

GL02391

MAY 25 1979

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

→ H Ross

Area Geothermal Supervisor's Office
Conservation Division, MS 92
345 Middlefield Road
Menlo Park, CA 94025



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MAY 22 1979

Memorandum

**UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.**

To: Interested Parties

From: Area Geothermal Supervisor

Subject: Plan of Operation, Sunoco Energy Development Company
(Sunedco), Dixie Valley KGRA, Churchill County, NV
Ref: 2403-01 POO for EA#129-9

Sunoco Energy Development Company has submitted a Plan of Operation in accordance with 30 CFR 270.34 to drill five (5) geothermal exploratory wells, on Federal Leases N-8317, N12863, N-12393 in Dixie Valley KGRA, Churchill County, NV. A copy of the Plan of Operation is attached for your review and files.

An Environmental Analysis (EA#129-9) will be prepared by the Office of the Area Geothermal Supervisor for the proposed action. A field inspection was held on the subject leases on May 2, 1979; no additional field inspection is considered necessary at this time. You are encouraged to visit the site at your own convenience. Any inquiries should be directed to Mr. Bernie Moroz, District Geothermal Supervisor, Kietzke Plaza, Building D, Suite 137, Reno, NV (Telephone: 702-784-5676; FTS 470-5676).

We urge you to send written commentary and will appreciate hearing from you even if you are of the opinion that the existing regulations, lease terms and operational orders provide adequate environmental protection.

All comments concerning the proposed actions should be received no later than June 11, 1979:

Area Geothermal Supervisor
U.S. Geological Survey - Conservation Division
345 Middlefield Road MS-92
Menlo Park, CA 94025

Telephone: (415) 323-8111 X2848; (FTS): 467-2848

All comments will be given serious consideration in the preparation of the Environmental Analysis and any subsequent conditions of approval.

The Area Geothermal Supervisor's Office will not send a draft Environmental Analysis to interested parties for review for the proposed action. Certain parties, however, such as the surface managing agency, the lessee, GEAP and USFWS will receive a copy of the completed EA. Other interested parties will not receive a copy of the final EA unless such parties comment on the proposed action in writing or request a copy of the particular EA pursuant to the Freedom of Information Act. Copies of Environmental Analyses are available for inspection during normal business hours at the Area Geothermal Supervisor's Office, and the Carson City BLM District Manager's Office.

Reid Stone

Attachment

PLAN OF OPERATION PER 30CFR 270.34

The plan is to drill five exploratory wells in Dixie Valley, Nevada, to a depth of approximately 8,500 feet each.

- (a) The proposed location of each well is shown on the attached topo map. A rig layout showing the position of the mud tanks, reserve pits, pipe racks and other surface facilities is also attached.
- (b) Existing and planned access and lateral roads are shown on the topo map for each well.
- (c) Locations of water supply

Well 33-4, 24N, 37E

A water supply well will be drilled approximately 200 feet northwest of the drill site and piped to the well.

Well 25-7, Section 7,
24N, 37E, Well 51-18
and Well 72-13

Geothermal wells will be supplied from a reservoir on fee land located in the SW SW quarter, Section 7, 24N, 36E.

Well 11-24, 24N, 36E

A water supply well will be drilled approximately 200 feet north of the well and water piped to the well.

Road Building Material

A separate application has been applied for from the BLM and a site suitable to BLM will be designated for our use. (See Attachment #1)

- (d) Location of Support Facilities

A camp site will be located on fee land in the SW SW quarter, Section 7, 24N, 37E.

- (e) There should be no other areas of surface disturbance except those as listed here and as shown on the attached topo map.
- (f) The topographic features and drainage features are depicted on the topo map.
- (g) Methods of disposing of existing materials are discussed in the environmental section and the drilling plans.

Methods used to protect the environment are discussed in the environmental section.

All pertinent information required for proper and timely consideration of the Plan of Operation should be included herein. If any other data is required, we will furnish it. Various required data will be taken throughout operations to insure that the plan is being followed and that we are in compliance with applicable rules, regulations, and GRO orders.

