N-41970

12/31/86

PRELIMINARY ASSESSMENT (PA) REPORT

FOR

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE
ANTELOPE VALLEY, LANDER COUNTY, NEVADA

BLM Site Code: NVD 980695324
AEPCO Site No. 17 Group F

(DRAFT REPORT)

Under BLM Contract No. AA852-CT5-26
AEPCO Project No. 1200.1737

AEPCO, INC

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Submitted to:

Department of the Interior
Bureau of Land Management (BLM)
18th and C Streets, N.W.
Washington, D.C. 20240

Submitted by:

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31 December 1986

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EXECUTIVE SUMMARY

A Preliminary Assessment (PA) was performed at the Antelope Valley Pesticide Container Disposal Site with the objectives of using available information as supplemented by sampling and analysis to:

- o Define the type and estimate the quantities of hazardous wastes/substances on site;
- o Determine the status of contamination migration; and
- o Classify the site for future site actions.

A. Site Location and Layout. The Antelope Valley Pesticide Container Disposal Site is located within the Antelope Valley in Lander County, Nevada, about 5.5 miles west of Route 305, which connects the Towns of Battle Mountain and Austin.

The fenced site covers an area of about 2 acres of BLM-owned land leased indefinitely to Lander County. Access to the site is through a gate which is kept locked at all times. The site offers restricted access to the general public for the disposal of waste items. It has been designated for disposal of empty crushed containers or cans of pesticides and herbicides.

A rinsing station on site is used to rinse empty pesticide/herbicide containers before crushing and final disposal on the site. One pit is situated about 30 feet from the western edge of the site fence.

B. Features of the Site and Vicinity. The site is located on alluvium between the valley fill and bedrock. The valley fill consists of alluvial deposits of gravel, sand, silt, and clay. Most of these deposits are capable of transmitting groundwater freely. Bedrock in the area is volcanic and exposed in many regions.

The 20- to 60-feet deep uppermost aquifer appears to be an alluvial valley one. High to moderately permeable soils render the shallow aquifers susceptible to contamination. Groundwater movement from the Antelope Valley area is eastward and northward to the Middle Reese River Valley and further down the Reese River towards Battle Mountain.

Surface runoff from the site is normally scarce; however, during intensive rainstorms, it can be excessive. The runoff drains into the nearby intermittent Cain Creek, thence joins the Reese River, and eventually empties into the Humboldt River at Battle Mountain.

Surface water and groundwater are important sources of water supply for irrigation, stockwater, and domestic uses in the region.

The nearest ranch or house is located 1.5 miles east of the site. Considering the ephemeral nature of streams in the area, it is most likely that groundwater is tapped at this ranch and probably other ranches as the primary source of water supply.

Both sheep and cattle graze the study area. However, no ranch or livestock improvements exist at the site.

C. Contamination Concerns. Approximately 75 empty pesticide/herbicide drums were observed lying in the northern portion of the pit during the first site visit. They are es-

timated to equate to about 5.5 cubic yards of solid wastes potentially containing pesticide and herbicide residues. Since the site has been in operation for nearly 14 years, the few drums present suggest that the site is used infrequently. The only significant change that was noticed during the second site visit was the disposal of four additional pesticide drums. These empty drums formerly contained Malathion.

Analytical findings confirmed that the onsite wastes contain neither inorganic nor organic substances on the EPA's Hazardous Substances List at concentrations above either laboratory detection limits or the applicable standards promulgated under the Resource Conservation and Recovery Act, with the exception of a trace amount of alpha-endosulfan in the waste sample collected during the second site visit. The onsite wastes are relatively nonflammable, nonignitable, noncorrosive, nonreactive, nonvolatile, and nonhazardous.

The presence of a small quantity of relatively immobile alpha-endosulfan indicates that contaminant migration via groundwater is currently not a significant problem.

With the exception of the perception of faint pesticide odors from the disposal pit, no air contamination was noted at and near the site.

D. BLM Site Classification

The Antelope Valley Pesticide Container Disposal Site is classified as a BLM Class II site, because hazardous organic substances were disposed on site but in such quantities, forms, or under such conditions that there is no significant hazard to human health or the environment.

E. Recommendations. Although the site now contains a small amount of relatively immobile alpha-endosulfan, the shallow groundwater table conditions, high to moderate permeability of soils, and extremely fractured bedrock in the study area make the groundwater vulnerable to contamination, should it become an actual problem. Accordingly, to prevent or mitigate against any such future contamination, it is suggested that the existing and any future disposal pits on the site be lined with impervious layers to prevent leaching into the groundwater system. Also, the disposed materials should be covered periodically with inert soils to eliminate the potential of exposure to humans and animals.

Periodic inspection and maintenance of the perimeter fence on site is also recommended to minimize the potential of direct contact with the wastes and prevent farm animals from gaining access to the grazing fields on site.

1.0 BACKGROUND

This Preliminary Assessment (PA) report was prepared in accordance with:

- o the requirements in the Project Guidance Documents prepared by AEPCO, Inc. for the Bureau of Land Management (BLM);
- o Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980;
- o the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Federal Register Vol. 50, No. 224, November 20, 1986); and
- o the Federal Facilities Program Manual for Implementing CERCLA Responsibilities for Federal Agencies prepared by the U.S. Environmental Protection Agency.

1.1 Scope of Services

The PA was performed at the Antelope Valley Pesticide Container Disposal Site by AEPCO, Inc. under a contract agreement with the BLM. The objectives of this PA are to:

- o Define the type and estimate the quantities of hazardous materials or wastes on site;
- o Estimate the status of contamination migration,
- o Determine the extent to which the site is in compliance with Federal and State regulations or permits; and
- o Facilitate site classification for subsequent actions including no-action.

This PA report will be the basis for a BLM scoping decision for the request of funding for whatever follow-up site investigation, remedial investigation, feasibility studies, or onsite or offsite remedial actions are required. This report has been prepared exclusively from existing information supplemented by two site sampling programs.

1.2 Site Location and Site Layout

The Antelope Valley Pesticide Container Disposal Site is located within the Antelope Valley in Lander County, Nevada at latitude $40^{o}02'30"$ N and longitude $117^{o}14'30"$ W (**Figure 1-1**). Located in the central part of the state, Lander County is bordered by Eureka County to the east, Churchill and Pershing Counties to the west, Humboldt and Elko Counties to the North, and Nye County to the south.

The site, as shown in a 15-minute Mt. Moses Quadrangle map (USGS, 1961), is located approximately 5.5 miles west of Route 305 (or Route 8A), which connects the Towns of Battle Mountain and Austin. The Town of Austin, near the interchange of Routes 305 and 50, lies approximately 47 miles south of the site. Battle Mountain, adjacent to the interchange of Route 305 and Interstate 80, lies approximately 42 miles north. The legal description of the site is NW 1/4 SE 1/4, Section 18, Township 25 N, Range 42 E, MDM.

