QUIVIRA MINING COMPANY

HANDLING OF DAMAGED DRUMS

STANDARD OPERATING PROCEDURES

Ambrosia Lake Facility

Original: December 1986

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February 1987
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June 1988
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I. INTRODUCTION

1.1 Purpose

The primary objective of the Yellowcake Drum Disposal Guide is to establish procedures and precautionary measures for unloading, transporting, and final disposal of damaged yellowcake drums at the Ambrosia Lake mill facility by Quivira Mining personnel.

This guide also outlines the handling and transportation requirements as established by the Department of Transportation (DOT) and the Nuclear Regulatory Commission (NRC), as well as those established by company policies to ensure compliance with Federal and company rules and regulations.

1.2 Scope

This manual provides general information pertaining to Quivira Mining personnel involved in the unloading and the final disposal of those damaged yellowcake drums. The areas covered include the packaging requirements, shipping papers, unloading, transporting, storage, and final disposal within the Ambrosia Lake tailings pile.

II. DEFINITIONS

Bioassay - as used in this guide a sample of urine voided into a collection bottle and analyzed for uranium content.

Carrier - entity or organization which accepts an offer to transport lading to a specific destination.

Consignee - as used in this guide it means Quivira Mining Company and its employees.

Department of Transportation (DOT) - U.S. governmental department charged with the regulation and enforcement of transportation of goods.

Exclusive Use - means the sole use of a conveyance by a single consignor and for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor or consignee. Specific instructions for maintenance of exclusive use shipments controls must be issued in writing and included with the shipping paper information provided to the carrier by the consignor.

Lapel Samplers - air sampling equipment worn in an individual's breathing zone to collect an air sample to be analyzed for radionuclides to determine an airborne exposure.

Nuclear Regulatory Commission (NRC) - U.S. governmental agency charged with the regulation and enforcement of rules and regulations pertaining to radioactive substances.

Radiation Safety Officer (RSO) - individual assigned responsibility and is experienced in the implementation, maintenance, and direction of health physics programs within the confines of a restricted uranium fuel cycle operation.

Respiratory Protection - wearing of a device designed to protect the wearer from inhalation of harmful atmospheres.

Shipper - entity or organization which offers lading to be transported to a specific destination.

III. CRATE HANDLING AND PACKAGING

3.1 Cleaning

Crates received for final disposal contain drums that will have been vacuum cleaned emptying the drum of yellowcake to the extent

practical. All visible external contamination remaining on the drums will have been removed by wet wash. As such, the possibility of yellowcake release is minimal. However, should contamination exist upon arrival, all contamination on the transportation vehicle will be cleaned to comply with NRC Regulatory Guide 8.30 using methods determined by the RSO. The shipper will be notified of the contamination problem by the RSO.

3.2 Packaging

The bales of crushed drums are to be packaged in a suitable constructed crate. The crate may be constructed with sheet metal, 1/2 - 3/4 inch plywood, or equivalent material of sufficient strength to provide adequate support for transport and final burial. The exterior of the package will be stenciled or otherwise marked "Radioactive-LSA".

IV. RECEIVING and SHIPMENT PAPERS

4.1 Receiving

The package when received should be in unimpaired condition and securely closed so that there will be no leakage of radiological material under conditions normally encountered in transportation. The package should comply with DOT requirements for "LSA Shipments" as outlined in 49 CFR 173.425. It should also comply with 49 CFR 173.441 which state that the external radiation levels will not exceed 200

millirem per hour on the surface of the package, 10 millirem per hour at any point 2 meters from the vertical planes on the outside of the transport vehicle, and 2 millirem per hour in any normally occupied position within the transport vehicle. The shipment should have been adequately braced so as to prevent the shifting of lading under normal conditions of transportation.

The package should also comply with 49 CFR 173.443(a) which states the nonfixed radioactive surface contamination on the external surface of the package will not exceed 2200 dpm/100 cm^2.

