Bottle #: 02 Prepared Bottle: 2 mL Autosampler Vial

12/11/2000	0830	DLH	Distillation/Extraction Lab
12/12/2000	08:09	DLH	GC, GCMS Semi-Volatile Lab

ANA-LAB CORP.
THE COMPLETE SERVICE LAB

Panhandle Region

4515 S. Georgia,Suite 129 -- Amarillo, TX 79110
806/355-3556 FAX 806/355-3773

TEST REPORT: 474629

Bottle Tracking for Sample 474629

Bottle #: 03 Prepared Bottle: 2 mL Autosampler Vial

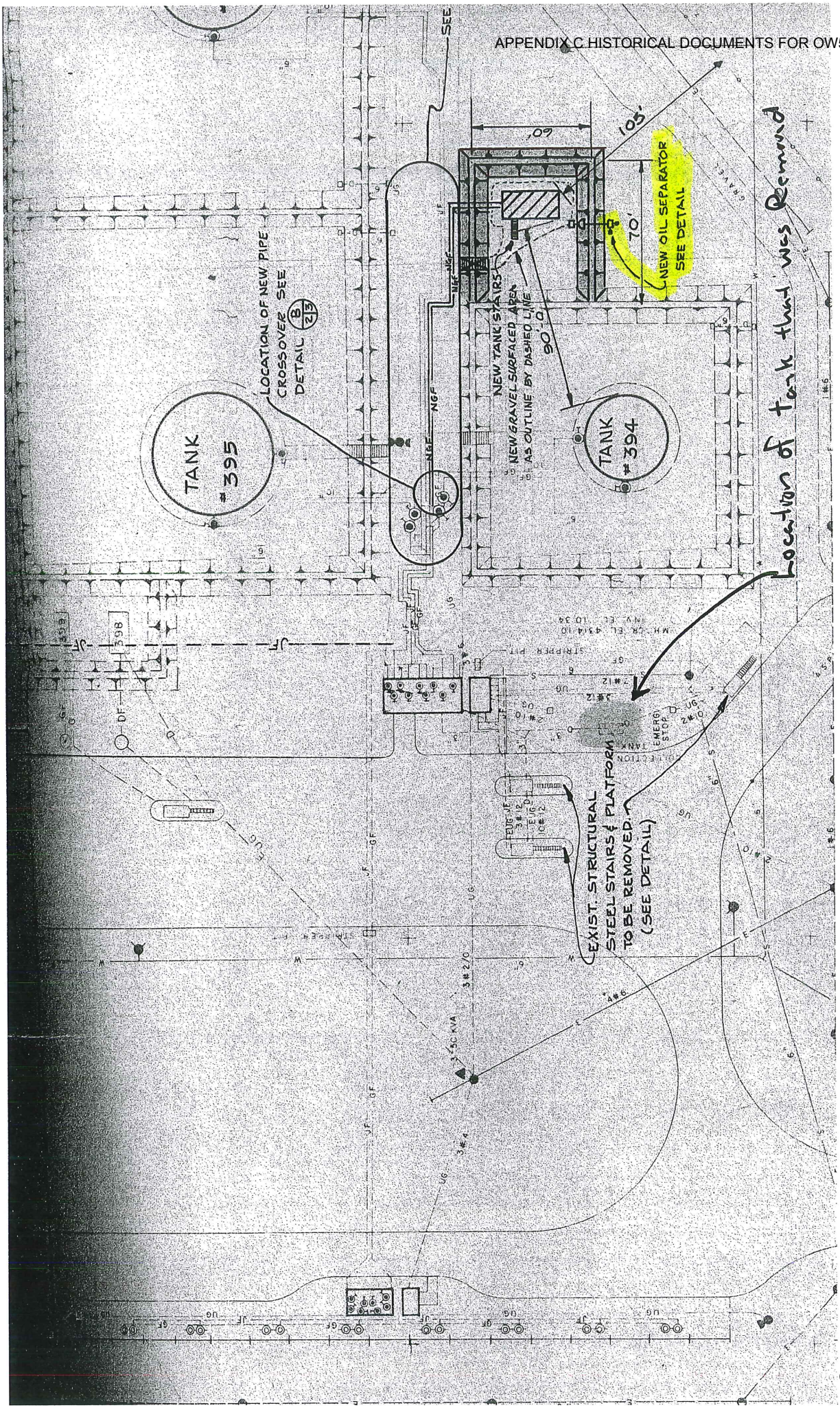
12/11/2000	0830	DLH	Distillation/Extraction Lab
12/12/2000	08:09	DLH	GC, GCMS Semi-Volatile Lab

RL is our Reporting Limit, or MAL (Minimum Analytical Level/Minimum Quantitation Level). The MAL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL).

Our analytical result must be above this MAL before we report a value in the "Results" column of our report. Otherwise, we report ND (Not Detected above MAL), because the result is "<" (less than) the number in the MAL column.

I certify the above results were obtained using the methods specified.

C.H. Whiteside, Ph.D., President


TANK #395
TANK #394
LOCATION OF NEW PIPE CROSSOVER SEE DETAIL (B) 213
NEW TANK STAIRS
NEW GRAVEL SURFACED AREA AS OUTLINE BY DASHED LINE
90'-0"
NEW OIL SEPARATOR SEE DETAIL
70'
105'
Location of tank that was Removed
EXIST. STRUCTURAL STEEL STAIRS & PLATFORM TO BE REMOVED (SEE DETAIL)
SEE
NGF
DF
GF
UG
JF

SUMMARY OF SOIL SAMPLING AND TANK REMOVAL AT THE FACILITY 378 OIL/WATER SEPARATOR

CANNON AIR FORCE BASE, NEW MEXICO

Prepared for

United States Air Force
Air Combat Command

Cannon Air Force Base

December, 2000

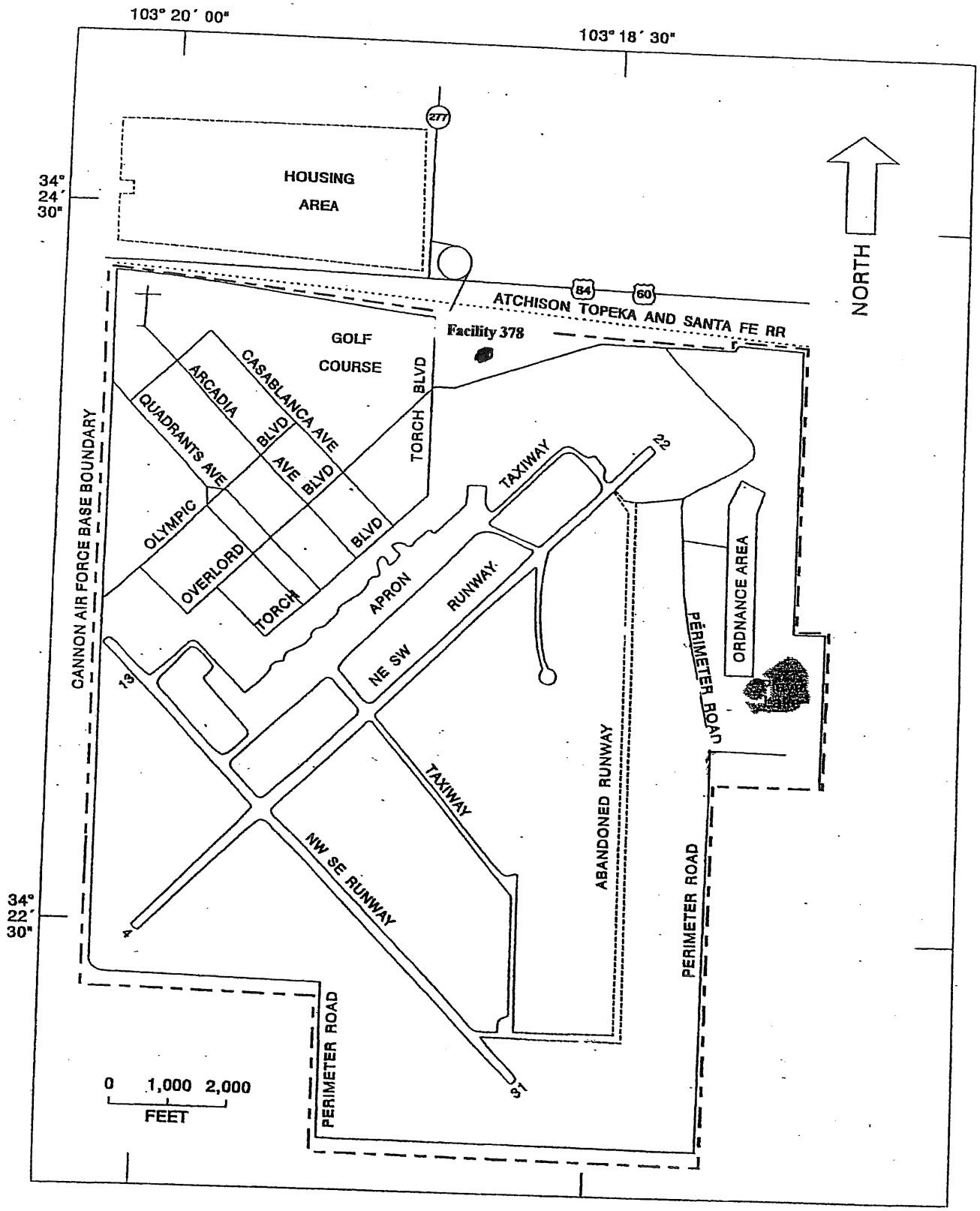


Figure 2. Location of Facility 378.

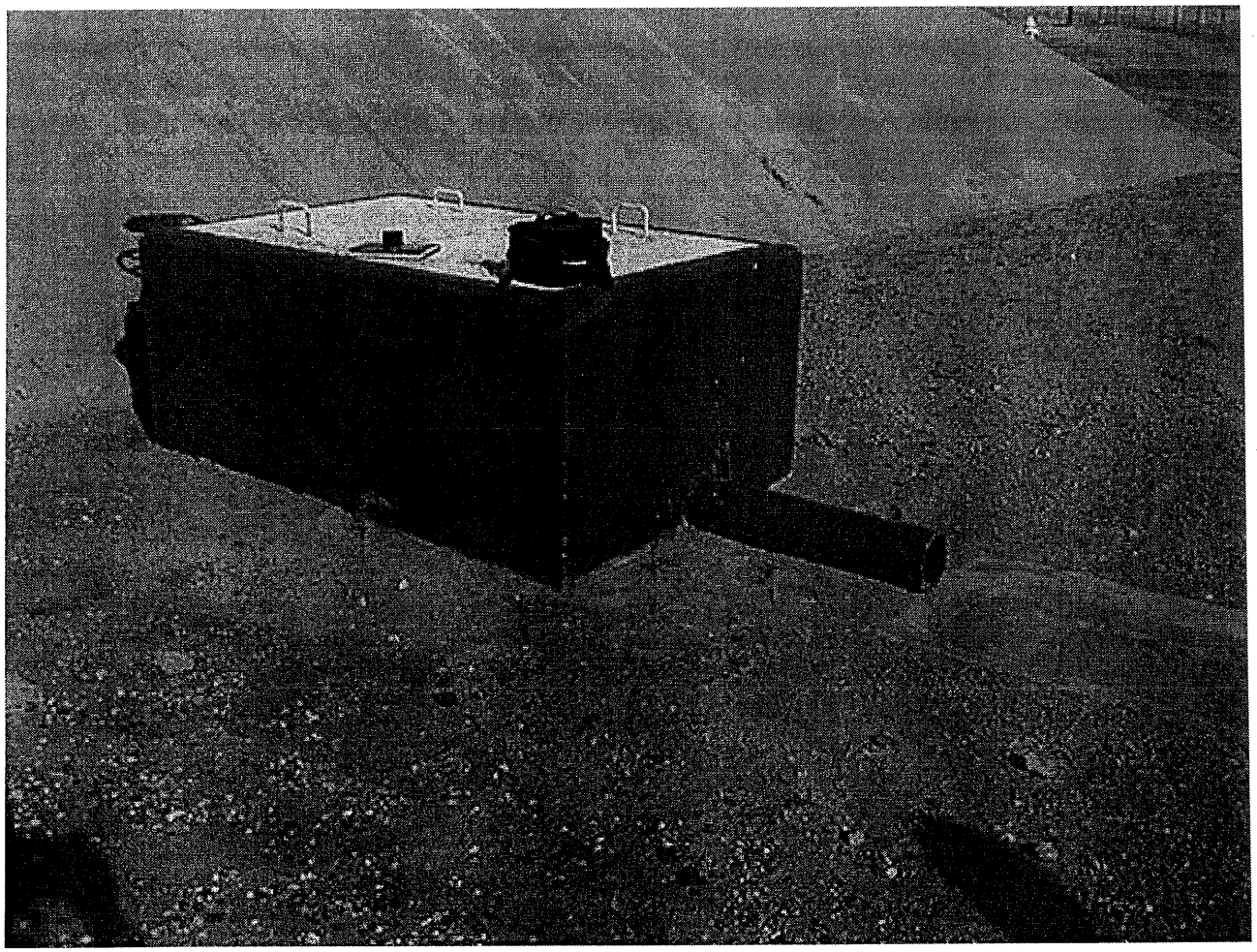
LARSON
ENVIRONMENTAL
INC.