The site layout is shown in **Figure 1-2**. Assuming that the fence around the site marks its boundaries, the site covers an area (300' by 300') of about 2 acres of BLM-owned land. An access road to the site connects with Route 305 (Route 8A). Access to the site is through a gate on the northern end, which is kept locked at all times. The key to the lock is kept un-

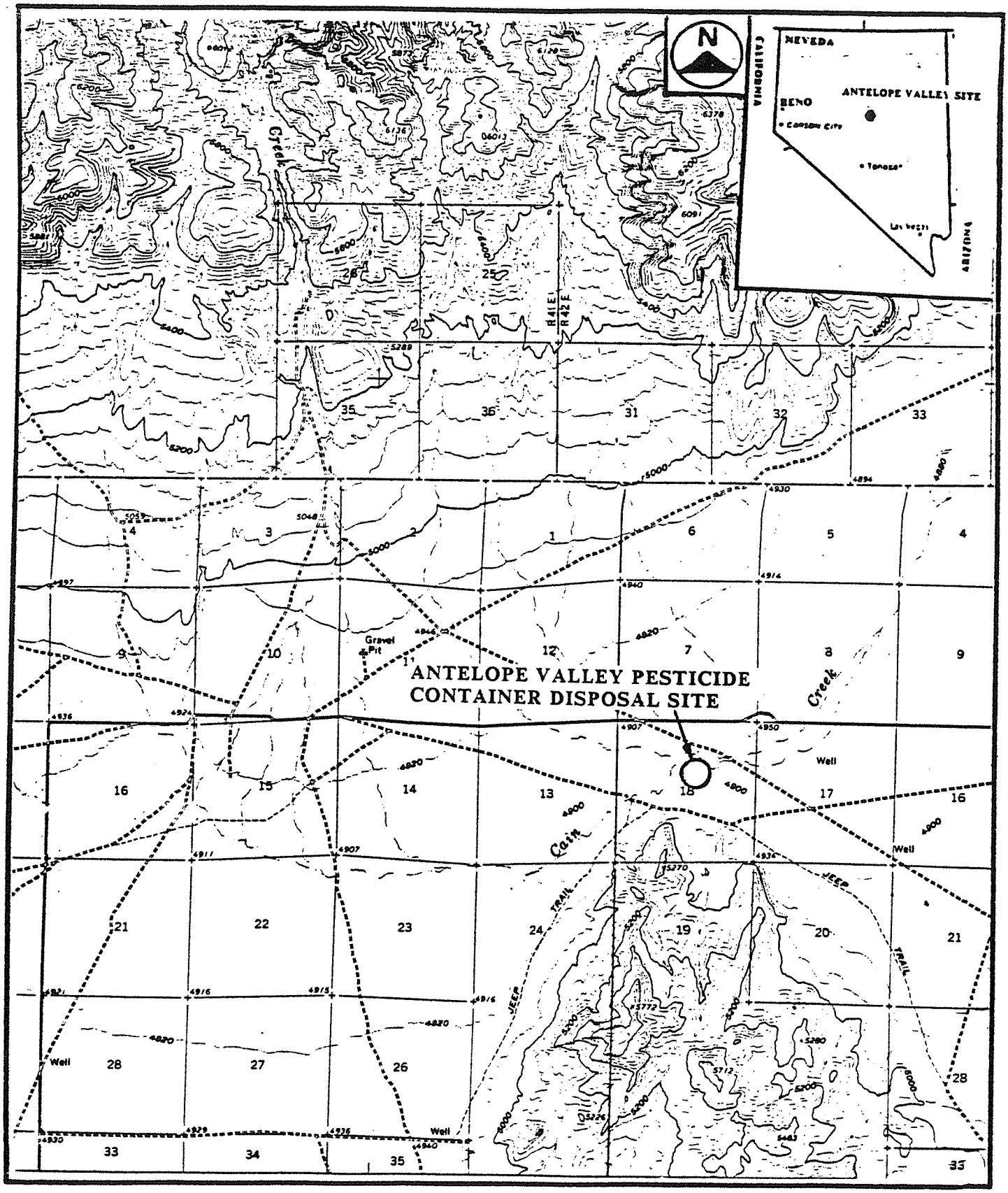

FIGURE 1-1.
LOCATION MAP--ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE
BATTLE MOUNTAIN, LANDER COUNTY, NEVADA

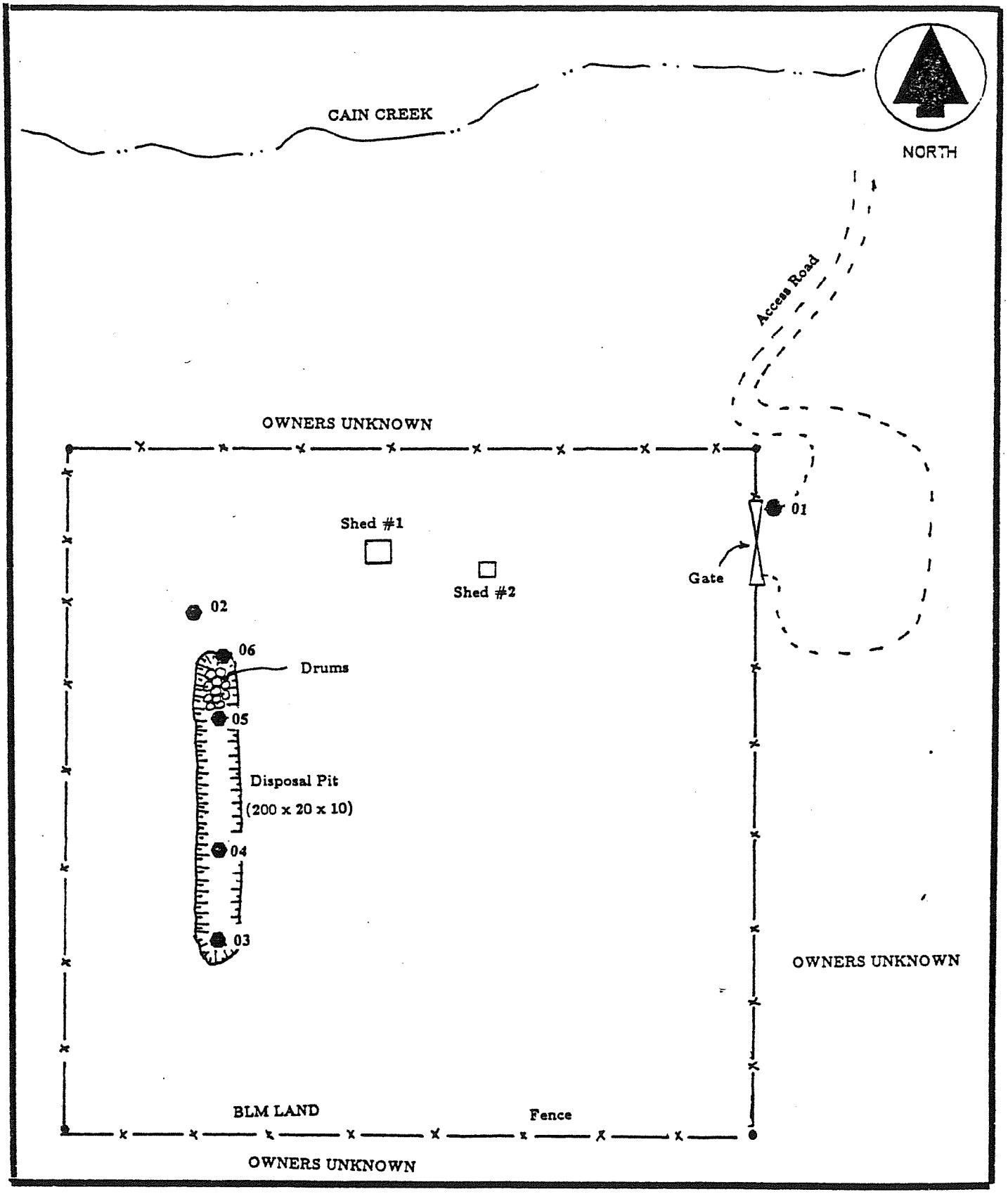

FIGURE 1-2.
SITE LAYOUT MAP AND MONITORING/SAMPLING LOCATIONS
ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE

der the custody of the Lander County Commissioners. No warning signs are posted on the fence or near the site entrance. Completely encircling the site, the fence is about 8-feet high and contains double-stranded barbed wire and climb-proof back-breakers (angulars) installed on all posts. The site offers restricted access to the general public for the disposal of waste items. One approximately 100'x10'x10' disposal pit is situated about 30 feet away from the western edge of the fence. The site has been designated for disposal of empty crushed containers or cans of pesticides and herbicides. A rinsing station and two storage sheds are present on the site. The station is used to rinse empty pesticide/herbicide containers before crushing and final disposal on the site.