- (h) Should sufficient geothermal resources be encountered during the exploratory phase of the Plan of Operation a one-year baseline data will subsequently be initiated to address other environmental requirements.

PROPOSED WELL LOCATIONS
CHURCHILL COUNTY, NEVADA

#27 (72-13) 695'FNL & 695'FEL, SECTION 13-2 4N-36E

SOILS

Fine sand, silt, some surface gravel

VEGETATION

Grease wood, shadscale, some annual

TOPOGRAPHY

Very gently southeast sloping, small drainage channel cuts across drill hole location, location at toe of alluvial fan

COMMENTS

Suggested (BLM/USGS) to construct a ditch along south side of the road to divert drainage waters to edge of pad.

#28 (25-7) 766'FWL & 2086'FSL, SECTION 7-24N-36E

SOILS

Alluvial fan gravels, fine sand to boulder gravel

TOPOGRAPHY

East sloping - low grade alluvial fan

VEGETATION

Same as above

COMMENTS

Pad will required minor cut and fill on upslope portion of pad. Should have a diversion berm to divert possible flood waters.
(BLM/USGS)

#29 (11-24) 660'FNL & 660'FWL, SECTION 24-24N-36E

SOILS

Most gray brown silt - clay, salt crust on surface

VEGETATION

Sparse salt grass, pickle weed and grease wood

TOPOGRAPHY

Flat

COMMENTS

None

PROPOSED WELLS CON'T

#37 (33-4) 1980'FNL & 1980'FWL, SECTION 4-24N-37E

SOILS

Very fine grained sand, silt, clay - moist sediments, traces of salt on surface.

TOPOGRAPHY

Flat and level valley bottom

VEGETATION

Shadscale, with sparse greasewood, picklewood, and salt grass. 10-15% vegetation cover.