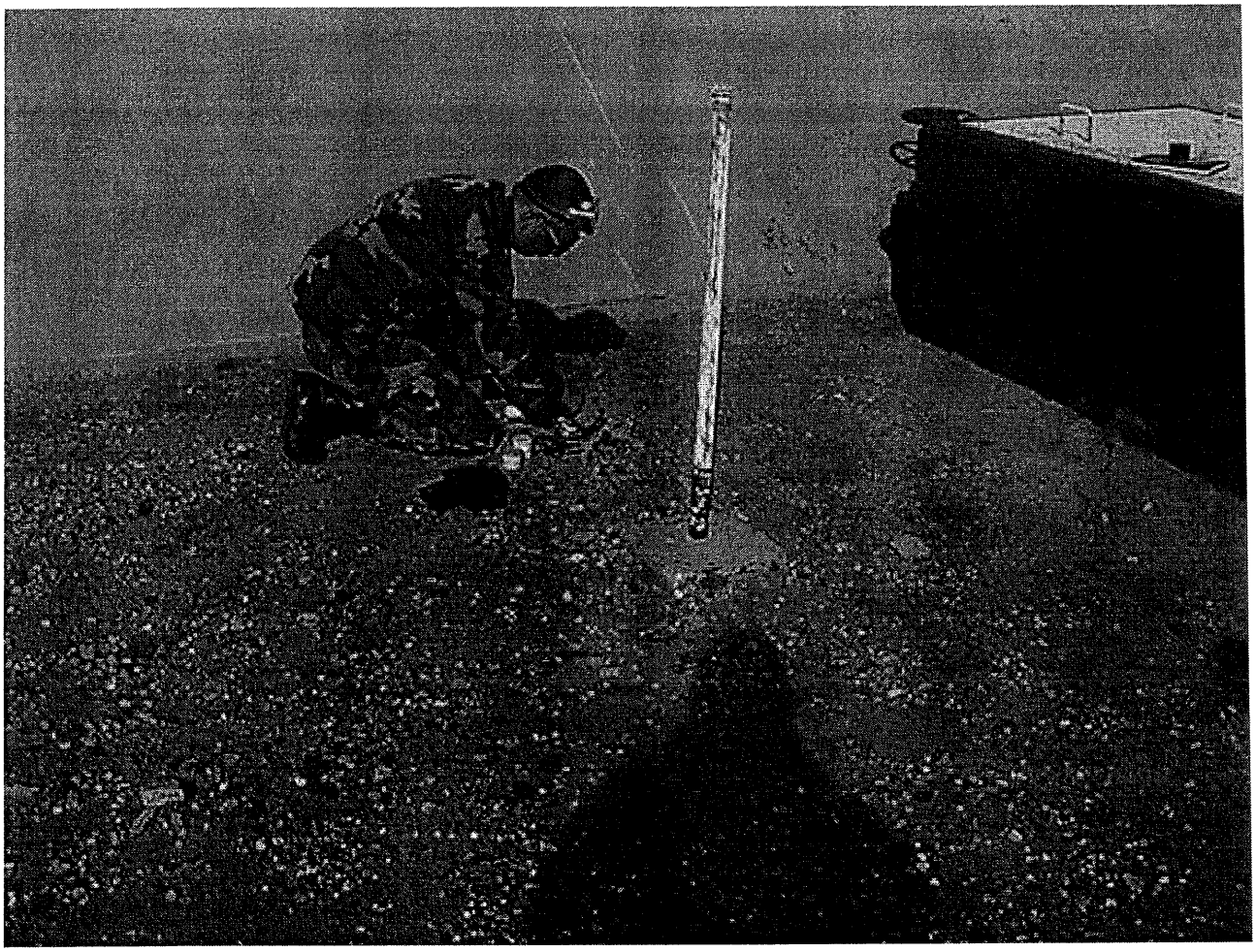
6-6-00

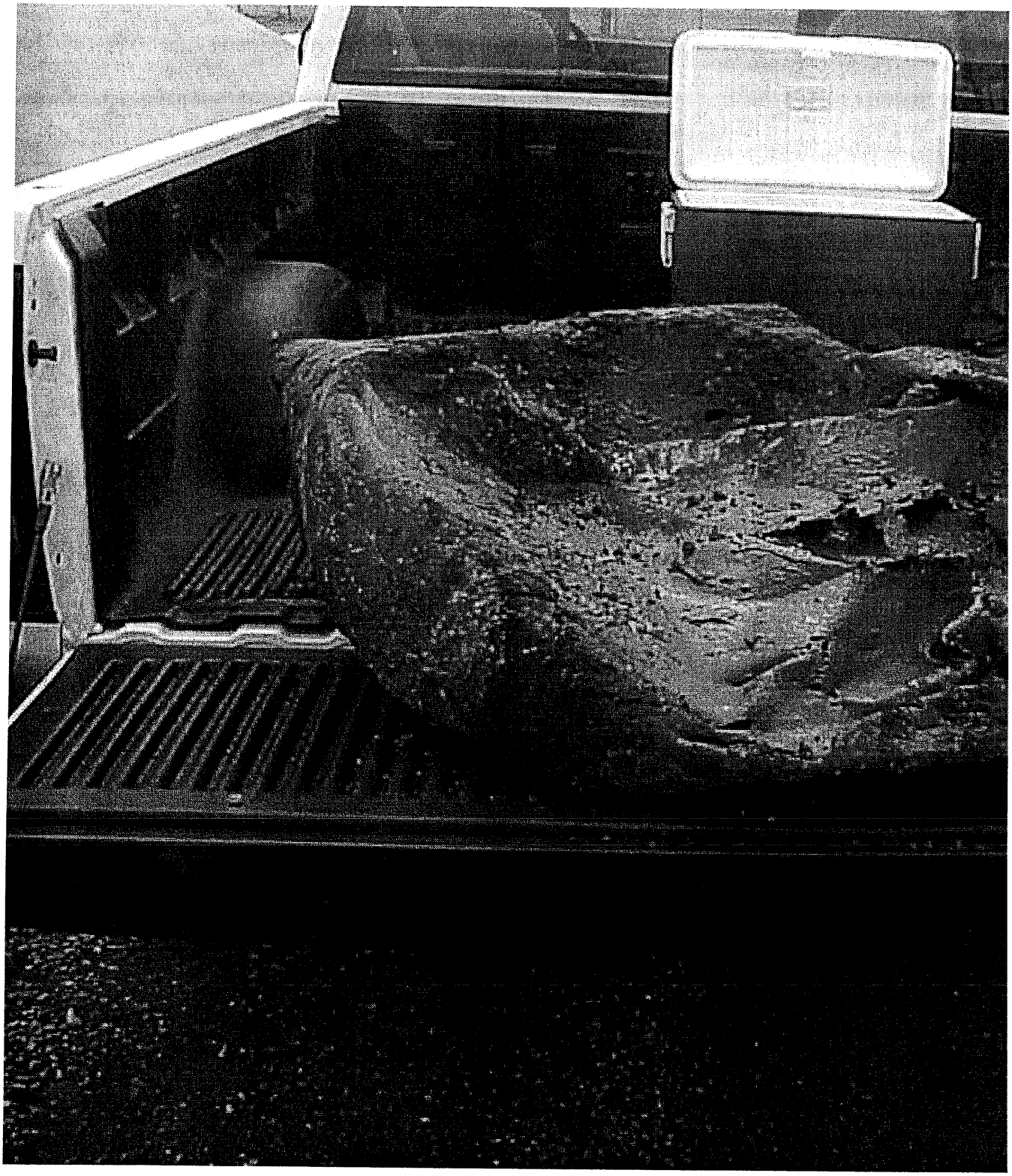
CERTIFICATE OF DESTRUCTION

I certify that on June 6, 2000, I removed a tank associated with an oil/water separator and destroyed removed tank in accordance with Cannon Air Force Base regulations. The attached computer disk provides digital pictures of destruction.

Jerry D. Larson
Larson Environmental







PHOTOGRAPHIC LOG

Site ID/Site Name: OWS378(R)	**Site Location:** Cannon Air Force Base	**Project No.** 60162690.03

Photo No. 1	**Date:** 5/4/2011

Direction Photo Taken:

West

Description:

View west of former above grade concrete OWS378(R). Photo shows flow valve, steel access panels and discharge pipe and spillway. Concrete containment berm around POL area shown in background.

Photo No. 2	**Date:** 5/4/2011

Direction Photo Taken:

North

Description:

View north of former above grade concrete OWS378(R). Photo shows steel access panels and discharge pipe and spillway. Concrete containment berm around POL area shown in background.

PHOTOGRAPHIC LOG

Site ID/Site Name: OWS378(R)	Site Location: Cannon Air Force Base	Project No. 60162690.03

Photo No. 3	Date: 5/4/2011

Direction Photo Taken:

Northeast

Description:

View northeast inside above grade concrete vault/OWS375(R). Internal configuration of vault/OWS during operational period is unknown.

Photo No. 4	Date: 5/4/2011

Direction Photo Taken:

Northwest

Description:

View northwest inside above grade concrete vault/OWS375(R). Internal configuration of vault/OWS during operational period is unknown.

SUMMARY OF SOIL SAMPLING AND TANK REMOVAL AT THE FACILITY 378 OIL/WATER SEPARATOR

CANNON AIR FORCE BASE, NEW MEXICO

Prepared for

United States Air Force
Air Combat Command

Cannon Air Force Base

December, 2000

SUMMARY OF SOIL SAMPLING AND TANK REMOVAL AT THE FACILITY 378 OIL/WATER SEPARATOR

CANNON AIR FORCE BASE, NEW MEXICO

BY

LARSON ENVIRONMENTAL, ALBUQUERQUE, NEW MEXICO

12-18-00

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Cannon Air Force Base (CAFB) is located in east central New Mexico, about 5 miles west of Clovis New Mexico and about 20 miles west of the New Mexico, Texas state line as shown on figure 1. The Base lies within the Southern High Plains Physiographic Province, and is underlain by the Ogallala aquifer. CAFB has been an Air Force Base since World War II. It presently hosts F-16 fighter squadrons of the Air Combat Command.

This report presents the results of soil sampling from under an oil/water separator tank that was located on the southern side of the fuel tank farm for CAFB. Larson Environmental Inc. was contracted to remove and destroy the tank, plug the line going from the separator to the tank and to collect a soil sample from immediately below the tank. The Sample was analyzed for Metals, BTEX and Semi-Volatile Organic Compounds. The sample was sent to ANA-LAB Corp. Laboratory in Amarillo, Texas for analysis.

The only contaminants found in the Metals, BTEX, and Semi-Volatile Organic Compounds analyses were Total Petroleum Hydrocarbons at 157mg/kg, Chromium at 6.66mg/kg, Copper at 3.94 mg/kg, Lead at 4.93 mg/kg, and Zinc at 15.1 mg/kg. A statistical study of CAFB soils has produced confidence and tolerance levels of soils on the base. The following table shows the detected values at facility 378 as well as the upper confidence level and upper tolerance level of the metals detected at this location.

Metal	Detected Value mg/kg	Upper confidence level	Upper tolerance level
Chromium	6.66	6.6	13.3
Copper	3.94	4.5	8.3
Lead	4.93	5.3	8.7
Zinc	15.1	14.5	30.6

As the table shows, Chromium is at the upper confidence level, copper and lead are below the levels, and Zinc is slightly above the upper confidence level. These values along with the low TPH values show that this site is clear of contaminants.

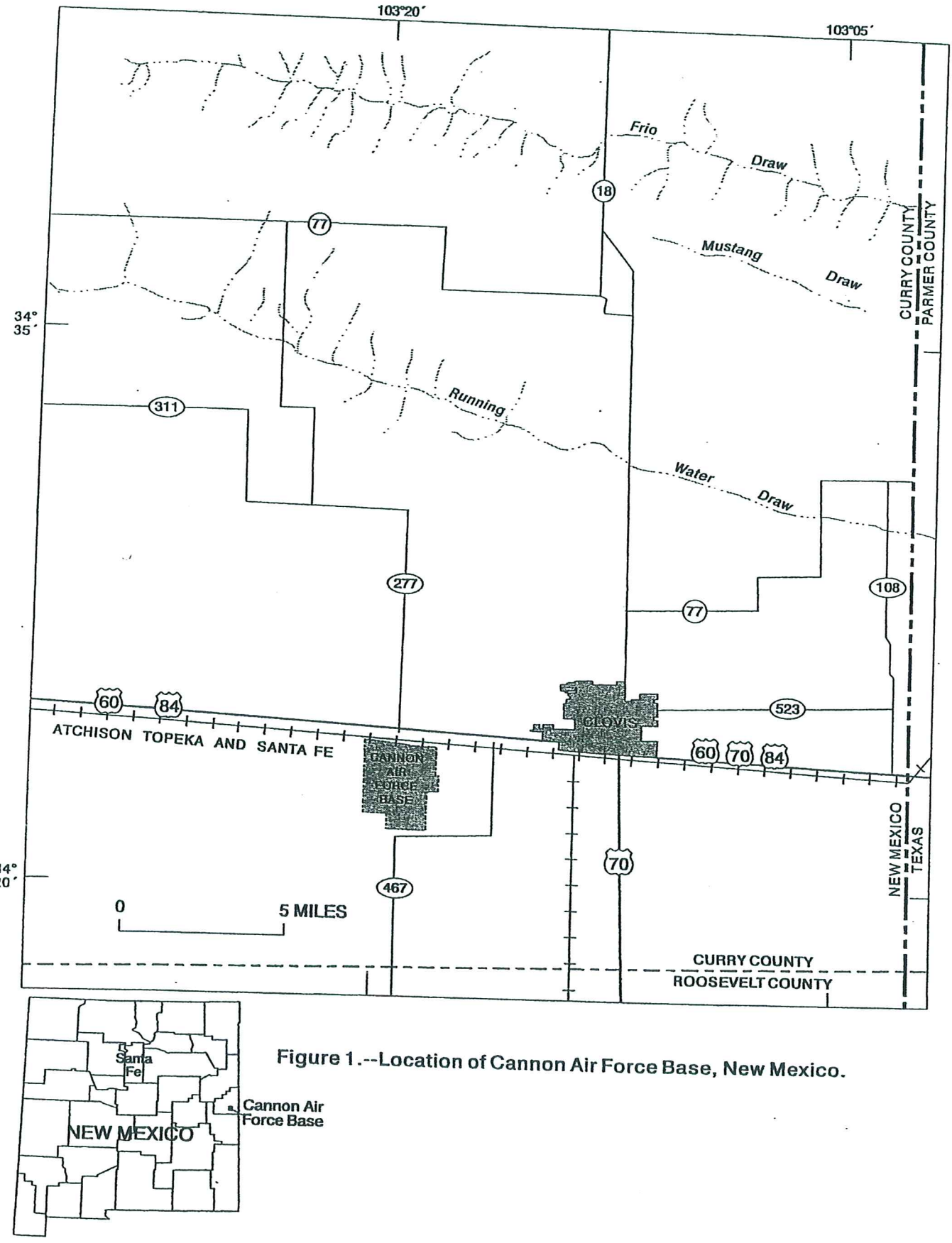


Figure 1.--Location of Cannon Air Force Base, New Mexico.