1.3 Site Description

1.3.1 Topographic Features

Lander County is located on a high plateau containing many deep valleys. Antelope Valley, is flanked by the Fish Creek Mountains to the north and the Augusta Mountains to the east. The highest mountain point is on Mt. Moses at an elevation of 8,645 feet above mean sea level (MSL).

The site and the surrounding area feature a moderately sloping terrain. Lying approximately 0.25 miles north of the site, the ephemeral Cain Creek, a tributary of Reese River, flows northeasterly. Site elevation ranges from 4,900 to 4,920 feet above MSL, and about 30 feet above the valley floor of the Reese River. Generally, the site slopes from west to east at approximately 12%.

1.3.2 Soils

Soil types identified in and around the Antelope Valley Site include calcisol, humic clay, sandy regosols, sierozen, solonchak, and solonetz. The outstanding characteristics of these soils is the weak expression of soil development. In some locations. soluble salts have accumulated and calcium carbonate is usually present throughout the profile (Zieg, 1973).

Examination of a soil profile from the undisturbed, cut surfaces of the onsite pit indicates that the soils were formed of gravels, sands, and alluvial fans from various rocks. Soils on site and in the vicinity appear to be aridisol or mineral soils of arid climates, and suborder orthids or aridisols without clay accumulation (Brady, 1974).

1.3.3 Geology of the Site and Vicinity

Most of Nevada including Lander County is in the Basin and Range Province, which is physiographically characterized by block mountains and desert basins. In profile, the ranges are crudely shaped and have a rim of fairly uniform height about 1,500 feet above the surrounding valley floor and a broad shallow central basin several hundred feet lower than the rim. The Fish Creek Mountains in central Nevada and north of the site are a typical example of these ranges. The mountains are eroded and have formed rugged badland topography with a dendritic drainage pattern (McKee, 1970).

The Fish Creek Mountains are uplifted along their western edge by well-defined Basin and Range faults. Scarps can be seen in the field and a well-marked north-northest-trending line at the base of the range probably is the trace of the most recent fault. Uplift on this

western Basin and Range fault is about 1,000 feet or more and has elevated the Fish Creek Mountains Tuff as well as 1,000 feet of the underlying Paleozoic basement.

The Fish Creek Mountains are composed almost entirely of a single, probably composite ash-flow sheet, the Fish Creek Mountains Tuff, considered to be of early Miocene Age. This Tuff is exposed over an area of about 200 square miles. The thickness of the formation ranges from a maximum of about 3,000 feet in the south-central part of the Fish Creek Mountains to about 100 feet at the margins of the range. This change in thickness occurs across a distance of about 8 miles.

The Fish Creek Mountains Tuff lies unconformably on older rocks in the northern and western parts of these mountains. Its basal contact is not exposed in the central, eastern, or southern part where the ash-flow sheet is thickest. Locally this unit is overlain by sedimentary rocks and at a few places by a second, thin, crystal-poor ash-flow sheet.

In the south-central part of the range, the formation is more than 3,000 feet thick, devoid of structure except for some columnar jointing, and appears to be pervasively faulted.

In the southern part of the range where the site is located, several long arcuate faults, trending approximately at right angles to the regional north-south topographic grain of central Nevada, separate the central massive and tectonically chaotic and altered core area of the Tuff from the marginal layered tuff. These faults, which are not related to more recent Basin and Range faulting, are considered remnants of collapse or resurgent structures formed at the time of volcanic eruption (about 24 million years ago).

At the north end of the Augusta Mountains west of the site, the southern portion of the Fish Creek Mountains' Tuff locally lies on the Triassic Augusta Mountain Formation. A belt of dark intrusive and extrusive rock of andesitic to quartz latitic composition of unknown age crops out along most of the western side of the Fish Creek Mountains. These rocks lie along the inferred northern projection of several long arcuate faults which ring the southern part of the range.

The site is located on alluvium between the valley fill and bedrock. Bedrock in the area is of volcanic type, exposed in many regions, due to the continious faulting in the area (Zieg, 1973).

1.3.4 Hydrogeology

The site and its vicinity consist of an outwash of gravel and sand. These younger alluvial deposits in the area can be classified as of Quaternary age and consist of gravel, sand, silt, and clay. Most of these younger units were deposited under subaerial conditions. They are capable of transmitting groundwater freely. The sand and gravel deposits supply most of the water to the valley wells (op. cit.). The uppermost aquifer appears to be an alluvial valley one and has a depth of about 20 to 60 feet in this region (Leary, 1986). The high to moderately permeable soils render the shallow aquifers susceptible to contamination.

Groundwater

The depth of the groundwater table in the area is site specific and ranges from 20 to 60 feet in one region to about 200 feet in another (Zieg, 1973). A well log furnished by the

BLM Battle Mountain District Office revealed that the first aquifer was encountered at 133 feet and was estimated to be 26-feet thick. The yield from this well was recorded to be 25 gallons per minute (Nallion, 1965).

Groundwater in the Antelope River and Middle Reese River valleys originates from precipitation in their drainage basins. Groundwater percolates downward and laterally to the valley fill with some recharge resulting from infiltration of runoff in the stream channels. Snow melt also contibutes significantly to aquifer recharging.

Groundwater movement from the Antelope Valley area is eastward and northward to the Middle Reese River Valley and further down the Reese River towards Battle Mountain (Zieg, 1973). The depth to the groundwater table in the site area is about 20 feet immediately northwest of the Bridges Hills and drops gradually to about 60 feet eastward near Middle Reese River Valley.

1.3.5 Surface Hydrology

The major surface water bodies in Lander County are the Reese River, Gilberts Creek, and Stoneberger Creek. Other creeks in the County are ephemeral and probably remain dry most of the time. The site is located in the Antelope Valley within the Great Basin hydrologic region and the north Great Basin sub-basin. Antelope Valley is drained by Cain Creek, a portion of which is approximately 0.25 miles north of the site. The Cain Creek flows into the Reese River, which flows approximately 4.8 miles east of the site and empties into the Humboldt River at Battle Mountain. The Reese River originates in the Toyabe Mountain range near the Toyabe Dam at an elevation of 11,788 above mean sea level in Nye County and flows northward into Lander County. The geology of the area is fairly young; therefore, the watershed is unstable and large alluvial fans are evident at the mouths of drainages and canyons.

In normal years, the Reese River does not flow its complete length on the surface. Most of the annual precipitation during September to May contributes to the flow. Thunderstorms in summer cause flash floods, local erosion, and crop damage (Zieg, 1973).

The normally dry Cain Creek water flows only after intense thundershowers, during periods of extremely rapid snow melt, and during late summer, when it carries irrigation water from the farms in Antelope Valley.

The water within the watershed is used for the irrigation of crops, stockwater, and domestic purposes. The watershed in the immediate area of the site amounts to less than 500,000 square feet, thus contributing a minor portion of runoff into Cain Creek compared with the entire watershed.

There are no surface water impoundments or reservoirs near the site (USGS, 1965). Surface runoff on site is scarce, since the annual precipitation is only 7 inches on the average. However, during storms with an intensity averaging approximately 2.5 and 4 inches for typical 1-year and 10-year 24-hour rains, respectively, runoff from the site and its vicinity can be excessive.