4.2 Transportation Papers

Shipping papers should have been completed in accordance with DOT regulations as outlined in 49 CFR 172.200, 201, 203, 204 and NRC regulation 10 CFR 71.5. Contained within the shipping papers is a "Notice of Shipment". A copy of this will document will be obtained from the carrier and retained by the RSO for future inspection. An example of this document is shown in Figure 1.

V. TRANSPORTATION

5.1 Transportation

The transportation of the crates will be performed by a carrier for Sequoyah Fuels. The lading will normally be transported from Sequoyah

Fuels located in Gore, Oklahoma to Quivira Mining Company located in Ambrosia Lake, New Mexico normally via U.S. Interstate 40.

In the unlikely event a motor vehicle accident should occur enroute, the driver should follow the instructions given to them by Sequoyah Fuels including the prompt notification of local law enforcement officials, the carrier, and the shipper. If Quivira is contacted and requested to provide assistance, immediately notify the RSO and\or General Manager.

VI. DELIVERY OF BARRELS

6.1 Unloading

Unloading of the packages will be performed by the Quivira personnel only. The packages will be unloaded with the appropriate equipment. The packages may either be unloaded at the approved burial site and buried or if storage is necessary, all crates will be stored within the designated storage area. The designated storage area is within the fenced area of the warehouse. This area is shown in Plate 1. The boundary fence is 6 foot chain link fence with three stands of barb wire topping. Access into the designated storage area is controlled by locked access by Quivira personnel 24 hours a day. All individuals seeking entrance into the storage area must have prior approval from the RSO or General Manager of the Ambrosia Lake operations.

Access keys to the storage area will be checked out through management's approved personnel.

A member of the Ambrosia Lake health physics staff will survey the transport vehicle for radioactive contamination prior to its release from Quivira Mining Company's property.

If the vehicle is being used to ship loaded yellowcake drums back to Sequoyah Fuels, the vehicle shall not be released or returned to service until the external dose rate at the accessible surfaces of the vehicle are below 0.5 milli rem/hour. Removable radioactive surface contamination shall be below 2,200 dpm/100 cm^2 as per DOT regulation 49 CFR 173.443.

However, if the carrier has completed the contractual obligations as an exclusive use carrier and is being released for other unconditional use, contamination limits as specified in Regulatory Guide 8.30 shall apply. These limits include:

Average	5,000 dpm alpha per 100 cm^2	Averaged over no more than 1 $meter^2$
Maximum	15,000 dpm alpha per 100 cm^2	Applies to an area of not more than 100 cm^2

Removable	1,000 dpm alpha per 100 cm^2	Determined by smearing with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the smear.

If decontamination procedures are needed to reduce contamination to acceptable levels, the decontamination will be performed on site by personnel designated by the Ambrosia Lake RSO. Appropriate protective measures including the use of radiological respirators, protective clothing, lapel samplers, and bioassays shall be determined by the RSO based on the nature and severity of contamination.

The appropriate documents will be stored on site for future reference.

VII. SITE DISPOSAL

7.1 Transportation to Burial Site

If the crates are to be temporarily stored rather then buried while

unloading, the time table for transportation and disposal of barrel packages from the storage area to the approved burial site on Pond 2, shall be at the discretion of the Mill Superintendent or designee. The packages containing the damaged drums will be moved from the storage area to the approved final disposal area using equipment that will ensure that the integrity of the crates remains intact and employee safety is not compromised. This approved burial area is indicated on Plate 2.

The supervisor in charge of disposal will notify the health physics department immediately should the exterior of any container is damaged so as to release or possibly release radioactive contaminates. If damage should occur, the procedures for clean up if necessary, shall be determined by the RSO or the RSO's designee.

7.2 Burial Site Preparation

Burial site preparation shall only take place in the final disposal area as shown on Plate 2. The disposal trench shall be constructed prior to transporting the barrels within the area. The disposal trench shall be constructed using dozers or other suitable equipment for earth removal. The disposal trench should be approximately 14 to 16 feet wide and 40 to 80 feet long. The depth of the disposal trench should be approximately 9 feet. However, at the discretion of the supervisor in charge of the burial site preparation, these dimensions

may be changed as needed to avoid burial in unconsolidated material such as slime fractions within Pond 2.