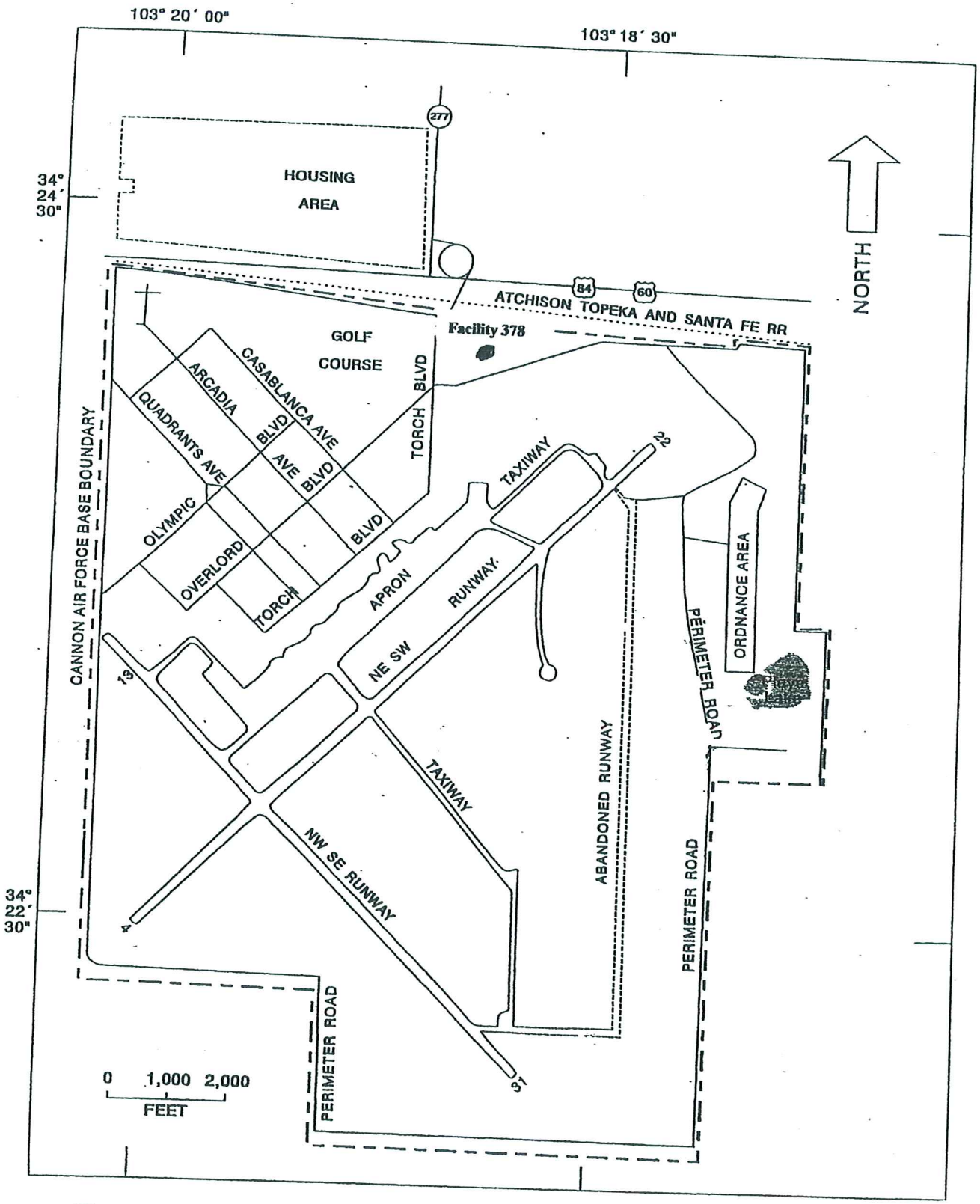
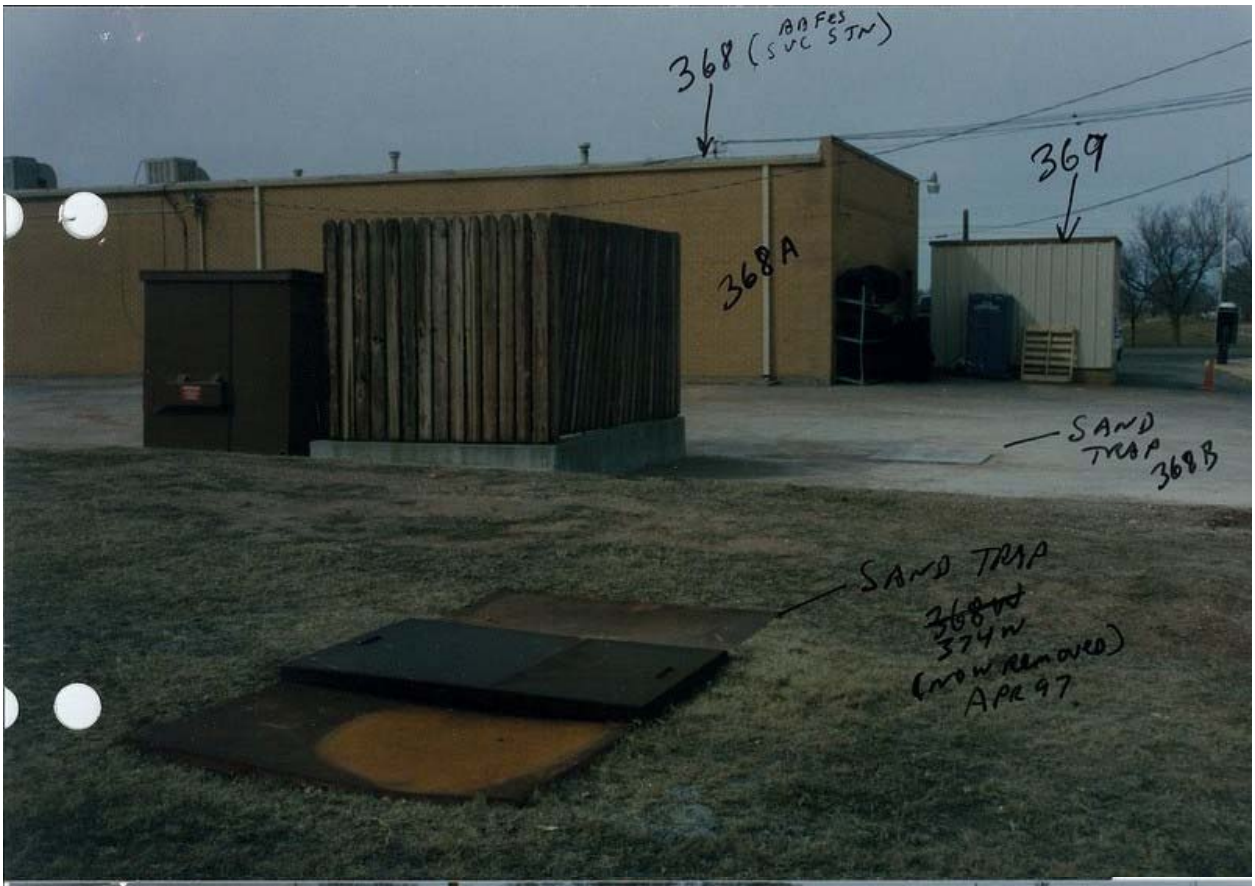


Figure 2. Location of Facility 378.