1.3.6 Water Supply

Both surface water and groundwater are important sources of water supply for irrigation, stockwater, and domestic uses in the region. The nearest ranch is located 1.5 miles east and downgradient from the site. The source of water supply to this ranch is unknown. Considering the ephemeral nature of streams in the area, it is most likely that groundwater is tapped at this ranch as the primary source of water supply.

1.3.7 Land Use, Population and Distribution

There are about 30 active farms in the general area (Zieg, 1973). No houses are located within a 1-mile radius of the site. Besides this ranch approximately 1.5 miles east of the site, a second ranch is located about 2 miles north of and on the opposite side of Cain Creek from the site. Pockets of private land in the area are maintained by local ranchers for cattle grazing.

Both sheep and cattle graze the study area which has a carrying capacity of 15 surface acres per animal per month. Livestock using the study area are Ellison Ranching Company sheep and cattle owned by Joe and DeMar Dahl. No range or livestock improvements exist at the site.

The general area accomodates coyotes, bobcats, badgers, rabbits, and a variety of rodents. Partridges and a variety of song birds also habitate the area. The site is within the home range of some of the more important birds of prey. The rare and endangered prairie falcon has been observed near the site as well as the golden eagle.

About one mile east of the site, Cain Creek floods a 40-acre waste area that contains aquatic plants which provide nesting and resting habitat for waterfowl.

1.3.8 Climate

The upper Lander County area is located in a high plateau, bisected by the Reese River. The area is surrounded by mountains; and precipitation in the area consequently varies considerably from one locale to another.

Freezing temperatures have been recorded in every month of the year and as much as 130 degrees difference between the high and low temperatures have been recorded. Temperatures of 108^{o}F and -40^{o}F have been recorded for a high and low for different years.

The wind records maintained at the Central Nevada Field Station west of Austin indicate considerable winds circulate during the spring and summer months at that location with an average wind speed of about 3 miles per hour, except during thunderstorms. Winds are mainly from the southwest and of such duration that air inversions are prevented during most of the year. Fog and limited air inversions have been noted sporadically along the Reese River. "Dust devils" and similar small twister-type winds are common throughout spring, summer, and fall (Zieg, 1973).

Rainfall in the area is seasonal. Thunderstorms or summer showers are quite common and are one of the causes for flash floods and forest fires in the area. The annual precipitation

averages approximately 10 inches. The recorded 1- and 10-year 24-hour rains are 2.5 and 4 inches, respectively (Department of Commerce, 1963).

Snowfall occurs from September through May. Snow usually lasts less than two weeks in most cases. Snow melt contributes significantly to aquifer recharge (Zieg, 1973).

1.3.9 Natural Resources

Major natural resources in the study region include range croplands and forests. Cultivated crops such as alfalfa, mint, and garlic are marketed by the ranchers. Areas other than the cultivated lands are used for cattle grazing. Water for cattle, irrigation, and domestic purposes is tapped from the Reese River and deep groundwater wells. No minerals or mineralization activities are carried out in the vicinity of the study area.

The site is located on the low foothills and vegetation consists of shadscale, low sage, rabbitbrush, and bud sage, with an understory of squirreltail, cheatgrass, and Indian ricegrass. Some of the forms in the understory are wild mustard and halogeton. This vegetative type has projections of big sage in the more favorable moisture locations, such as along draws and washes.

2.0 SITE HISTORY AND OWNERSHIP

Approximately 2 acres of BLM-owned land was allocated for the site in the Antelope Valley area, Lander County, Nevada. The site was selected for the disposal of pesticide containers used in agriculture in Lander County, with the aim of preventing hazards to people, animals, and the environment from the improper handling and disposal of pesticide containers on other public or private lands. A Special Land Use Permit (SLUP) was issued to the County by BLM in October 1971 for site operations. The permit was extended indefinitely in January 1973. The BLM Battle Mountain District Office proposed the sale of the land so that Lander County could continue the operation of the disposal site. On October 6, 1986, the site was sold to the County, which plans to continue its operation as a disposal site.

A detailed site chronology is presented in **Table 2-1.**

TABLE 2-1 SITE CHRONOLOGY

Date	Event
10/26/70	A set of instructions on developing temporary pesticide container disposal sites in Nevada was sent to Country Extension Agents by R.W. Lauderdale, Extension Entymologist, Cooperative Extension Service, University of Nevada, Reno.
05/25/71	Richard Capurro, State Executive Director, Nevada State Agricultural Stabilization and Conservation Service (ASCS), Reno informed Ernest Gregary, Chief, Environmental Health, Department of Health, Welfare and Rehabilitation, Carson City about the selection of sites for disposal of pesticide containers. He solicited evaluations from the Department of Environment and Health to assist in determining the need for and location of future sites.
09/01/71	The BLM Battle Mountain District Manager in a memorandum to the BLM Nevada State Director suggested that local residents should be allowed to review the proposed pesticide disposal site in Lander County before a permit is issued. A Special Land Use Permit (SLUP) application contaning an Environmental Impact Analysis and support data for the subject site were attached for review.
09/23/71	The BLM Battle Mountain District Manager relayed the comments of Dr. Michael Pontrelli (Sierra Pacific Company) on the proposed pesticide dump location in Lander County to the BLM Nevada State Director.
09/24/71	An official SLUP was issued by BLM to Lander County for the use of land as a pesticide disposal dumpsite for a period of one year.
10/06/71	The BLM Battle Mountain District Manager sent a copy of SLUP-N6-72-11 to the BLM Nevada State Director.

TABLE 2-1 SITE CHRONOLOGY (Continued)

Date	Event
10/18/71	Rolla Chandler, Chief Division of Technical Services, Reno informed Jerry Ostron, Battle Mountain that Harry Smith would attend an October 21 meeting on the pesticide disposal site and instructed Mr. Ostron to prepare a summary of the meeting.
10/19/71	A document of specifications for the construction of facilities to provide for safe disposal of agricultural chemical containers was introduced into BLM files.
10/20/71	Edward Fish, BLM Area Manager, in a memo for BLM files, noted that BLM requested Humboldt County to approve stipulations for use of pesticide disposal sites on public lands before accepting the SLUP.
11/02/71	Harry Smith, Pesticide Specialist, Cooperative Extension Service, University of Nevada, Reno informed Nolan Keil, BLM State Director, Reno that a list of final stipulations for the adequate protection of the site, the environment, and the public had been prepared.
01/22/73	Philip Zieg, Area Manager, BLM Battle Mountain District Office informed the Lander County Board of Commissioners, Austin that BLM had renewed the SLUP for the pesticide disposal dumpsite in Middle Reese River indefinitely. He suggested that in order for the site to become a permanent installation, Lander County would have to file a recreation and public purposes application.
03/08/85	The BLM Shoshone-Eureka Resource Area Manager recommended to the BLM Battle Mountain District Manager that the parcel of land holding a SLUP NG-72-11 for a pesticide disposal dump site in Lander County be sold to the county or that immediate action be taken to close the site.
03/18/85	The telephone log of Deborah Hoback, BLM, Battle Mountain noted that Ken Thompson, Reno, had estimated the value of the pesticide disposal site land should not exceed $100 per acre.
01/14/86	A site reconnaissance and sampling survey was conducted by AEPCO Inc. for BLM, Washington. This investigation was a part of the Preliminary Assessment of the Antelope Valley Pesticide Container Disposal Site.
10/06/86	The Antelope Valley Site was sold to Lander County as of this date. Information regarding this sale was reported by Debra Hoback, BLM, Battle Mountain District Office.
10/15/86	The site was revisited by AEPCO, Inc. for resampling of onsite wastes to clarify the previously collected data.