7.3 Burial

Burial of the damaged barrels shall be in the disposal trenches. The packages may be placed within the disposal trench for final burial using either a winch, fork lift or equivalent method depending on the ground conditions. The method of placing the package into the disposal trench will be at the discretion of the supervisor in charge of disposal. The crates containing the crushed barrels should be placed within the trenches side by side and in such a manner as not to damage the packages causing release of radioactive materials.

The burial site will be covered at the discretion of the Mill Superintendent by means of physical burial or through placement of process material from the normal disposition of mill tailings on Pond #2. However, in the event a package is damaged during transportation or subsequent placement within the disposal trench to the extent that radionuclide release is a possibility, the area of possible release will be immediately covered. A minimum topping of one foot of material shall be used for cover.

When final disposal of the crates is through physical burial, a minimum of one foot of cover will be placed atop the crates.

The cover material will be spread such that drainage of liquid is not impeded and will not cause ponding of liquid material at the burial site.

When using the normal disposition of process material to cover the crates, the disposition method shall not erode or otherwise move material surrounding the crates so as to create unstable tailing conditions.

FIGURE 1

NOTICE OF SHIPMENT
FROM
SEQUOYAH FUELS CORPORATION
A SUBSIDIARY OF KERR-MCGEE CORPORATION

No. 0753

Gore, Oklahoma 74435

Quivira Mining Company
P. O. Box 218
Grants, New Mexico 87020

The property described below in apparent good order except as n (Contents and condition of contents of packages unknown, marked, consigne destined as indicated below, which said carrier (the word carrier being under throughout this contract as meaning any person or corporation in possession o property under the contract) agrees to carry to its usual place of delivery at destination, if on its own route, otherwise to deliver to another carrier on the to said destination. It is mutually agreed as to each carrier of all or any of property, that every service to be performed hereunder shall be subject to a terms and conditions of the Uniform Domestic Straight Bill of Lading set forth Official, Southern, Western and Illinois Freight Classifications in effect on the hereof, if this is a rail or a rail-water shipment, or (2) in the applicable r carrier classification or tariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and cond of the said bill of lading including those on the back thereof set forth i classification or tariff which governs the transportation of this shipment an said terms and conditions are hereby agreed to by the shipper and accepte himself and his assigns.

SHIPMENT DATE	CUSTOMER ORDER NUMBER
12-17-86	
OUR ORDER NUMBER	

CARRIER/ROUTE

Tri-State Motor Transit Company
Trailer must go to destination with trailer seal intact.

		GROSS WT.	CLASS OR RATE	CHECK COL.
2 crates	Compacted Yellowcake Drums	4,200#		
	Empty - Last Contained			
	Uranium Concentrates			
	TOTAL	4,200#		
	Trailer Seal #2772			
	Trailer #140820			

Subject to Section 7 of Conditi applicable bill of lading, if this shipm to be delivered to the consignee w recourse on the consignor, the con shall sign the following statement:
The carrier shall not make delive this shipment without payment of f and all other lawful charges.
SEQUOYAH FUELS CORPORATIO

SIGNATURE OF CONSIGNOR

COLLECT | PREPAID

Received $ _____ to apply in prepayment of the ch on the property described hereon.

AGENT OR CASHIER

Per _____
(The signature here acknowledges the amount prepaid.)

CHARGES ADVANCED

TRAILER SEAL NUMBER(S)

~~GROSS CURR~~ Transport Group III / WASTE FORM CLASS	PHYSICAL FORM: Solid
ACTIVITY OF SHIPMENT IN CURIES: 0.035/load	RADIOACTIVE LABEL APPLIED: Radioactive LSA
FISSILE CLASS TRANSPORT INDEX: N/A	CHEMICAL FORM: $(NH_4)_2U_2O_7$
HAZARD CLASS: Radioactive Material, LSA, NOS, UN2912	RADIONUCLIDE: U-Natural

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport according to the applicable regulations of the Department of Transportation and NRC.