368 (BAFES SVC STN)
369
368A
SAND TRAP 368B
SAND TRAP
374N
(NOW REMOVED)
APR 97


HAUL
VAN RENTALS
FAYETTEVILLE
America's Moving Adventure
U-HAUL

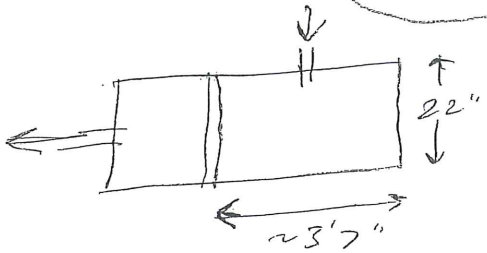
BX Service Station

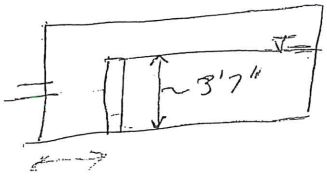
9/27 FOUND new OWS/SAND TRAP INSIDE

BX SVC SW Fac 368

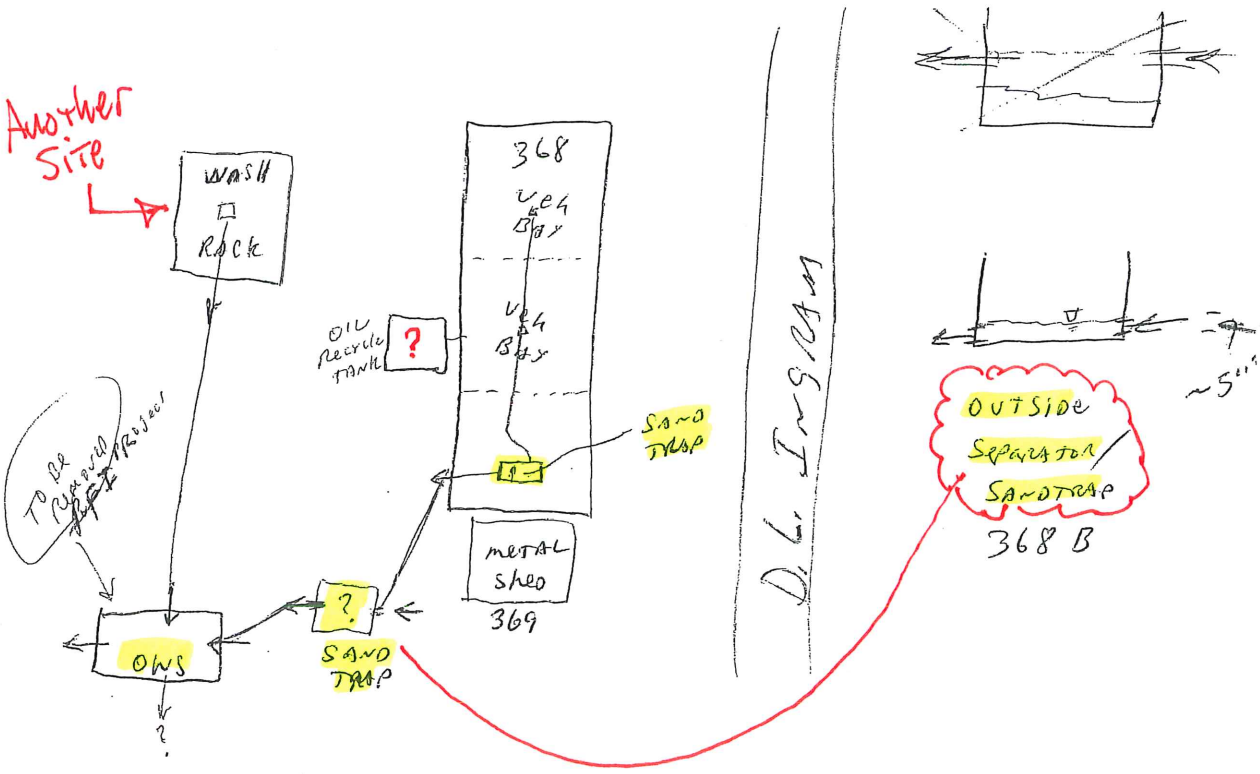
These note Provided by AF

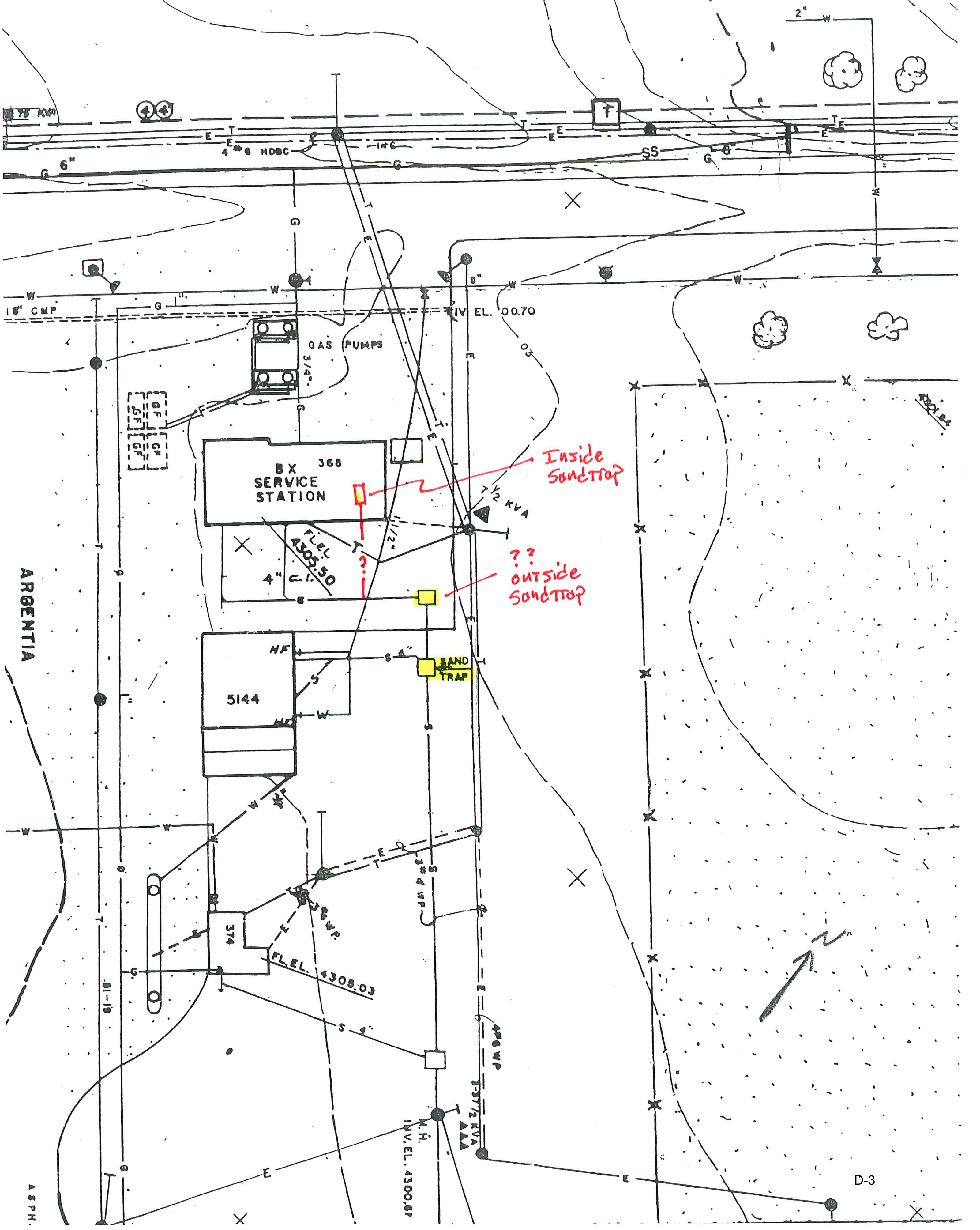
2 cell

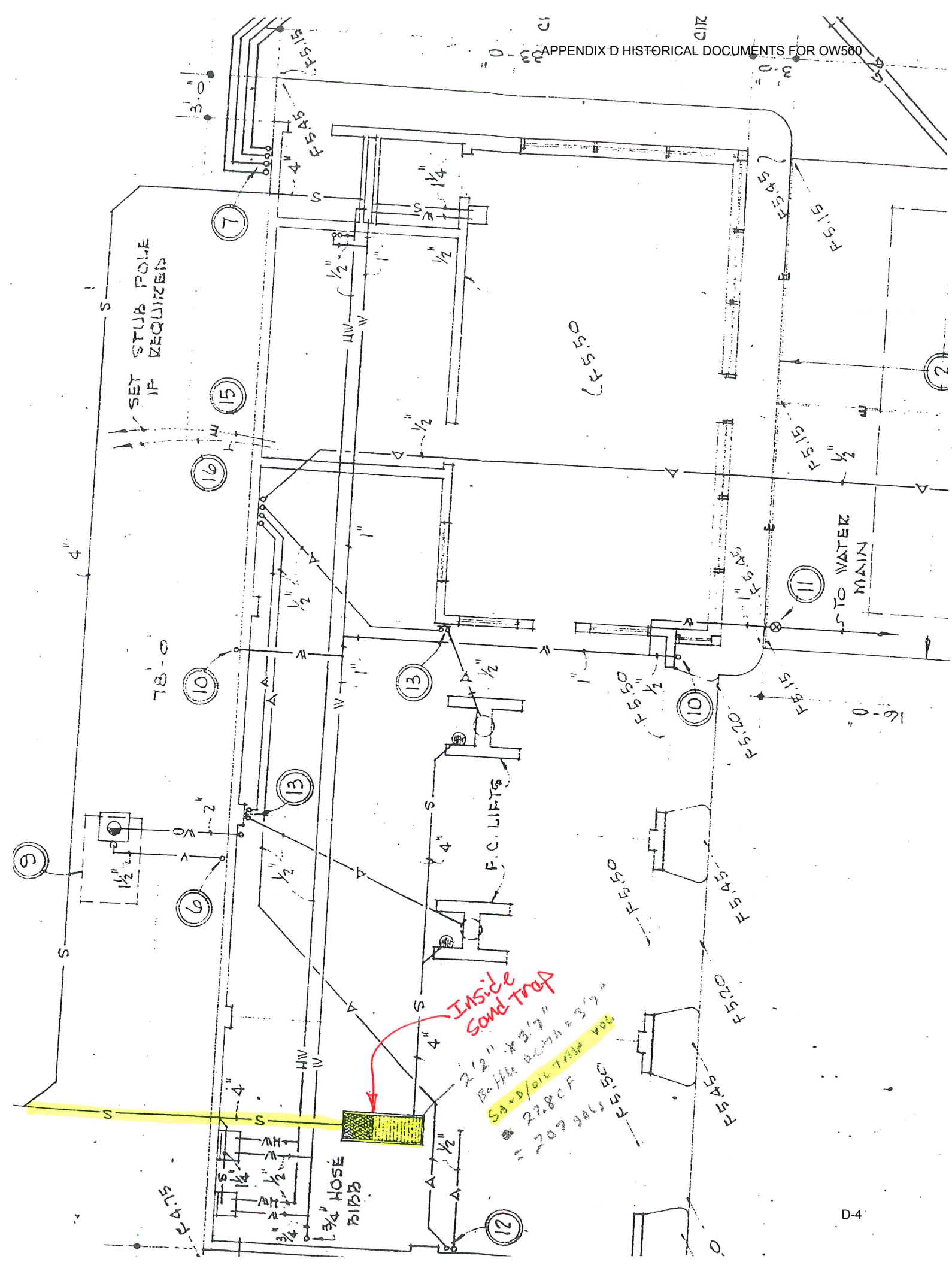




Level in outside OWS ~ 2'1"




GAS PUMPS
BX 368
SERVICE
STATION
Inside
Sandtrap
??
outside
Sandtrap
SAND
TRAP
FL.EL. 4305.50
FL.EL. 4305.03
5144
374
ARGENTIA
16" CMP
4"#6 HDBC
INV. EL. 00.70
7 1/2 KVA
M.H.
INV. EL. 4300.81

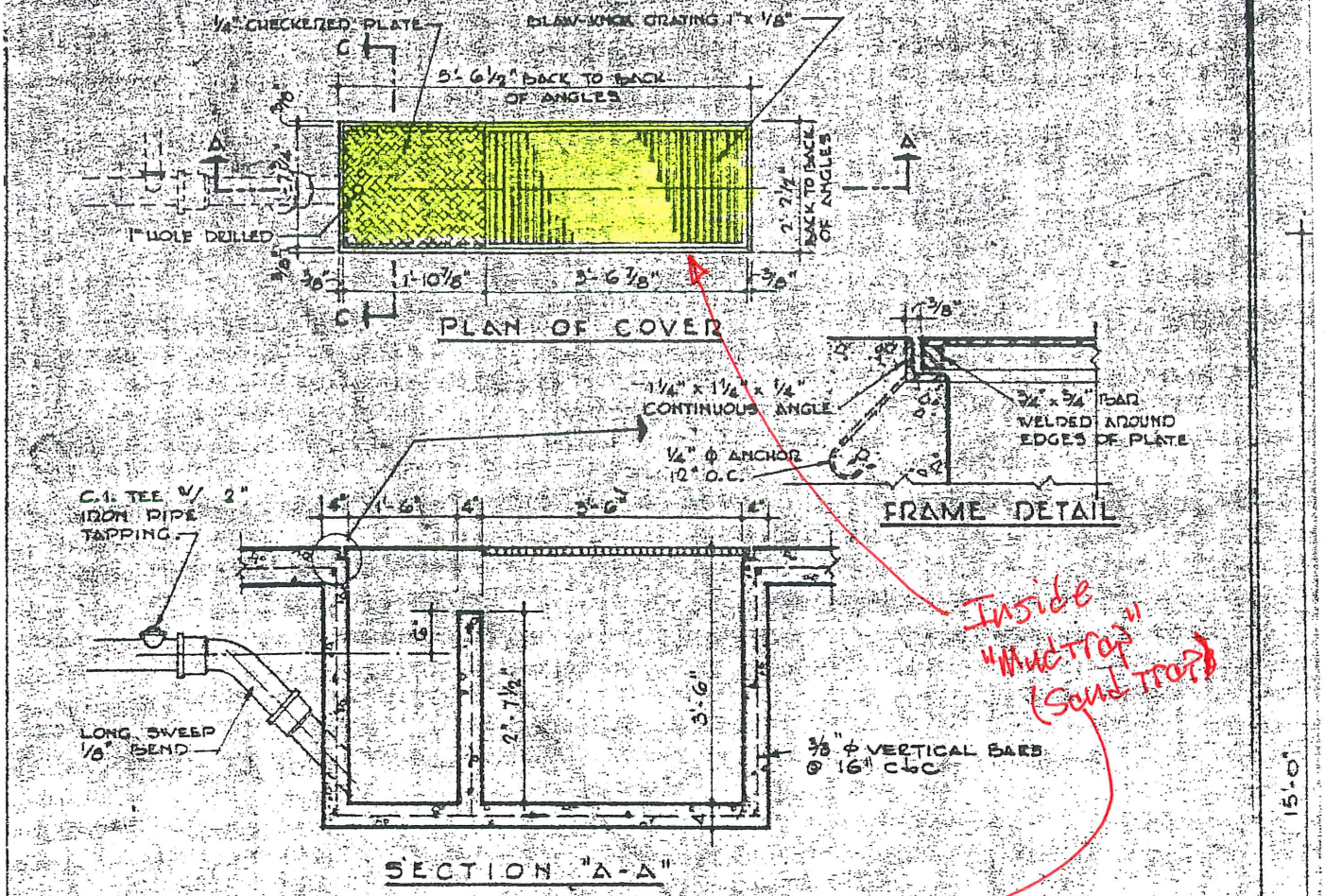

SET STUB POLE IF REQUIRED
TO WATER MAIN
F.C. LIFTS
Inside sand trap
3/4" HOSE BIBB

ELEVATION

NOTE:
CONTRACTOR SHALL CHECK AIR COMPRESSOR FOR EXACT LOCATION OF ELECTRICAL AND AIR CONNECTIONS WHICH VARY FROM THIS DETAIL; INSTALL AS REQUIRED TO GIVE SAME HOOK UP AS SHOWN.

AIR COMPRESSOR INSTALLATION

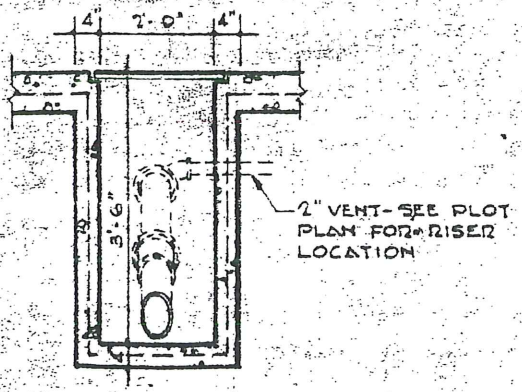
DATED 2-15-61 | 5



NOTES

MUDTRAP TO BE CONSTRUCTED ACCORDING TO THIS DETAIL UNLESS OTHERWISE REQUIRED BY LOCAL REGULATIONS.

CONTRACTOR TO MAKE ADJUSTMENTS REQUIRED TO MEET SUCH REGULATIONS.



SECTION "C-C"

SINGLE MUD TRAP

FAC 368

DATED 2-15-61 | 6

15'-0"

TOP

CON

PA

RE

PR

FD-5

Site Data Collection Form

Date: May 4, 2011 Field Team/Office: Stevens Point, WI

Field Team Member: Chris Peters, Eric Schmidt, Tim Giles, Greg Brooks

Installation: Cannon Air Force Base Site ID:

Site Name: ST368AB(R)

Site Alias: ST368A, ST368B, OWS368A, OWS368B

Site Description: Sand trap 368A was located inside building 368, an AAFES service station that has been removed. The sand trap capacity was 170 gallons. Sand trap 368B was located southeast of building 368. The sand trap capacity is unknown. Both units were active from 1963 until 2000. Both units received wash water generated from vehicle maintenance operations inside building 368. Potential contaminants include gasoline, diesel, oil, greases, solvents and battery acid. Both units have been misidentified as OWSs in previous reports.

Associated Buildings: Building 368 – AAFES Service Station (Building removed)

Point of Contact for the Site	
Last Name:	Rebman
First Name:	John
Middle Initial:	K.
Organization:	Civ USAF ACC 27 SOCES/CEAN
Address:	N/A
Address:	506 N DL Ingram Blvd.
City:	Cannon AFB
State:	New Mexico
County:	Curry
Zip Code:	88103-5003
Phone / Extension:	(575)784-1099
Phone DSN:	681-1099
e-mail:	john.rebman@cannon.af.mil

1. DOD Site Type (e.g., OWS – see supplemental sheet): Sand Trap
2. Is the site on the National Priority List? ☐ Yes ☒ No ☐ Delisted ☐ Proposed
3. Delist Date (if applicable): NA
4. Site Coordinates (NAD-83 State Plane Coordinates (Easting): 846621 E
5. Site Coordinates (NAD-83 State Plane Coordinates (Northing): 1237718 N

   Note: Coordinates will be collected from the northwest corner or northern point based on the general shape of the site.
6. Law Affecting Site: ☐ CERCLA ☐ RCRA ☐ TSCA ☒ Clean Water Act ☐ Clean Air Act Other: Removed
7. Legal Driver:

☐ Federal Facility Agreements at NPL Installations
☐ Interagency Agreements (2&3 party) at non-NPL Installations
☐ RCRA Permits with Corrective Action Requirements
☐ RCRA Corrective Action Orders (issued by EPA or a state)
☐ Consent Orders under state laws
☐ Memoranda of Understanding commitments
☐ Memoranda of Agreement commitments
☐ Notice of Violation Requirements *(listing continued on Page 2)*
☐ ATSDR related requirements (e.g., response to health advisory)

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☐ Natural Resource Trustee related requirements claim (e.g., damage claim)
☐ Court ordered requirements (in cases of litigation)
☐ Imminent threats
☐ Consent Decrees (usually for third party sites)
☐ Unilateral Orders (usually for third party sites)
☐ Preliminary Assessments of installations listed on the Docket
☐ Long-term Operation/Monitoring for in-place systems for installations without agreements
☐ State laws and regulations requiring a response within a specified period
☐ Congressional/Owner Concern (FUDS only)
☐ Building Demo/Debris Removal (FUDS only)
☐ Ordnance and Explosive Waste RAC 1-2 (FUDS only)
☐ Ordnance and Explosive Waste RAC 3-4 (FUDS only)
☒ No Legal Driver

8. Site Category (Select one or more answers):

☒ Compliance
☐ Installation Restoration Program
☐ MMRP
☐ Building Demolition/Building Removal (BD/BR)
☐ Defense Logistics Agency/Defense Energy Support Center

9. Site Classification (Select one or more answers):

☐ Asbestos contaminated
☐ Fuel Spill Site, not UST/AST
☐ Non-Fuel Spill Site
☐ Oil Water Separator (OWS) – Active
☐ Oil Water Separator (OWS) – Inactive
☐ PCB contaminated
☐ Range
☐ RCRA permitted
☐ UST/AST
☐ Other:
☐ Fire Training Area (FTA)
☐ Landfill/Dump/Debris/Disposal Site
☐ Oil Water Separator (OWS) – Abandoned
☐ Oil Water Separator (OWS) – Decommissioned
☒ Oil Water Separator (OWS) – Removed
☐ Pesticide contaminated
☐ RCRA Corrective Action
☐ Solid Waste Management Unit (SWMU)

Type of OWS: Sand Trap

10. Remedy in Place: Estimated End Date (if applicable): NA
11. Remedy in Place: Actual End Date (if applicable): NA
12. Response Complete: Estimated End Date (if applicable): NA
13. Response Complete: Actual End Date (if applicable): NA
14. Site Closeout: Estimated End Date (if applicable): NA
15. Site Closeout: Actual End Date (if applicable): NA
16. Location description: Inside building 368 (ST368A) & Southeast of building 368 (ST368B)
17. Influent:

a. Receives waste from: Floor washing inside building 368

b. Does OWS receive influent from a large area that collects stormwater?	☐ Yes	☒ No
c. Does OWS receive influent from excessive washing discharge?	☒ Yes	☐ No
d. Will it overflow?	☐ Yes	☒ No
e. Associated with discharge from a ship bilge?	☐ Yes	☒ No

18. Content:

a. Previous/current contents: Floor washing, inside OWS, and building sewage

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b. Are historical samples available? ☒ Yes ☐ No
c. If so, type of contaminants (solvents, petroleum, PCBs, metals, etc.): Petroleum and metals
d. Maximum concentration including units (ppm, mg/l, ppb, etc.): TPH = 4300 mg/L; Barium=0.16 mg/kg (1996)
e. How is sediment and debris that is cleaned from tank managed? Sediment and debris is removed and disposed of off-site by a contractor.