3.0 SITE RECONNAISSANCE

The AEPCO field team conducted a site reconnaissance during the PA to:

- o Identify the unique site features including waste disposal areas, ponds, depression areas, utilities, drainage patterns, seeps, drums, odors, vegetation under stress, discoloration, and site boundaries.
- o Identify potential sampling locations and collect sample(s) of surface water, groundwater, soils, waste, biota, and/or sediments, when appropriate.
- o Take representative photographs of the site.
- o Conduct air quality monitoring using an hNu meter, an explosimeter/oxygen meter, methane detector, and a radiometer.
- o Observe surface soil and geological characteristics.
- o Identify access routes and potential access problems, if any, for future investigations.
- o Assess potential health and safety hazards.
- o Inspect downgradient surface water discharge areas visually for signs of contamination (water pollution, vegetation under stress, and effects on wildlife).
- o Identify potential offsite waste sources, such as spills and/or migration paths.
- o Observe regional geologic patterns (e.g., bedrock outcrops).
- o Estimate surface water flow rates, if any.

3.1 Field Observations

The site was visited for the first time on Jauary 14, 1986. During this site reconnaissance, the sky was sunny with temperatures in the mid 40's (^{o}F); winds were 2-5 mph from the south. The reconnaissance included walking the entire site to observe any unusual features, monitoring air quality conditions, documenting types and quantities of wastes present on site, and sampling representative wastes for laboratory analysis.

On the day of the second site visit, Wednesday, 15 October 1986, the sky was clear with scattered clouds and temperatures in the upper 60's (^{o}F); winds were at 5-10 mph from the west.

The site is located on undeveloped lands with scattered trees and brushes. Vegetation in the area is scarce due to the semi-arid climatic conditions. The most common vegetation in the area is sagebrush. No signs of vegetation under stress were observed throughout the site.

A disposal pit located in the western part of the site (**Figure 1-2**) is used for disposal of empty and crushed pesticide/herbicide containers. Since the trenching method is used, no waste piles or drums were found above ground. This approximately 100'x10'x10'pit is rectangular and unlined. Excavated subsurface material from the pit placed around its perimeter forms a berm to divert runoff.

Approximately 75 empty pesticide/herbicide drums were observed lying in the northern portion of the pit during the first site visit. They are estimated to equate to about 5.5 cubic yards of solid wastes potentially containing pesticide and herbicide residues. Since the site has been in operation for nearly 14 years, the few drums present suggest that the

site is used infrequently. The only significant change that was noticed during the second site visit was the disposal of four additional pesticide drums. These empty drums formerly contained Malathion.

In addition to the pit there were two sheds on site. One of the sheds was used as a station for drum/container rinsing.

No visible seeps were found throughout the site. The area in and around the pit had a mild odor similar to that emitted by pesticides.

3.2 Air Monitoring Program

For both site visits, the air-monitoring program (**Tables 3-1** and **3-2**) consisted of monitoring the entire site with an hNu meter, an explosimeter/oxygen meter, and a radiometer. No above-background levels were recorded by any of the instruments.

3.3 Field Monitoring Program

The field monitoring program consisted of collecting composite samples from grab samples taken at potentially hazardous waste areas on site. No liquid waste samples were collected as there were no surface water bodies on site during both site visits.

TABLE 3-1.
SUMMARY OF ENVIRONMENTAL MONITORING RESULTS (01/14/86)
ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE
BATTLE MOUNTAIN, LANDER COUNTY, NEVADA

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE NO. 17, GROUP F
BLM SITE CODE: NVD 980695324

Observer(s): Surya S. Prasad, Murali Kalavapudi, Kevin Leary, Debra Hoback and Terry Plummer.

MONITORING STATION	DATE	MILITARY TIME	LOCATION/OBSERVATIONS	hNu PHOTO-IONIZER (ppm Benzene)	METHANE DETECTOR (ppm)	RADIOMETER (mR/hr)	EXPLOSIMETER/ OXYGEN METER		WIND DIRECTION	WIND SPEE (mph)
							OXYGEN (%)	EXPLOSION LEVEL (%)		
01	14-Jan-86	16:48	Readings taken near the gate. (Background Station)	0.0	0	0.00	*	0.00	from South	2-3
02	14-Jan-86	10:38	Readings taken in the head space of the yellowish material approx. 20 ft. north of the pit.	0.0	0	0.00	*	0.00	from South	2-3
03	14-Jan-86	10:41	Readings taken on the southern ramp of the disposal pit.	0.0	0	0.00	*	0.00	from South	2-3
04	14-Jan-86	10:43	Readings taken in the central portion of the disposal pit.	0.0	0	0.00	*	0.00	from South	2-3
05	14-Jan-86	10:47	Readings taken near the waste container pile approx. 5 ft. from the center of the pit.	0.0	0	0.00	*	0.00	from South	2-3
06	14-Jan-86	10:53	Readings taken in the head space of the waste pile in the northern portion of the disposal pit.	0.0	0	0.00	*	0.00	----	Calm

* Readings were not taken due to instrument malfunction

TABLE 3-2.
SUMMARY OF ENVIRONMENTAL MONITORING RESULTS (10/15/86)
ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE
BATTLE MOUNTAIN, LANDER COUNTY, NEVADA

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
BATTLE MOUNTAIN, LANDER COUNTY, NEVADA.
AEPCO SITE NO. 17, GROUP F
BLM SITE CODE: NVD 980695324

Observer(s): William R. Hancuff, Murali Kalvapudi, Kevin Leary, Debra Hoback and Tom Beebe

MONITORING STATION	DATE	MILITARY TIME	LOCATION/OBSERVATIONS	hNu PHOTO-IONIZER (ppm Benzene)	METHANE DETECTOR (ppm)	RADIOMETER (mR/hr)	EXPLOSIMETER/ OXYGEN METER: OXYGEN (%)	EXPLOSIMETER/ OXYGEN METER: EXPLOSION LEVEL (%)	WIND DIRECTION	WIND SPE (mph)
01	15-Oct-86	11:40	Readings taken on the access road outside the gate. Background station.	0.1	ND	0.01	20.9	0.01	Calm	---
02	15-Oct-86	11:42	Eastern bank of Pit #1, near the empty drums found on top of the crushed containers.	0.1	ND	0.01	20.9	0.01	Calm	---
03	15-Oct-86	11:43	Southern ramp of Pit #1, along the slope. Medium to fine textured sandy materials with 40% gravel were found.	0.1	ND	0.01	20.9	0.01	Calm	---
04	15-Oct-86	11:45	Readings taken near the center of the pit. One pile of crushed containers was found.	0.1	ND	0.01	20.9	0.01	Calm	---
05	15-Oct-86	11:50	Readings taken near the northern edge of the pit. Very fine sand with trace silt noticed.	0.1	ND	0.01	20.9	0.01	Calm	---

ND - Not Detected

4.0 CHARACTERISTICS AND ENVIRONMENTAL CONCENTRATIONS OF HAZARDOUS SUBSTANCES

4.1 Environmental Sampling and Analysis Program

As part of the PA, the field investigation team established an environmental monitoring and sampling network to monitor the air quality, assess health and safety conditions, and collect representative waste/sediment/soil samples. For both site visits, the monitoring and sampling network consisted of:

- Six air monitoring stations (Stations 01 through 06) including a background station (Station 01); and
- One waste/sediment/soil sample designated as Sample WS-A composited from equal-volume grab samples collected at five stations (Stations 02 through 06).
- One waste/sediment/soil sample (WS-B) composited from equal-volume grab samples collected at four stations (Stations 02 through 05).

Because of the absence of water or other liquids on the site, no surface water/liquid samples were taken during either site visit.