If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the pro hereby specifically stated by the shipper to be not exceeding

SEQUOYAH FUELS CORPORATION

By _____

_____ Carrier

_____ Driver's Signature

RM—1596-H

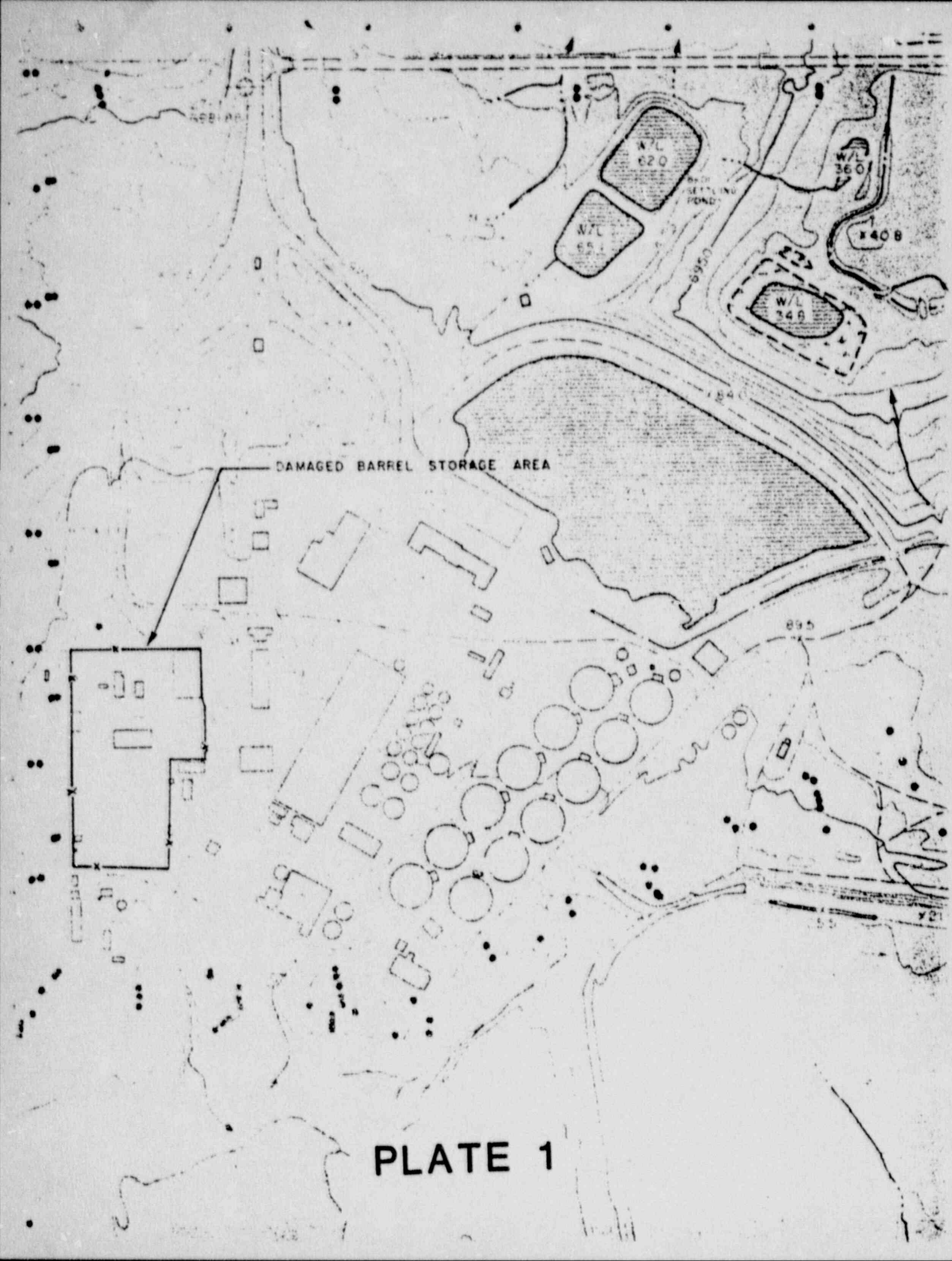
DAMAGED BARREL STORAGE AREA
W/L 620
W/L 651
W/L 360
W/L 349
X40 B
X21