19. Installation date: 1963 ☐ estimated ☒ actual
Information source: Base tracking spreadsheet
20. Removal date: Dec. 2000
21. Status: ☐ active ☐ inactive ☒ removed ☐ abandoned ☐ decommissioned
22. Regularly Scheduled Maintenance: ☐ yes ☐ no ☒ unknown
Maintenance Conducted by: Unknown
Frequency: ☐ Annual ☐ Semi-annual ☐ Quarterly ☒ Other Unknown
23. Regularly Scheduled Monitoring: ☐ yes ☐ no ☒ unknown
Monitoring Conducted by: Unknown
Frequency: ☐ Quarterly ☐ Monthly ☒ Other: Unknown

ST368A
24. Length (ft/inch): ~50 inch 25. Width (ft/inch): 22 inch 26. Height (ft/inch): Unknown
27. Volume: 170 in gallons ☐ other unit:

ST368B
24. Length (ft/inch): 4 ft 25. Width (ft/inch): 4 ft 26. Height (ft/inch): Unknown
27. Volume: Unknown in gallons ☐ other unit:

28. Construction
Material: ☒ concrete ☐ fiberglass ☐ steel ☐ other:
Grade: ☐ above ground ☒ below ground
Containment: ☐ secondary containment ☒ none

29. Water discharge location: ☐ leach field ☒ sanitary sewer ☐ other:

Note: Sampling recommended for:
1. OWS at twice their service life:
Concrete 40 years
Steel 30 years
Fiberglass 20 years
2. If not twice service life, then use professional judgment /compelling evidence– cracks leaks, stressed vegetation, staining.

(If discharge to a stormwater ditch, check the ditch for sheen, stressed vegetation, or staining)

30. Any other associated tanks, etc (e.g., sand trap, holding tank)? ☐ yes ☒ no ☐ unknown
31. NOTES: None
32. Product discharge method (e.g., waste holding tank, recycling contractor, etc.): Contractor

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33. Has a release occurred? ☐ yes ☒ no

34. Estimated volume of release? ☐ unknown ☐ known _____ gallons

35. Estimated volume of impacted media? ☐ unknown ☐ known _____ cubic yards

36. Source of leak (e.g. pipeline)? ☐ unknown ☐ known _____

37. Types of Contaminants were released at the site (Select one or more answers):

☐ Solvent	☐ Pesticides	☐ Explosives
☐ Fuel – Gasoline	☐ Metals	☐ Grease
☐ Fuel – Diesel	☐ PCBs	☐ Antifreeze
☐ Oil	☐ Paints	☐ Detergents
☐ Unknown		
☒ Other NA		

38. Release Information (Include reason OWS leak suspected): None

39. Is there a potential for a release to have occurred? ☒ yes ☐ no ☐ not applicable

40. Potential for Release Information: Due to lack of secondary confinement.

41. Types of Contaminants Potentially Released: Petroleum (oils and greases), solvents and battery acid

42. Previous sampling activities? ☒ yes ☐ no ☐ unknown

43. Contaminants/Concentrations: Analytical results for a soil sample taken on the date of removal show DRO = 80 mg/kg.

ST368A

44. Is OWS surrounded by concrete pad that would restrict sampling activities? ☒ yes ☐ no

If so, how thick is the concrete (inches)? 6-10 inches (estimated)

Would concrete conceal evidence of a release? ☒ yes ☐ no ☐ unknown

ST368B

44. Is OWS surrounded by concrete pad that would restrict sampling activities? ☐ yes ☒ no

If so, how thick is the concrete (inches)? NA

Would concrete conceal evidence of a release? ☐ yes ☒ no ☐ unknown

45. Soil Profile (top 20 feet only): Caliche – at 5' below ground surface

46. Additional notes/site history: Both sand traps have been misidentified as OWSs in the past.

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Visual Survey

Visual Inspection

Contamination

Surface staining:	☐ yes	☐ no	☒ unknown
Visual sheen:	☐ yes	☐ no	☒ unknown
Odors:	☐ yes	☐ no	☒ unknown
Vegetation damage:	☐ yes	☐ no	☒ unknown

Other: None
Other: None
Visual Inspection Notes: OWS Removed

Geographical Information

The general topography of the site is: relatively flat
Other: None
With surface drainage appearing to flow to the:
☐ North ☐ South ☐ East ☐ West ☐ Northeast ☒ Northwest ☐ Southeast ☐ Southwest
Surface cover (check all that apply):
☒ Grass ☒ Soil ☐ Gravel ☐ Water ☐ Asphalt ☒ Concrete
☐ Other: None
Notes: ST368A has concrete surface cover; ST368B has grass and soil surface cover.
Groundwater:
Depth to Groundwater: ~ 300 ft
Direction of Flow:
☐ North ☐ South ☐ East ☐ West ☐ Northeast ☐ Northwest ☒ Southeast ☐ Southwest

Site Photographs

Site Photographs		
Photo Number	View Direction	Description
1	See photograph log.	
2		
3		
4		
5		
6		
7		
8		
9		
10		

Site Photograph Notes:
See photograph log.

Site Data Collection Form

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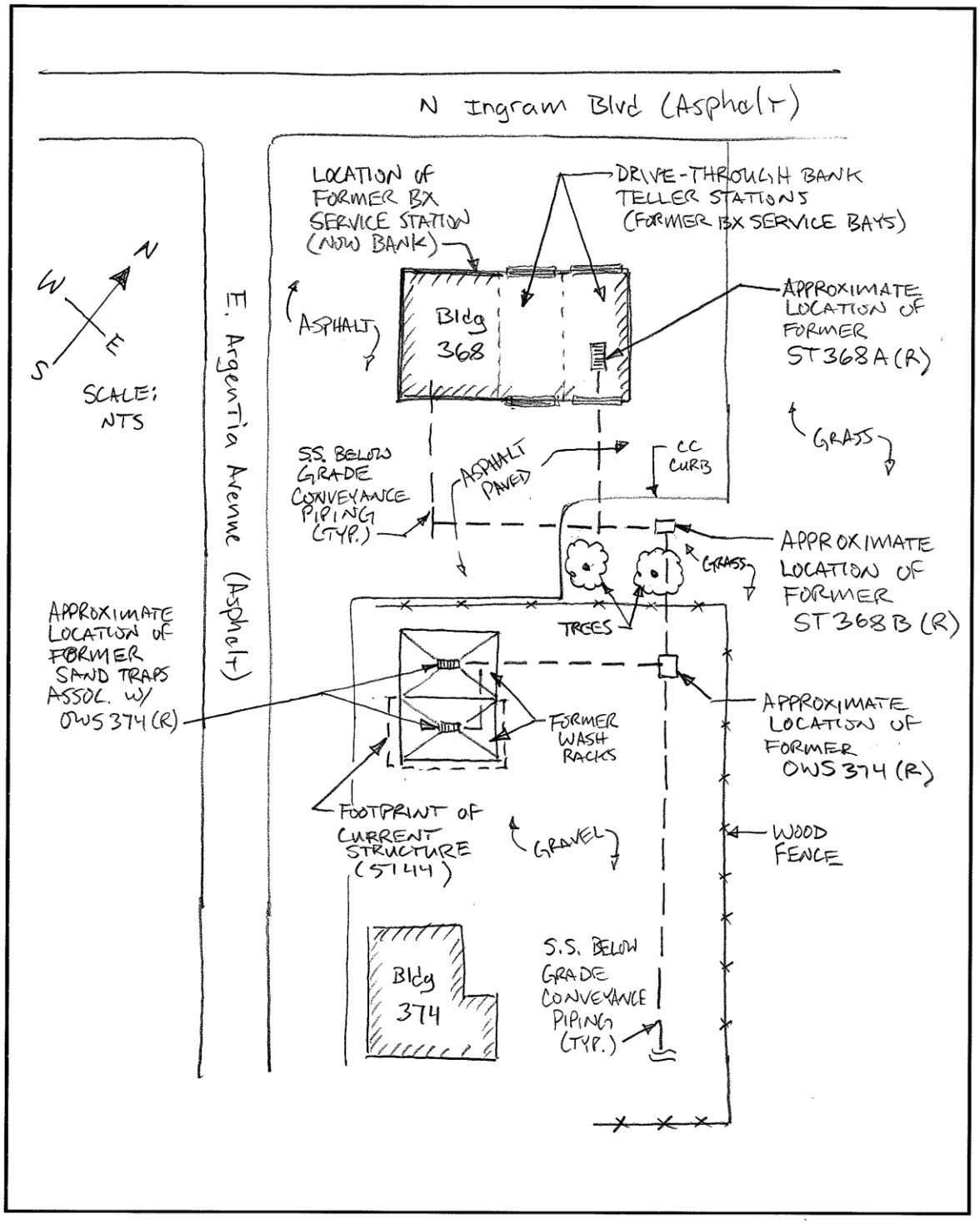
Site Alias: ST368A, ST368B, OWS368A, OWS368B

Site Sketch

☐ As-builts or other drawings supplied in lieu of site sketch



PHOTOGRAPHIC LOG

Site ID/Site Name: ST368AB(R)	**Site Location:** Cannon Air Force Base	**Project No.** 60162690.03

Photo No. 1	**Date:**

Direction Photo Taken:

Northwest

Description:

Historic photo. View northwest of former BX Service Station. Writing on photo indicates ST368A(R) located in former service bay on east side of building and ST368B(R) located in asphalt pavement southeast of the building. OWS374(R) is incorrectly identified as sand trap.

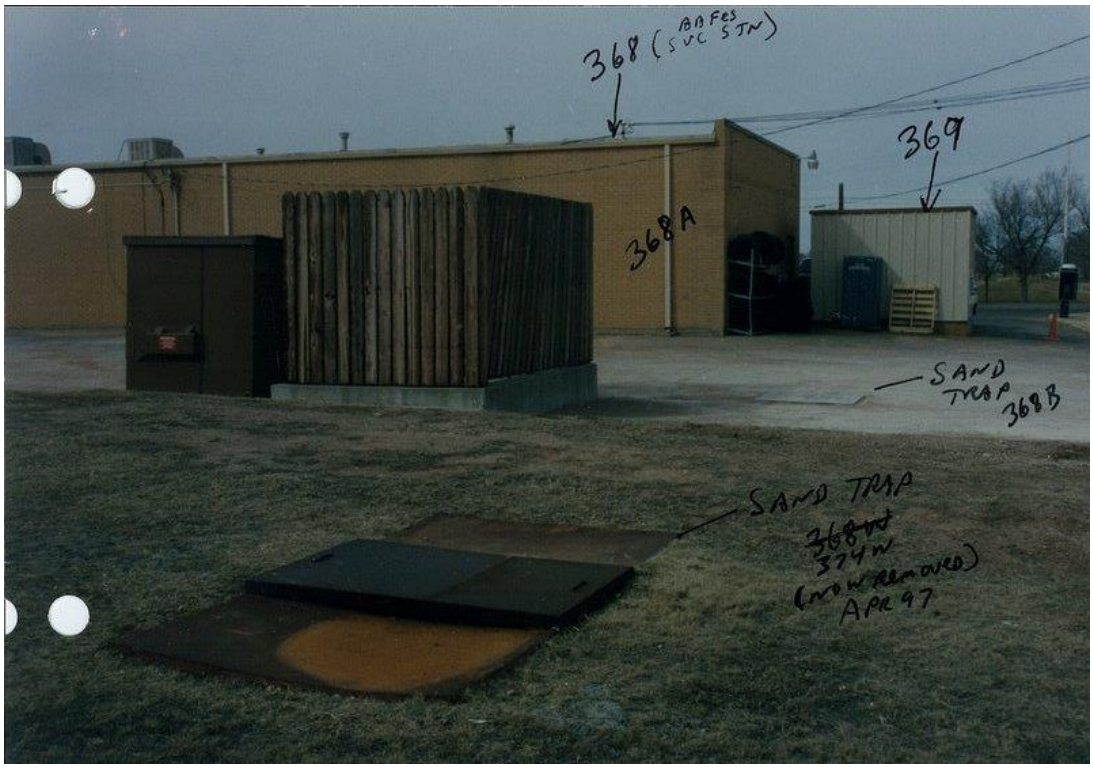


Photo No. 2	**Date:** 5/4/2011

Direction Photo Taken:

West

Description:

View west of current Building 368 (bank) site conditions. ST368A(R) was located in what is now east side bank teller drive-through. ST368B(R) was located in what is now grass covered area near pine tree (photo center-left).

PHOTOGRAPHIC LOG

Site ID/Site Name: ST368AB(R)	Site Location: Cannon Air Force Base	Project No. 60162690.03

Photo No. 3	Date: 5/4/2011

Direction Photo Taken:

Northwest

Description:

View northwest of current Building 368 (bank) site conditions. ST368A(R) was located in what is now east side bank teller drive-through, e.g., former BX Station east service bay.