Figure 1-2 and **Tables 3-1** and **3-2** provide a quick reference to the locations of these monitoring and sampling stations, and information on field activities, visual observations, and instrument measurements at each station.

4.2 Air Quality and Health and Safety

Organic vapor analyzer (HNu meter), methane detector, radiometer, explosimeter, and oxygen meter readings were taken at each station. Hydrogen sulfide-sensitive badges were also worn during the field investigation. The instrument and badge readings were used to assist the team in evaluating health and safety requirements. The readings also provided clues to areas that might contain volatile organic substances.

Modified level C health and safety protection was verified to be adequate for the field work conducted on January 14, 1986. Full-face air-purifying respirators were carried by the team members during the site reconnaissance for unanticipated adverse site conditions. However, no conditions were subsequently met that required the use of the respirators.

The monitoring results during the first site visit (**Table 3-1**) revealed that the background levels in the ambient air were:

- 0.0 ppm benzene equivalent for volatile organic vapor concentrations;
- Methane concentrations below detection limits;
- 0.00 mRem/hour of gross radioactivity;
- 0.00% explosimeter readings.

Monitoring results during the second visit revealed that background levels in the ambient air were:

- o 0.1 ppm benzene equivalent for volatile organic vapor concentrations;
- o Methane concentrations below detection limits;
- o 0.01 mRem/hour of gross radioactivity;
- o 20.9% oxygen levels
- o 0.01% explosimeter readings.

The instrument readings were comparable and consistent with the above background levels throughout the site.

Level C protection without full-face air-purifying respirators was adequate for both site visits. However, the level of protection could differ, if excavation of wastes is to be performed on site.

4.3 Location of Hazardous Substances on Site

Approximately 79 empty pesticide/herbicide drums were found lying in the northern portion of the pit. They consist of sixty 20-gallon drums and nineteen 55-gallon drums; and are calculated to equate to approximately 5.5 cubic yards of solid wastes potentially containing pesticide and herbicide residues. Since the site has been in operation for nearly 14 years, the few drums present suggest that the site is used infrequently.

4.4 Form and Physical State of Hazardous Wastes

No specific records of the quantity and types of the agricultural pesticides and herbicides dumped on site have been maintained. Containers dumped on site were to be punctured and placed in groups according to their former content (Smith, 1970). Field observations during the site reconnaissance survey confirmed that only empty and used pesticide and herbicide containers were dumped on the site. Some of the containers were crushed.

No signs of the presence of large quantities of pesticides or herbicides at the bottom of the pit were noticed. The bottom is believed to be unlined. Hence, there is a possibility that pesticides/herbicides have leached into the soils and, eventually, into the shallow aquifer.

4.5 Sampling and Analysis of Hazardous Wastes on Site

During the first site visit onsite sampling (WS-A) consisted of compositing five grab samples collected from potentially contaminated areas in and near the pit. These stations were selected based on the suspected waste and contaminated areas at the site.

Four grab samples were recollected and composited from the onsite pit to form a composite sample (Sample WS-B) during the second visit (Figure 1-2). Results of laboratory analysis for sampling activities for both the visits are discussed below.

4.5.1 Ignitability (Table 4-1)

The ignitability of the composite waste Sample WS-A showed a flash point greater than 100°C. This high flash point indicates that the material on site is neither flammable nor ignitable.

TABLE 4-1. CONCENTRATIONS OF HSL METALS AND OTHER PARAMETERS IN WASTE SAMPLES

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE 17, GROUP F
BLM SITE CODE: NVD 980695324

PARAMETER	UNIT	WASTE (01/14/86) SAMPLE WS-A*	WASTE (01/14/86) DETECTION LIMIT**	WASTE (10/15/86) SAMPLE WS-B*	WASTE (10/15/86) DETECTION LIMIT**	RCRA STANDARDS
Silver	ug/l	<10	10	---	---	5,000
Arsenic	ug/l	24	10	---	---	5,000
Boron	ug/l	---	---	---	---	---
Barium	ug/l	327	200	---	---	100,000
Beryllium	ug/l	---	---	---	---	---
Cadmium	ug/l	<5	5	---	---	1,000
Cobalt	ug/l	---	---	---	---	---
Chromium	ug/l	<10	10	---	---	5,000
Copper	ug/l	---	---	---	---	---
Mercury	ug/l	<0.2	0.2	---	---	200
Manganese	ug/l	---	---	---	---	---
Nickel	ug/l	---	---	---	---	---
Lead	ug/l	<5	5	---	---	5,000
Selenium	ug/l	<5	5	---	---	1,000
Thallium	ug/l	---	---	---	---	---
Vanadium	ug/l	---	---	---	---	---
Total Cyanide	mg/kg	---	---	<0.5	---	---
Percent solids	(%)	88.08	---	---	---	---
Ignitability: Flash Point	deg. C	>100	---	---	---	<2 or >12
Corrosivity: pH	Std. Unit	7.28	---	---	---	---
Reactivity:						
Total Sulfide	mg/kg	<2	---	---	---	---
Total Cyanide	mg/kg	<1	---	---	---	---

WS = Waste Sample.
ND = Not detected or below detection limit
* Extraction Procedure (EP) toxicity test results
** EPA detection limits based on zero dilution
\# pH value of <2 or >12 indicates substance to be corrosive.
--- Not applicable or analysis not requested.

4.5.2 Corrosivity (Table 4-1)

A corrosivity test performed on the waste/soil Sample WS-A revealed a pH of 7.28. This test was performed in accordance with the procedures defined in the Resource Conservation and Recovery Act (RCRA). Thus, the waste is not considered corrosive.

4.5.3 Reactivity (Table 4-1)

The waste/soil Sample WS-A was subjected to a reactivity test in accordance with the RCRA. The total sulfide in the sample was less than 2 mg/kg and the total cyanide was less than 1 mg/kg. Therefore, the waste generally does not present a significant compatibility or reactivity problem with other wastes.

4.5.4 Extraction Procedure (EP) Toxicity Test Results (Table 4-1)

The extractants from the waste/soil Sample WS-A subjected to the RCRA EP toxicity test showed no heavy metals exceeeding EPA contract detection limits, with the exception of barium (327 ug/L) and arsenic (24 ug/L). These values were below RCRA standards. Therefore, the waste is considered non-hazardous.

4.5.5 Total Cyanide (Table 4-1)

The composite waste/soil Sample WS-B collected during the second site visit was analyzed for its total cyanide content, which was determined to be below the laboratory detection limit of 0.5 mg/kg. Therefore, onsite waste is not considered toxic in terms of cyanide as confirmed by the reactivity test performed on the previously collected Sample WS-A.

4.5.6 Volatile Organic Compounds (VOC) (Table 4-2)

No volatile organic compounds were found to be above laboratory detection limits in both composite solid samples (WS-A and WS-B).

4.5.7 Acid Extractable Organic Compounds (Table 4-3)

No acid extractable organic compounds were found to be above laboratory detection limits in both composite solid samples (WS-A and WS-B).

4.5.8 Base/Neutral Extractable Organic Compounds (Table 4-4)

No base/neutral extractable organic compounds were found to be above laboratory detection limits in both composite solid samples (WS-A and WS-B).

4.5.9 Pesticides and PCBs (Table 4-5)

The pesticide alpha-endosulfan (70 ug/kg) was detected in Sample WS-B. No PCBs were detected in both Samples WS-A and WS-B.

Notwithstanding the presence of a small quantity of relatively immobile organic pesticide alpha-endosulfan on the site, the onsite waste is generally not considered to be flammable, ignitable, corrosive, reactive, or hazardous.