PLATE 1

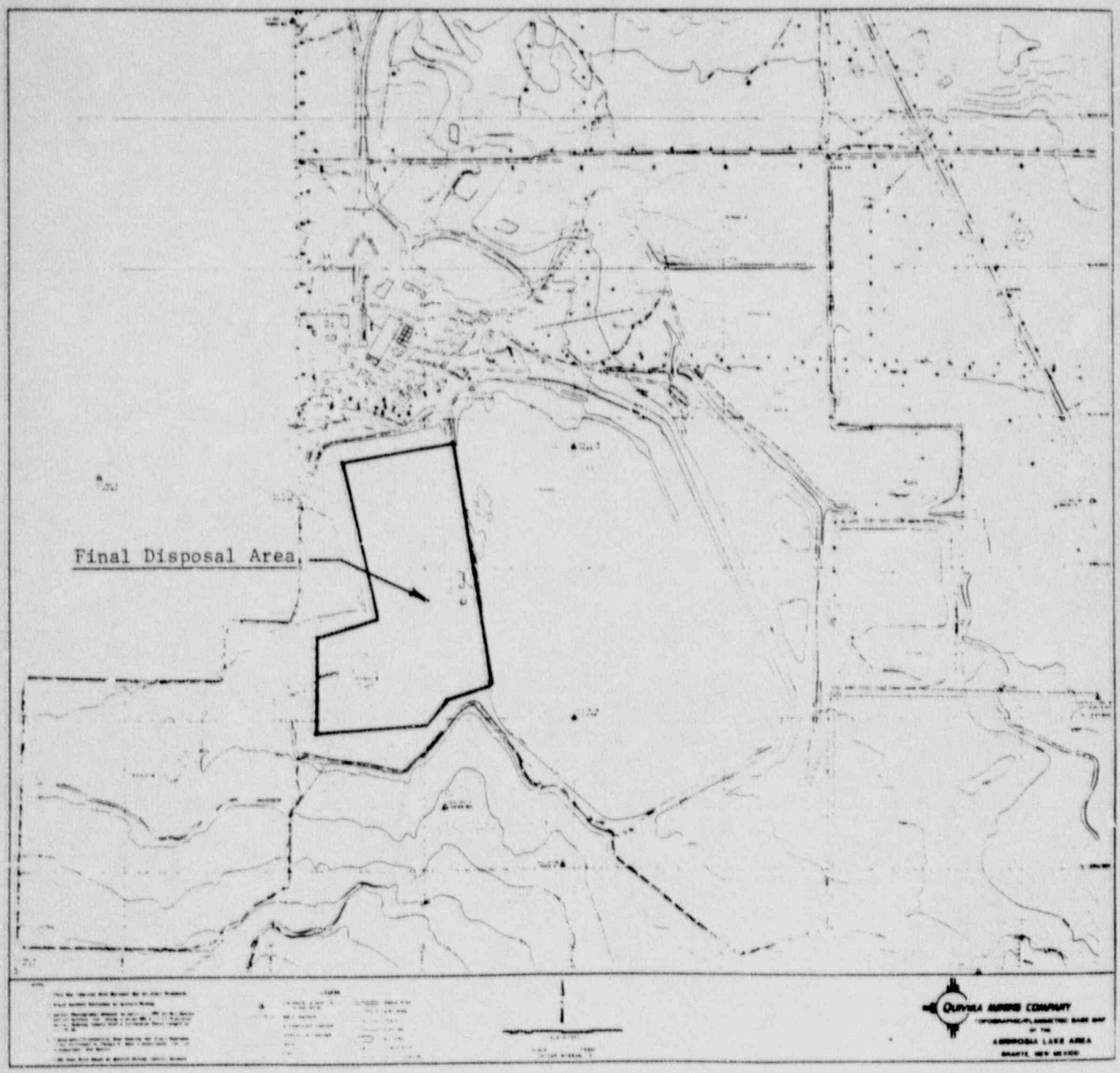

PLATE 2