Photo No. 4	Date: 5/4/2011

Direction Photo Taken:

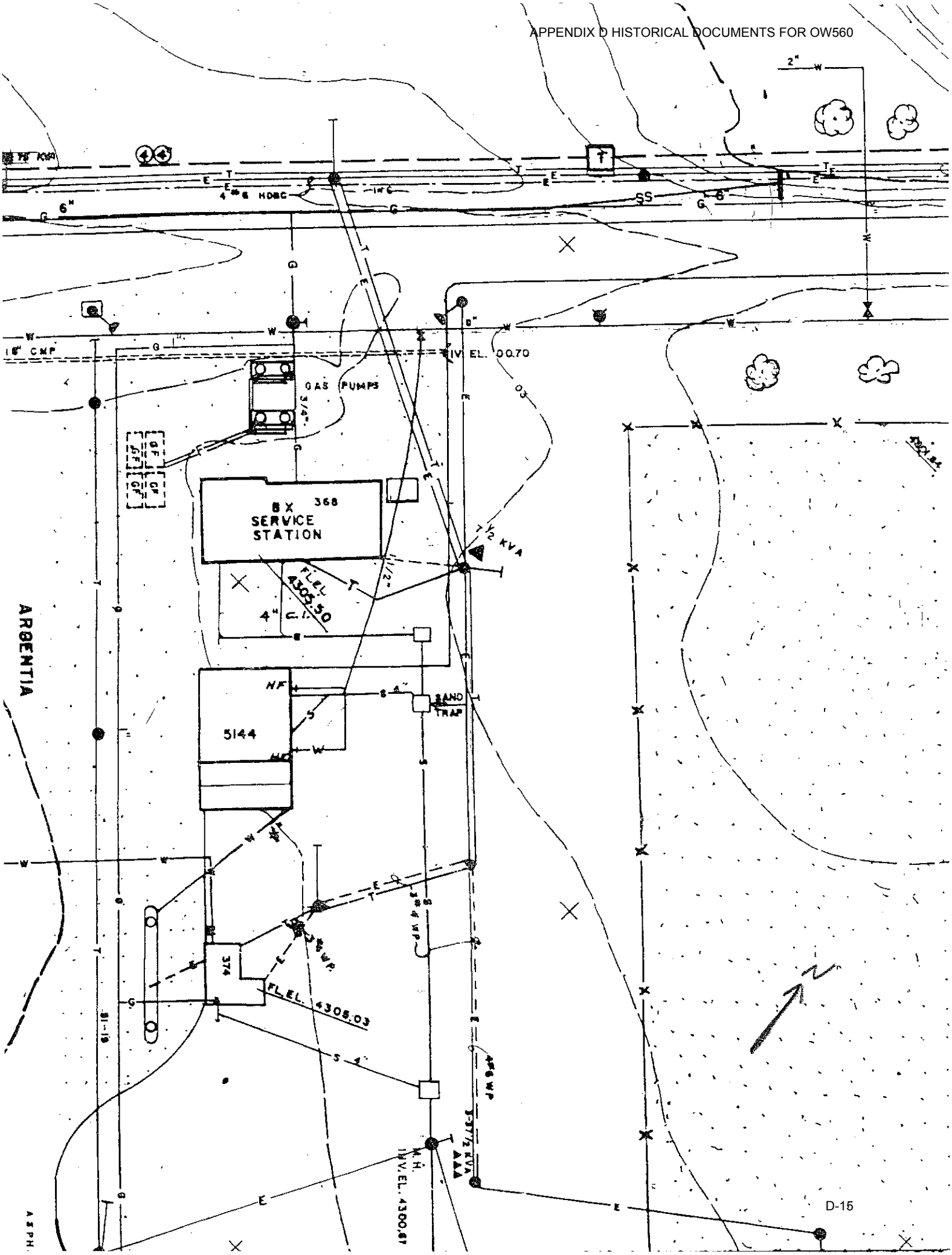
Northwest

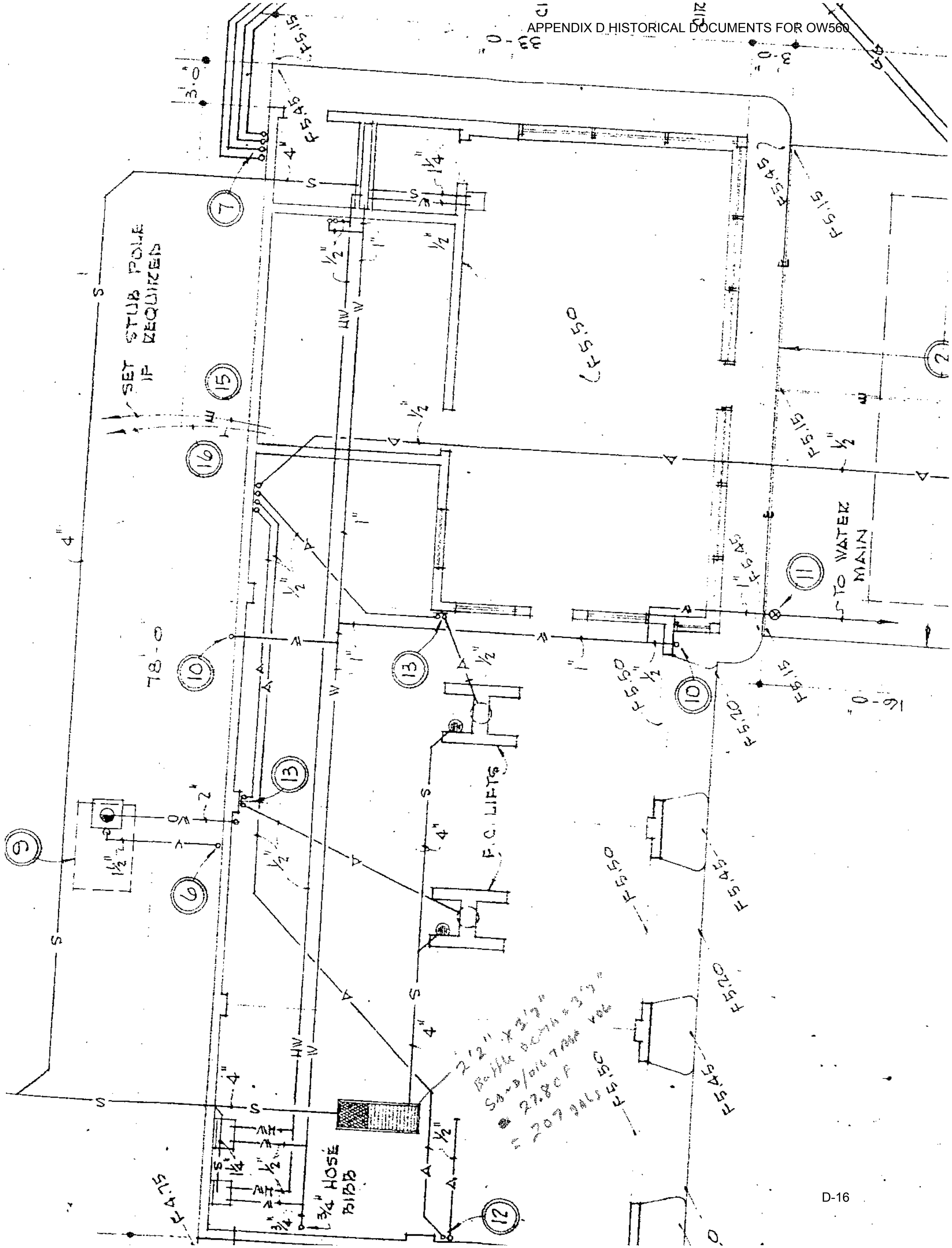
Description:

View northwest of current Building 368 (bank) site conditions. ST368B(R) was located in what is now grass covered area near pine tree (photo center-right).

**Supporting Documentation (drawings and/or misc.) For:
Oil/Water Separators (OWSs), Sand Traps (STs), and/or Wash Racks (WRs) at Cannon Air Force Base (AFB), Clovis, New Mexico**

Note: All information included was provided by Cannon AFB. Source of supporting documentation is included on the individual document, if known.


GAS PUMPS
8 X 368
SERVICE
STATION
5144
374
ARGENTIA
SAND TRAP
FL.EL. 4305.50
FL.EL. 4308.03
M.H.
INV. EL. 4300.87
INV. EL. 00.70
7½ KVA
3-37½ KVA
4" C.I.
6"
2"
18" CMP

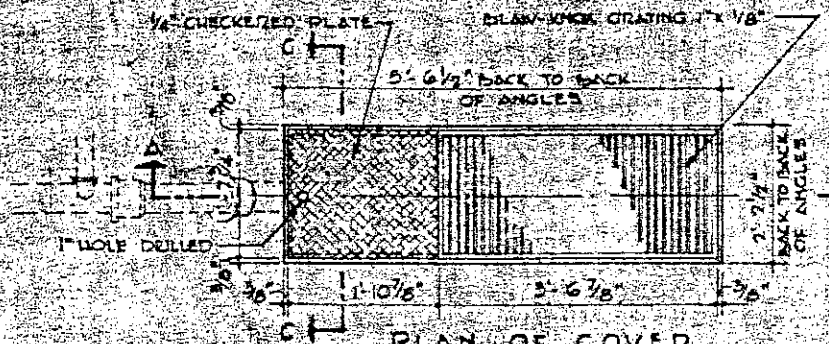

SET STUB POLE
IF REQUIRED
TO WATER
MAIN
F.C. LIFTS
3/4" HOSE
BIBB
78'-0"
F5.50

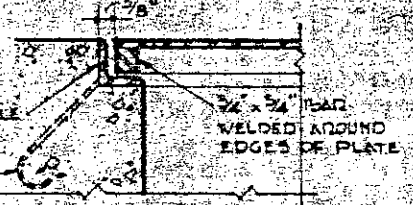
ELEVATION

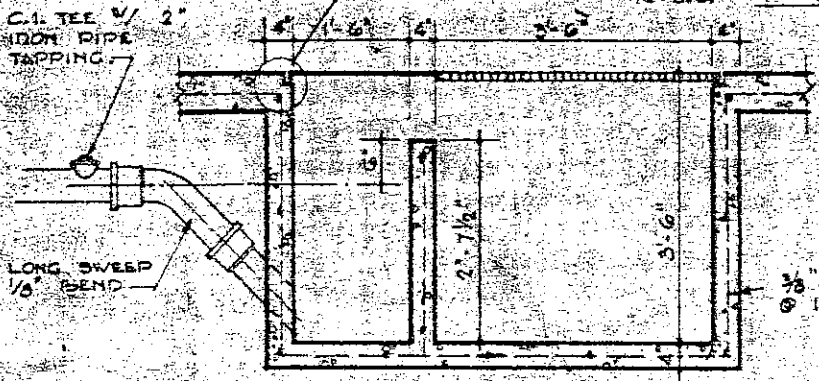
NOTE:
CONTRACTOR SHALL CHECK AIR COMPRESSOR FOR EXACT LOCATION OF ELECTRICAL AND AIR CONNECTIONS WHICH VARY FROM THIS DETAIL. INSTALL AS REQUIRED TO GIVE SAME HOOK UP AS SHOWN.

AIR COMPRESSOR INSTALLATION

DATED 2-15-61 | 5

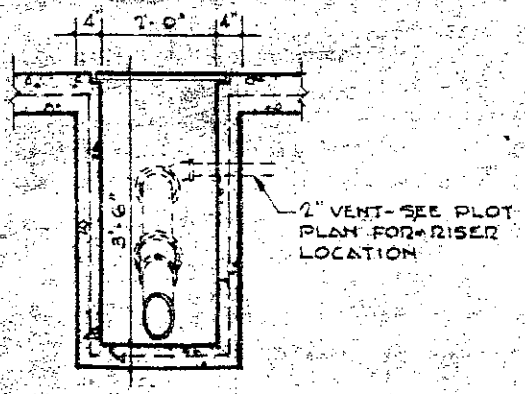






NOTES:
MUDTRAP TO BE CONSTRUCTED ACCORDING TO THIS DETAIL UNLESS OTHERWISE REQUIRED BY LOCAL REGULATIONS.

CONTRACTOR TO MAKE ADJUSTMENTS REQUIRED TO MEET SUCH REGULATIONS.



SINGLE MUD TRAP

FAC 368

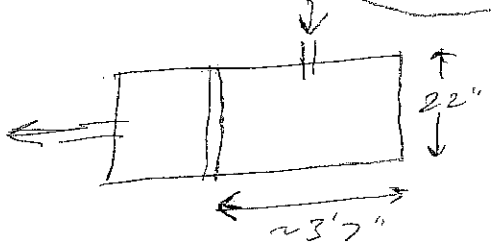
DATED 2-15-61 | 6

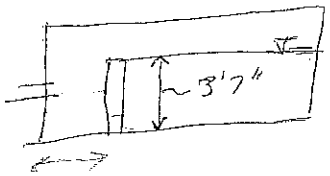
BX Service Station

9/27 FOUND new OWS/SAND TRAP INSIDE

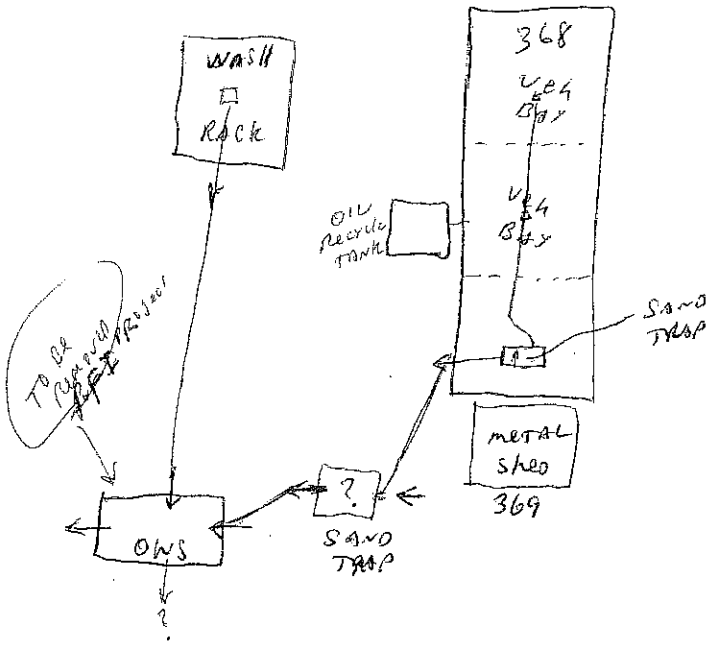
BX SVC STN (FAC 368)

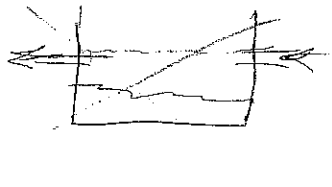
2 cell





Level in OUTSIDE OWS ~ 2'1"





OUTSIDE SEPARATOR/ SANDTRAP 368 B

FACT SHEET / STATEMENT OF BASIS

Cannon Air Force Base

Request for No Further Action Status for Thirty-two Solid Waste Management Units and Areas of Concern