TABLE 4-2. CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS IN WASTE SAMPLES

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE 17; GROUP F
BLM SITE CODE: NVD 980695324

		WASTE (01/14/86)		WASTE (10/15/86)	
PARAMETER	UNIT	SAMPLE WS-A	DETECTION LIMIT	SAMPLE WS-B	DETECTION LIMIT
Acrolein	ug/Kg	ND	2,000	ND	10
Acrylonitrile	ug/Kg	ND	2,000	ND	10
Benzene	ug/Kg	ND	2,000	ND	10
Carbon tetrachloride	ug/Kg	ND	2,000	ND	10
Chlorobenzene	ug/Kg	ND	2,000	ND	10
1,2-Dichloroethane	ug/Kg	ND	2,000	ND	10
1,1,1-Trichloroethane	ug/Kg	ND	2,000	ND	10
1,1-Dichloroethane	ug/Kg	ND	2,000	ND	10
1,1,2-Trichloroethane	ug/Kg	ND	2,000	ND	10
1,1,2,2-Tetrachloroethane	ug/Kg	ND	2,000	ND	10
Chloroethane	ug/Kg	ND	2,000	ND	10
2-Chloroethylvinylether	ug/Kg	ND	2,000	ND	10
Chloroform	ug/Kg	ND	2,000	3*	10
1,1-Dichloroethylene	ug/Kg	ND	2,000	ND	10
1,2-trans-Dichloroethylene	ug/Kg	ND	2,000	ND	10
1,2-Dichloropropane	ug/Kg	ND	2,000	ND	10
1,3-Dichloropropylene	ug/Kg	ND	2,000	ND	10
Ethylbenzene	ug/Kg	ND	2,000	ND	10
Methylene chloride	ug/Kg	ND	2,000	ND	10
Methyl chloride	ug/Kg	ND	2,000	ND	10
Methyl bromide	ug/Kg	ND	2,000	ND	10
Bromoform	ug/Kg	ND	2,000	ND	10
Dichlorobromomethane	ug/Kg	ND	2,000	ND	10
Trichlorofluoromethane	ug/Kg	ND	2,000	ND	10
Dichlorodifluoromethane	ug/Kg	ND	2,000	ND	10
Chlorodibromomethane	ug/Kg	ND	2,000	ND	10
Tetrachloroethylene	ug/Kg	ND	2,000	ND	10
Toluene	ug/Kg	ND	2,000	ND	10
Trichloroethylene	ug/Kg	ND	2,000	ND	10
Vinyl chloride	ug/Kg	ND	2,000	ND	10
Total xylenes	ug/Kg	ND	2,000	ND	10
Dilution Ratio	---	100X	100X	1X	1X

WS = Waste Sample.
ND = Not detected or below detection limit
* Value detected is below laboratory detection limit.
--- Not applicable

TABLE 4-3. CONCENTRATIONS OF ACID EXTRACTABLE ORGANIC COMPOUNDS IN WASTE SAMPLES

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE 17; GROUP F
BLM SITE CODE: NVD 980695324

PARAMETER	UNIT	WASTE (01/14/86) SAMPLE WS-A	WASTE (01/14/86) DETECTION LIMIT	WASTE (10/15/86) SAMPLE WS-B	WASTE (10/15/86) DETECTION LIMIT
Benzoic acid	ug/kg	ND	5,000	1,570	5,000
2,4,5-Trichlorophenol	ug/kg	ND	5,000	ND	5,000
2,4,6-Trichlorophenol	ug/kg	ND	1,000	ND	1,000
p-Chloro-m-cresol	ug/kg	ND	1,000	ND	1,000
2-Chlorophenol	ug/kg	ND	1,000	ND	1,000
2,4-Dichlorophenol	ug/kg	ND	1,000	ND	1,000
2,4-Dimethylphenol	ug/kg	ND	1,000	ND	1,000
2-Methylphenol	ug/kg	ND	1,000	ND	1,000
4-Methylphenol	ug/kg	ND	1,000	ND	1,000
2-Nitrophenol	ug/kg	ND	1,000	ND	1,000
4-Nitrophenol	ug/kg	ND	5,000	ND	5,000
2,4-Dinitrophenol	ug/kg	ND	5,000	ND	5,000
4,6-Dinitro-o-cresol	ug/kg	ND	5,000	ND	5,000
Pentachlorophenol	ug/kg	ND	5,000	ND	5,000
Phenol	ug/kg	ND	1,000	ND	1,000
Dilution Ratio	---	100X	100X	100X	100X

WS = Waste Sample.
ND = Not detected of below detection limit.
--- Not applicable.

TABLE 4-4. CONCENTRATIONS OF BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS IN WASTE SAMPLES

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE 16; GROUP F
BLM SITE CODE: NVD 980695324

PARAMETER	UNIT	WASTE (01/14/86) SAMPLE WS-A	WASTE (01/14/86) DETECTION LIMIT	WASTE (10/15/86) SAMPLE WS-B	WASTE (10/15/86) DETECTION LIMIT
Acenaphthene	ug/Kg	ND	1,000	ND	1,000
Benzidine	ug/Kg	ND	2,000	ND	2,000
1,2,4-Trichlorobenzene	ug/Kg	ND	1,000	ND	1,000
Hexachlorobenzene	ug/Kg	ND	1,000	ND	1,000
Hexachloroethane	ug/Kg	ND	1,000	ND	1,000
bis (2-chloroethyl) ether	ug/Kg	ND	1,000	ND	1,000
2-Chloronaphthalene	ug/Kg	ND	1,000	ND	1,000
1,2-Dichlorobenzene	ug/Kg	ND	1,000	ND	1,000
1,3-Dichlorobenzene	ug/Kg	ND	1,000	ND	1,000
1,4-Dichlorobenzene	ug/Kg	ND	1,000	ND	1,000
3,3-Dichlorobenzidine	ug/Kg	ND	2,000	ND	2,000
2,4-Dinitrotoluene	ug/Kg	ND	1,000	ND	1,000
2,6-Dinitrotoluene	ug/Kg	ND	1,000	ND	1,000
1,2-Diphenylhydrazine (as Azobenzene)	ug/Kg	ND	1,000	ND	1,000
Butl benzyl phthalate	ug/Kg	ND	1,000	ND	1,000
Di-n-butyl phthalate	ug/Kg	ND	1,000	ND	1,000
Di-n-octyl phthalate	ug/Kg	ND	1,000	ND	1,000
Diethyl phthalate	ug/Kg	ND	1,000	ND	1,000
Dimethyl phthalate	ug/Kg	ND	1,000	ND	1,000
Benzo (a) anthracene	ug/Kg	ND	1,000	ND	1,000
Benzo (a) pyrene	ug/Kg	ND	1,000	ND	1,000
3,4-Benzofluoranthene	ug/Kg	ND	1,000	ND	1,000
Benzo (k) fluoranthene	ug/Kg	ND	1,000	ND	1,000
Fluoranthene	ug/Kg	ND	1,000	ND	1,000
4-Chlorophenyl phenyl ether	ug/Kg	ND	1,000	ND	1,000
4-Bromophenyl phenyl ether	ug/Kg	ND	1,000	ND	1,000
bis (2-chloroisopropyl) ether	ug/Kg	ND	1,000	ND	1,000
bis (2-chloroethoxy) methane	ug/Kg	ND	1,000	ND	1,000
Hexachlorobutadiene	ug/Kg	ND	1,000	ND	1,000
Hexachlorocyclopentadiene	ug/Kg	ND	1,000	ND	1,000
Isophorone	ug/Kg	ND	1,000	ND	1,000
Naphthalene	ug/Kg	ND	1,000	ND	1,000
Nitrobenzene	ug/Kg	ND	1,000	ND	1,000
2-Nitroanaline	ug/Kg	ND	5,000	ND	5,000
3-Nitroanaline	ug/Kg	ND	5,000	ND	5,000
4-Nitroanaline	ug/Kg	ND	5,000	ND	5,000
N-Nitrosodimethylamine	ug/Kg	ND	1,000	ND	1,000
N-Nitrosodiphenylamine	ug/Kg	ND	1,000	ND	1,000
bis (2-ethylhexyl) phthalate	ug/Kg	ND	1,000	ND	1,000
Chrysene	ug/Kg	ND	1,000	ND	1,000
Acenaphthylene	ug/Kg	ND	1,000	ND	1,000
Acenaphthylene	ug/Kg	ND	1,000	ND	1,000
Anthracene	ug/Kg	ND	1,000	ND	1,000
Benzo (ghi) perylene	ug/Kg	ND	1,000	ND	1,000
Fluorene	ug/Kg	ND	1,000	ND	1,000
Phenanthrene	ug/Kg	ND	1,000	ND	1,000
Dibenzo (a,h) anthracene	ug/Kg	ND	1,000	ND	1,000
Indeno (1,2,3-cd) pyrene	ug/Kg	ND	1,000	ND	1,000
Pyrene	ug/Kg	ND	1,000	ND	1,000
Benzyl alcohol	ug/Kg	ND	1,000	ND	1,000
2-Methyl naphthalene	ug/Kg	ND	1,000	ND	1,000
Dibenzofuran	ug/Kg	ND	1,000	ND	1,000
Dilution Ratio	---	100X	100X	100X	100X

WS = Waste Sample.
ND = Not detected of below detection limit.
--- Not applicable.

TABLE 4-5. CONCENTRATIONS OF PESTICIDES AND PCBs IN WASTE SAMPLES

ANTELOPE VALLEY PESTICIDE CONTAINER DISPOSAL SITE,
ANTELOPE VALLEY, LANDER COUNTY, NEVADA.
AEPCO SITE 17; GROUP F
BLM SITE CODE: NVD 980695324

		WASTE (01/14/86)		WASTE (10/15/86)	
PARAMETER	UNIT	SAMPLE WS-A	DETECTION LIMIT	SAMPLE WS-B	DETECTION LIMIT
Aldrin	ug/Kg	ND	1,000	ND	10
Dieldrin	ug/Kg	ND	1,000	ND	10
Chlorodane	ug/Kg	ND	1,000	ND	100
4,4-DDT	ug/Kg	ND	1,000	ND	10
4,4-DDE	ug/Kg	ND	1,000	ND	10
4,4-DDD	ug/Kg	ND	1,000	ND	10
alpha-Endosulfan	ug/Kg	ND	1,000	70	10
beta-Endosulfan	ug/Kg	ND	1,000	ND	10
Endosulfan sulfate	ug/Kg	ND	1,000	ND	10
Endrin	ug/Kg	ND	1,000	ND	10
Endrin aldehyde	ug/Kg	ND	1,000	ND	10
Heptachlor	ug/Kg	ND	1,000	ND	10
Heptachlor epoxide	ug/Kg	ND	1,000	ND	10
alpha-BHC	ug/Kg	ND	1,000	ND	10
beta-BHC	ug/Kg	ND	1,000	ND	10
gamma-BHC	ug/Kg	ND	1,000	ND	10
delta-BHC	ug/Kg	ND	1,000	ND	10
PCB-1016 (Aroclor 1016)	ug/Kg	ND	1,000	ND	100
PCB-1221 (Aroclor 1221)	ug/Kg	ND	1,000	ND	100
PCB-1232 (Aroclor 1232)	ug/Kg	ND	1,000	ND	100
PCB-1242 (Aroclor 1242)	ug/Kg	ND	1,000	ND	100
PCB-1248 (Aroclor 1248)	ug/Kg	ND	1,000	ND	100
PCB-1254 (Aroclor 1254)	ug/Kg	ND	1,000	ND	100
PCB-1260 (Aroclor 1260)	ug/Kg	ND	1,000	ND	100
Toxaphene	ug/Kg	ND	1,000	ND	100
Dilution Ratio	---	100X	100X	1X	1X

WS = Waste Sample.
ND = Not detected or below detection limit
--- Not applicable

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Major Study Findings

No waste materials were found other than empty drums used to store farm pesticides and herbicides. Neither volatile nor semi-volatile organic substances including pesticides and PCBs on the EPA HSL were detected with the exception of a trace amount of relatively immobile alpha-endosulfan in the soil/waste sample collected during the second site visit.

The flash point of the composite solid waste/soil sample collected from the site was measured to be greater than $100^{0}C$, indicating the wastes present on site are not flammable nor ignitable. The waste also exhibited no reactivity because of its low sulfide and cyanide content. The waste is considered, in general, to present neither a compatability nor a reactivity problem. Also, no heavy metals in the waste extractant were detected at concentrations above RCRA standards.

Thus, the onsite wastes are not considered flammable, ignitable, corrosive, volatile, reactive, or toxic enough to cause significant impacts to the environment or human health.

No evidence of vegetation stress was found on site or in the vicinity. Bedrock in the area is extensively fractured and the bedrock aquifer may be communicating with the upper shallow aquifer. Because of the present of small quantities of relatively immobile organic contaminants on the site, it is concluded that contaminant migration via the groundwater route at the site is not currently a problem.

Based on the laboratory results for the sampling conducted on January 14 and October 15, 1986, there are currently no potential health risks from the consumption of groundwater, the primary source of drinking water in the region. The large distance between the site and the local residents acts as a buffer to further reduce such a threat.

Air monitoring during the both site visits revealed no significant hNu readings. With the exception of the perception of faint pesticide odors from the disposal pit, no air contamination was noted at and near the site.

5.2 BLM Site Classification

Each site investigated as part of this project is classified into one of four BLM categories:

Class I. There is no significant reason to believe that hazardous wastes or other hazardous substances have been generated, treated, stored, or disposed on the site, or alternatively that hazardous wastes were disposed but in such quantities, forms, or under such conditions that there is negligible hazard to human health or the environment.

Class II. Hazardous wastes or other hazardous substances are present but there is small risk of onsite contact or release of contaminants to the environment in such form and quantity that would constitute a significant hazard to human health or to the environment.

Class III. Hazardous wastes or other hazardous substances exist on the site in such form and quantity and under such conditions that there is specific reason to believe that a potentially significant hazard to human health or the environment may exist and that further definitive investigations must be undertaken.

Class IV. Hazardous wastes or other hazardous substances exist on the site in such form and in such quantity and under such conditions, including offsite considerations, as to constitute an imminent and substantial endangerment to human health or the environment.

A small quantity of relatively immobile alpha-endosulfan was detected to be present on the site. The wastes on site are considered not flammable, non-ignitable and non-corrosive. Generally, they present neither compatibility nor reactivity problems, are non-volatile, and not hazardous. There is small risk of onsite contact or release of contaminants to the environment in forms or quantities that would constitute a significant hazard to human health or to the environment. These considerations justify the classification of the site as a Class II site.

5.3 Recommendations

Although the site now contains only a small quantity of relatively immobile alpha-endosulfan, the shallow groundwater table conditions, high to moderate permeability of soils, and extremely fractured bedrock in the study area make the groundwater vulnerable to contamination, should it become an actual problem. Accordingly, to prevent or mitigate against any such future contamination, it is suggested that the existing pit and any future disposal pits on the site be lined with impervious layers to prevent leaching into the groundwater system. Also, the disposed materials should be periodically covered with inert soils to eliminate the potential of exposure to humans and animals.

Periodic inspection and maintenance of the perimeter fence on site is also recommended to minimize the potential of direct contact with the wastes and prevent farm animals from gaining access to the grazing fields on site.

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