RCRA Permit No. NM7572124454

December 28, 2005

CAFB Fact Sheet & Statement of Basis
September 2005

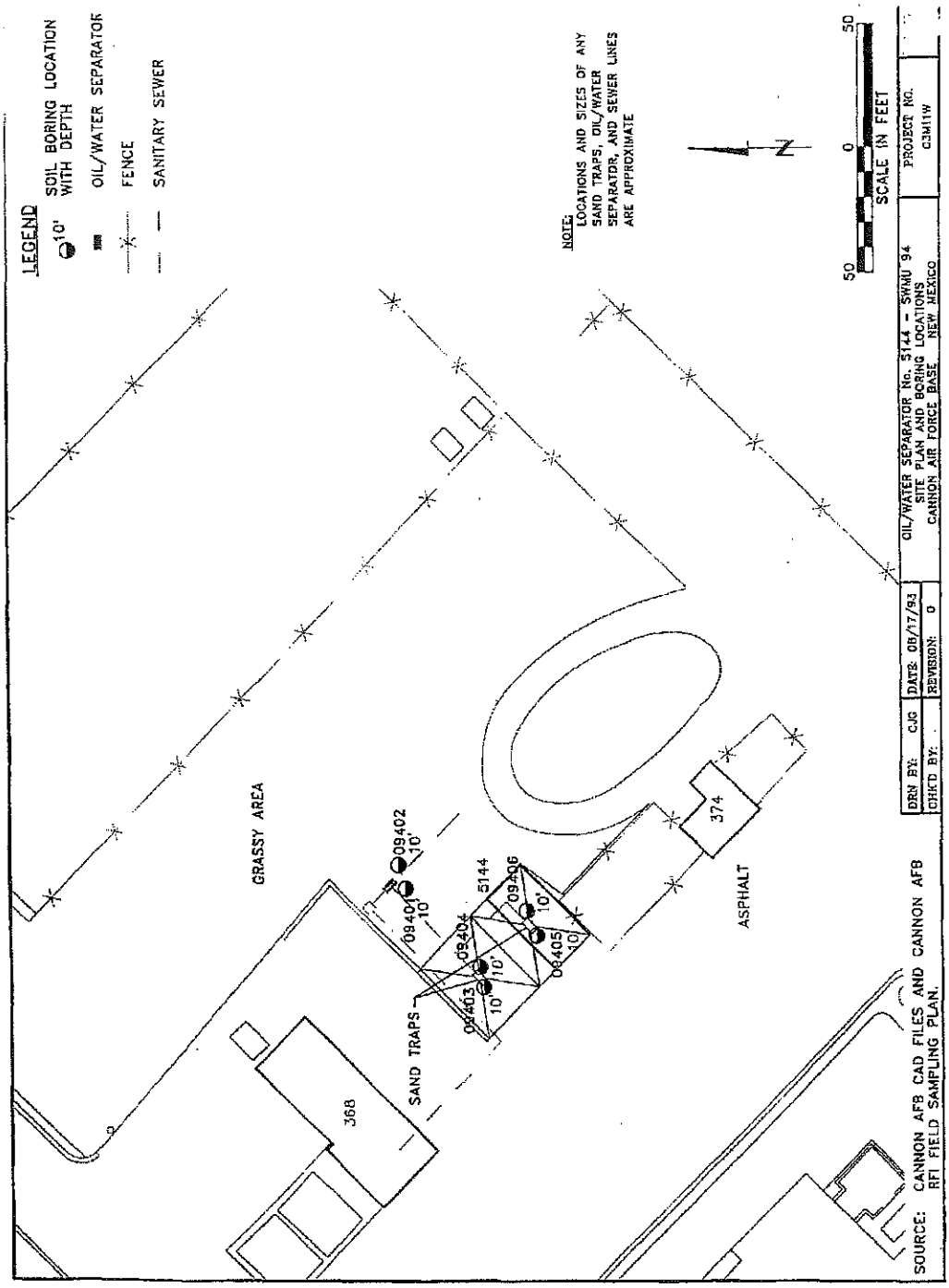


Figure 26---SWMU 94

Source: Woodward-Clyde, 1994

OIL/WATER SEPARATOR (OWS), TESTING, INSPECTION, & REPAIR

CANNON AIR FORCE BASE, NEW MEXICO

OWS/UST REMOVAL REPORT

(CDRL A011)

INTEGRITY TESTING REPORT

(CDRL A012)

LABORATORY ANALYSIS DATA

(CDRL A014)

COLOR PHOTOGRAPHS

(CDRL A010)

REDLINE AND AS-BUILT DRAWINGS

(CDRL A015)

Prepared for:
HQ AFCEE/ERD

Contract No. F41624-94-D-8063
Delivery Order 000702

Prepared by:
Geo-Marine, Inc.
8301 Broadway, Suite 308
San Antonio, Texas 78209

August 1998

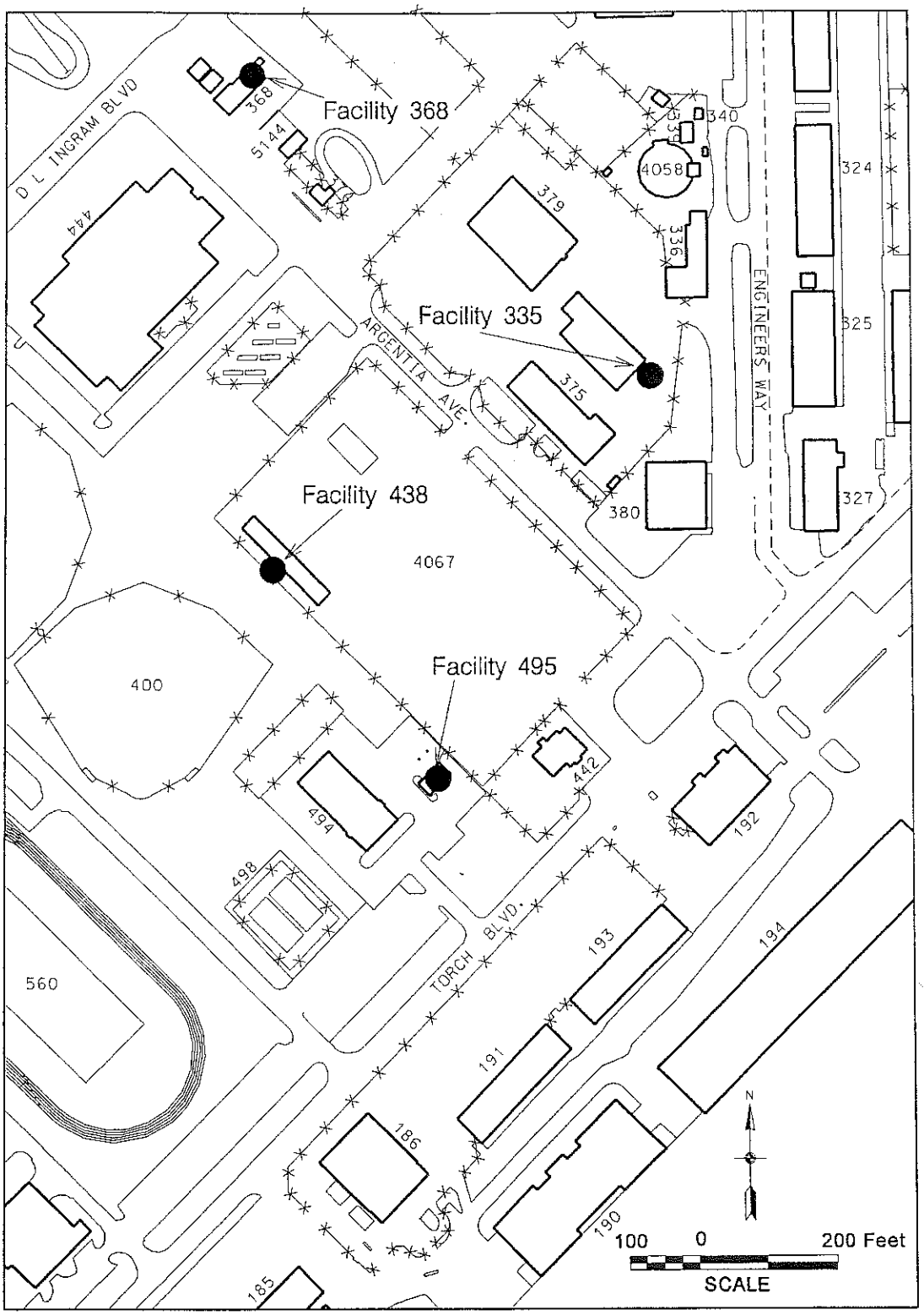
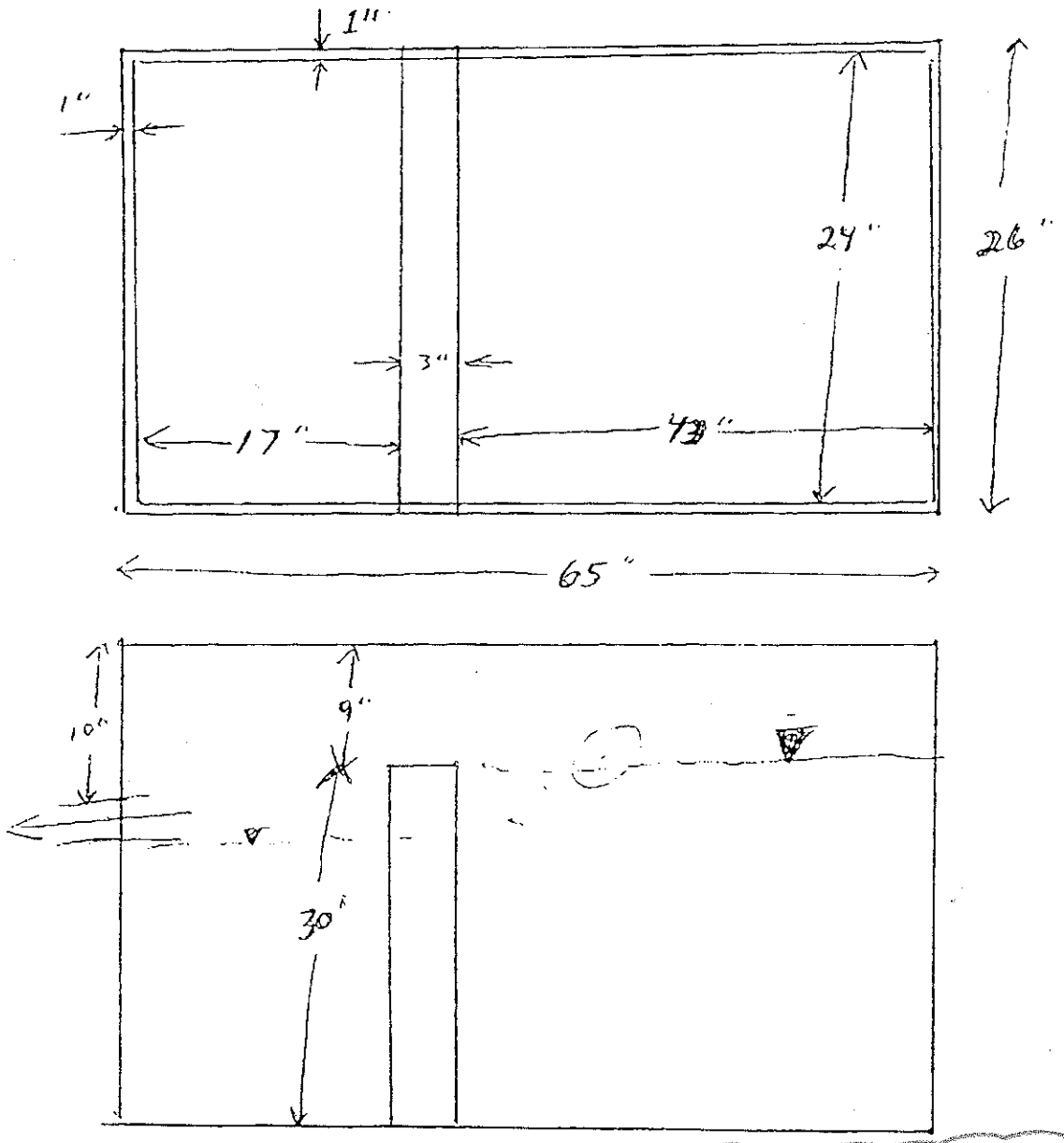


Figure 5. Facility 335 OWS Removed.
Facility 495 Car Wash OWS Cleaned, Inspected, Tested and Repaired.
Facility 438 OWS Removed and Replaced with Sand Trap.
Facility 368 Tested.

GEO-MARINE
ENGINEERING AND ENVIRONMENTAL SERVICES



Note: Drawings and details provided by base personnel indicated OWS 368 is a Sand Trap, e.g., ST 368 B (R) - removed. TPQ

Figure 15. OWS 368 Integrity Test. Reference: Material supplied by Cannon Air Force Base

OIL/WATER SEPARATOR (OWS), TESTING, INSPECTION, & REPAIR

CANNON AIR FORCE BASE, NEW MEXICO

OWS/UST REMOVAL REPORT

(CDRL A011)

INTEGRITY TESTING REPORT

(CDRL A012)

LABORATORY ANALYSIS DATA

(CDRL A014)

COLOR PHOTOGRAPHS

(CDRL A010)

REDLINE AND AS-BUILT DRAWINGS

(CDRL A015)

Prepared for:
HQ AFCEE/ERD

Contract No. F41624-94-D-8063
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San Antonio, Texas 78209

August 1998

4.5.6 OWS 368 (OS-005593)

OWS 368 is a two compartment concrete structure composed of a 130-gallon sediment/inlet chamber, and a 40-gallon oil retention/outlet chamber completely covered by a metal plate. The total working capacity is approximately 175 gallons. Figure 15 shows a schematic diagram of OWS 368. The OWS is located inside Building 368 and acts as a floor drain collecting spill and washdown water from the automotive repair and maintenance operations. Use of the OWS was suspended during the test. On 29 June 1998 initial measurements were made from the top of the OWS (reference point) down to water surface. At 1042 hours a measurement of 7-3/4 inches was established in the sediment chamber and at 1354 hours a value of 14-3/8 was obtained from the oil retention/outlet chamber. Final measurements were obtained from the sediment chamber and oil retention/outlet chambers respectively, at 0952 hours on 1 July. There was no measurable loss of volume during the 47-hour 10-minute and 43-hour 58-minute tests and thus the unit was within the weekly standard pass criterion.

Bldg. #368	Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Date	Ending Time	Reading	Change (in.)	Change (gal.)	Grade
Inlet Cell	6/29/98	130	10:42	7-3/4"	- 3/16"	7/1/98	9:52	7-3/4"	0	0	Pass
Outlet Cell	6/29/98	40	13:54	14-3/8"		7/1/98	9:52	14-3/8"	0	0	Pass

5.0 INSPECTION AND REPAIRS

5.1 FACILITY 109 (CZQZ979330)

OWS 109 was pumped out and cleaned for inspection. The inspection revealed that there were no repairs required. Site location can be found on Figure 6.

5.2 FACILITY 133 (CZQZ979330)

An inspection of OWS 133 revealed that a vent pipe needed replacement. A new vent pipe was installed on the separator after an integrity test was performed. No other repairs were necessary. Site location can be found on Figure 6.

5.3 FACILITY 204 (CZQZ979330)

Repairs performed at Facility 204 included the installation of metal lifting handles on the OWS covers lids. Site location can be found on Figure 4.

TABLE 5
CANNON AFB, NEW MEXICO
OWS INTEGRITY TESTING (1998)

OWS 495	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
West Bay	6/30/98	175	21:36	23-21/32"	0	7/2/98	9:36	23-25/32	-1/8	0.68	Pass
East Bay	6/29/98	175	10:18	23-13/16"	0	6/30/98	22:00	23-13/16"	0	0	Pass

OWS 368	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
Inlet Cell	6/29/98	130	10:42	7-3/4"	- 3/16"	7/1/98	9:52	7-3/4"	0	0	Pass
Outlet Cell	6/29/98	40	13:54	14-3/8"		7/1/98	9:52	14-3/8"	0	0	Pass

OWS 107	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
Inlet Cell	6/29/98	500	11:20	16-3/16"	-1/16"	7/1/98	10:15	16-9/32"	- 1/32"	0.88	Pass
Outlet Cell	6/29/98	100	11:20	20-13/16"		7/1/98	10:15	21"	-1/8	0.53	Pass

OWS 2123	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
Oil Retention Cell	6/29/98	1700	15:20	30-1/8"	0	7/1/98	10:42	30-1/4"	-1/8	5.83	Pass

OWS 2132	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
Oil Retention Cell	6/29/98	1700	15:24	39-7/8"	0	7/1/98	10:50	40"	-1/8"	5.83	Pass

OWS 204	Starting Date	Approx. Operating Volume (Gal)	Starting Time	Initial Reading	Evap.	Ending Date	Ending Time	Ending Reading	Change (in.)	Change (gal.)	Pass/ Fail
Oil Retention Cell	6/29/98	1600	15:46	66"	- 1/32"	7/1/98	11:05	66"	0	0	Pass
Outlet Cell	6/29/98	350	15:46	72"		7/1/98	11:05	72"	0	0	Pass

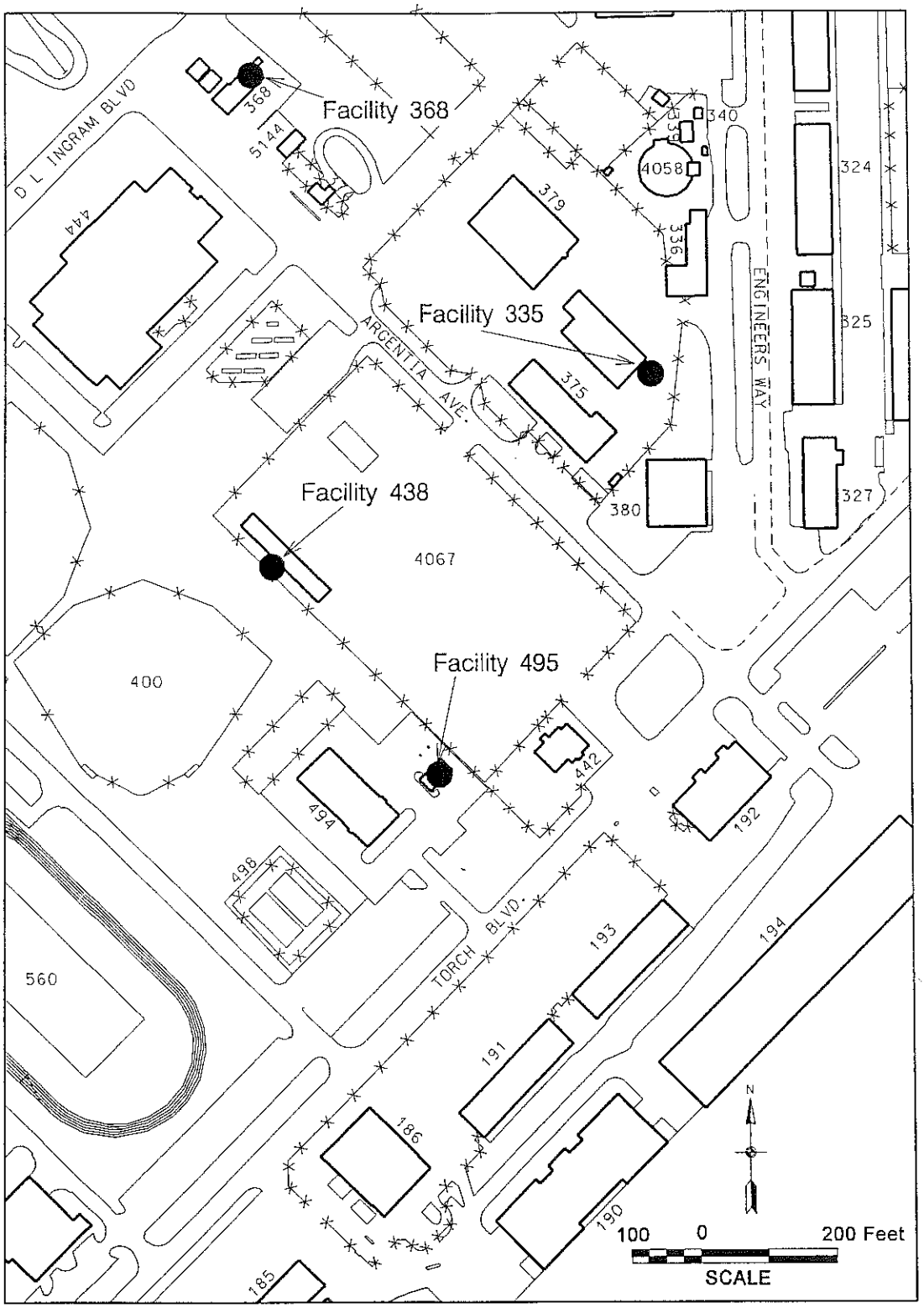

Figure 5. Facility 335 OWS Removed.
Facility 495 Car Wash OWS Cleaned, Inspected, Tested and Repaired.
Facility 438 OWS Removed and Replaced with Sand Trap.
Facility 368 Tested.

GEO-MARINE
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Photograph E-1: Former location of OW541 facing north

Photograph E-2: Soil down gradient on the surface of OW541

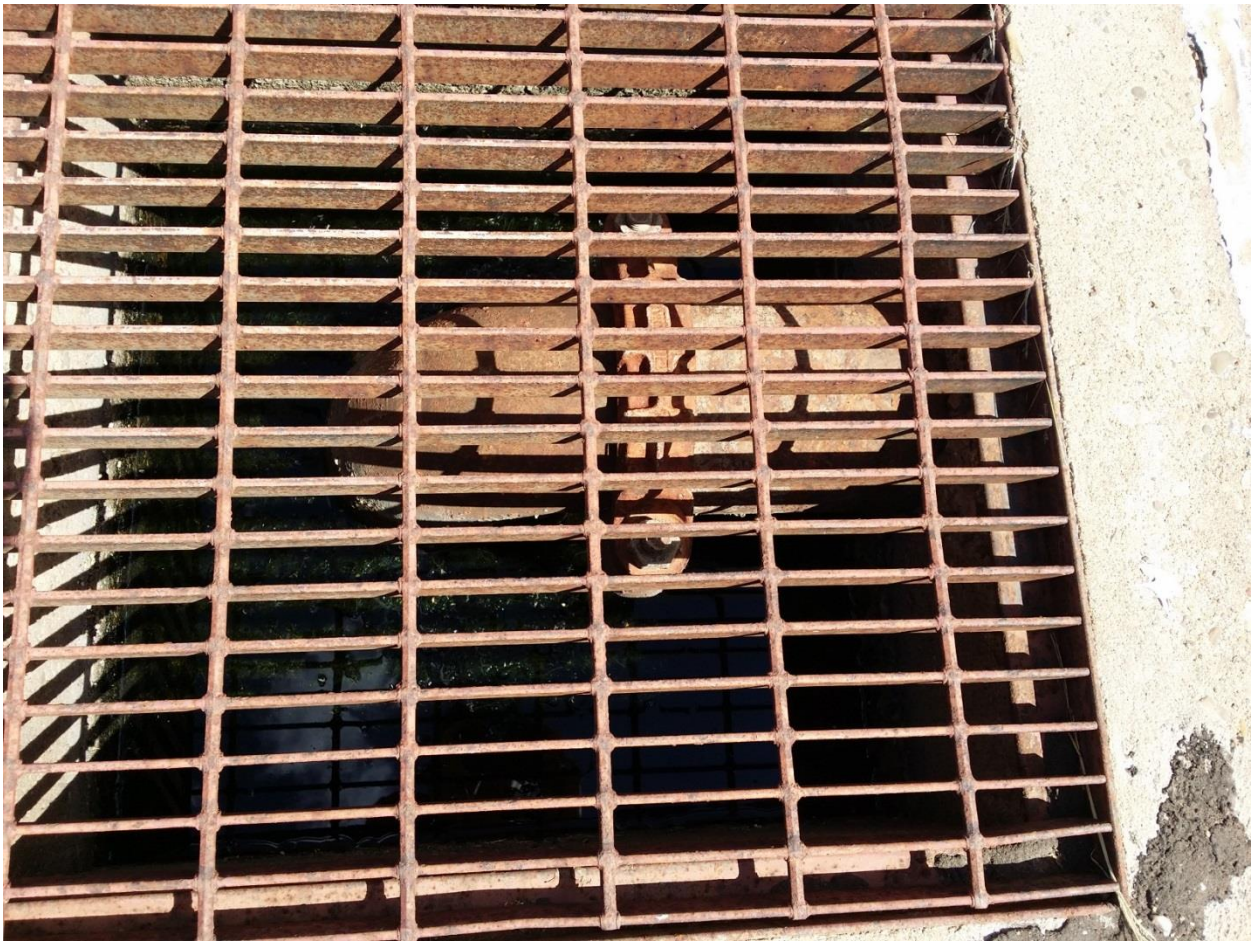
Photograph E-3: Close up of former discharge pipe of OW541

Photograph E-4: Inside OW541 vault facing southwest

Photograph E-5: Inside OW541 vault facing west

Photograph E-6: Grate north of OW541 within the bermed area. Edge of above ground storage tank saddles in upper left.

Photograph E-7: Inside the grate in the bermed area from Photograph G-6



Photograph E-8: Measuring the grate dimensions

Photograph E-9: Pipe and valve between berm to the north and concrete vault once holding OW541 to the south

Photograph E-10: View looking west at vault formerly containing OW541

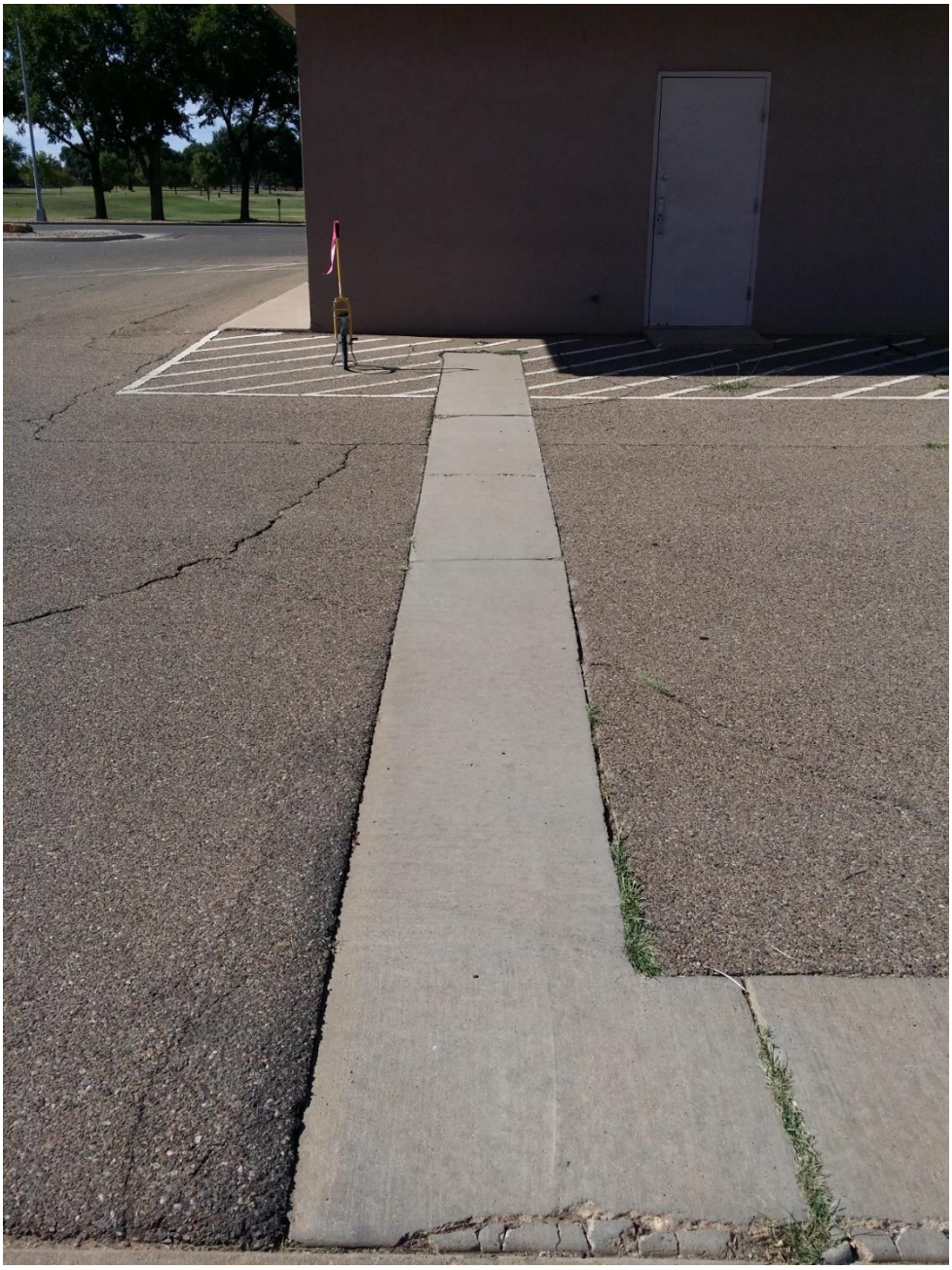
Photograph E-11: Bldg 368 looking northeast on the backside of the building

Photograph E-12: Bldg 368 looking north at the northeast side of the building where OW560 (ST368A) was formerly located

Photograph E-13: Bldg 368 looking northwest at the northeast side of the building

Photograph E-14: The parking lot of Bldg 368 looking northeast where OW560 (ST368B) was formerly locate

Photograph E-15: Concrete patch from the southeast corner of the Cannon Federal Credit Union OW541 facing northwest



Photograph E-16: View northeast of the 90 degree bend to the former location of ST368B