COMMENTS

None

#38 (51-18) 660'FNL & 1980'FEL, SECTION 18-24N-37E

SOILS

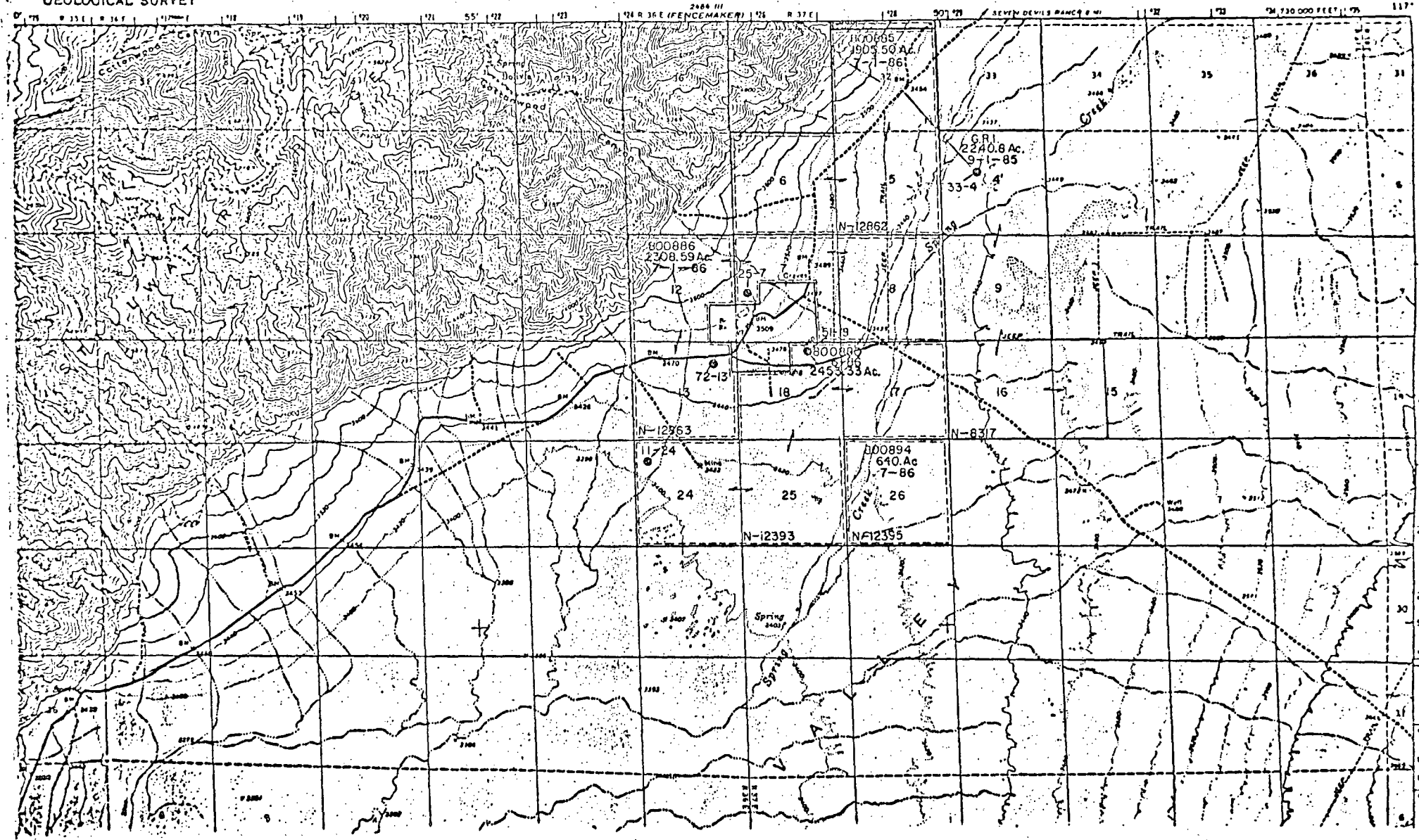
Brown fine sand and silt

VEGETATION

Greasewood and small annuals

TOPOGRAPHY

Level with slight dipping to the east.

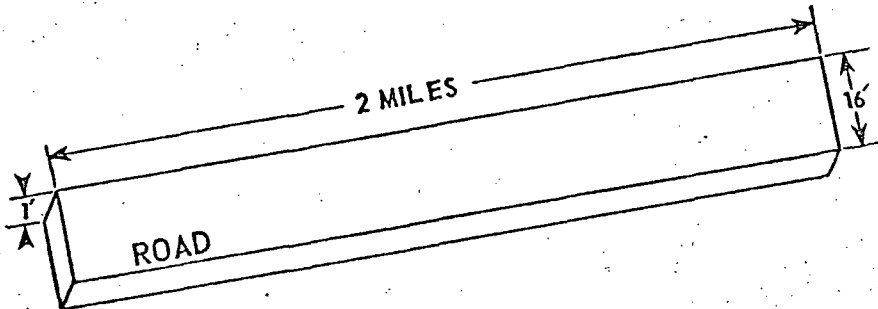


DIXIE VALLEY

ESTIMATED ROAD AND PAD MATERIAL REQUIREMENTS

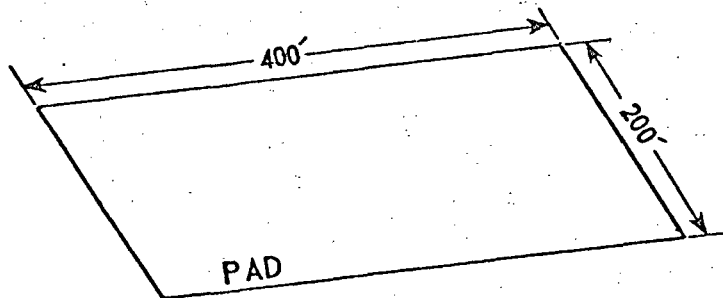
ROADS

$$\begin{aligned} \text{Width} &= 16', \text{ Thickness} = 1', \text{ length} = *10560' \\ &= 16' \times 1' \times 10560' = \frac{168960}{27} = 6257 \text{ cubic yards} \end{aligned}$$



PAD

$$\begin{aligned} \text{Width} &= 200', \text{ Thickness} = 1', \text{ Length} = 400' \\ &= 200 \times 1 \times 400 = 80000 \text{ cubic Ft.} \\ &= 80000 \times 5 \text{ pads} = \frac{400,000}{27} = 14815 \text{ cubic yds.} \end{aligned}$$

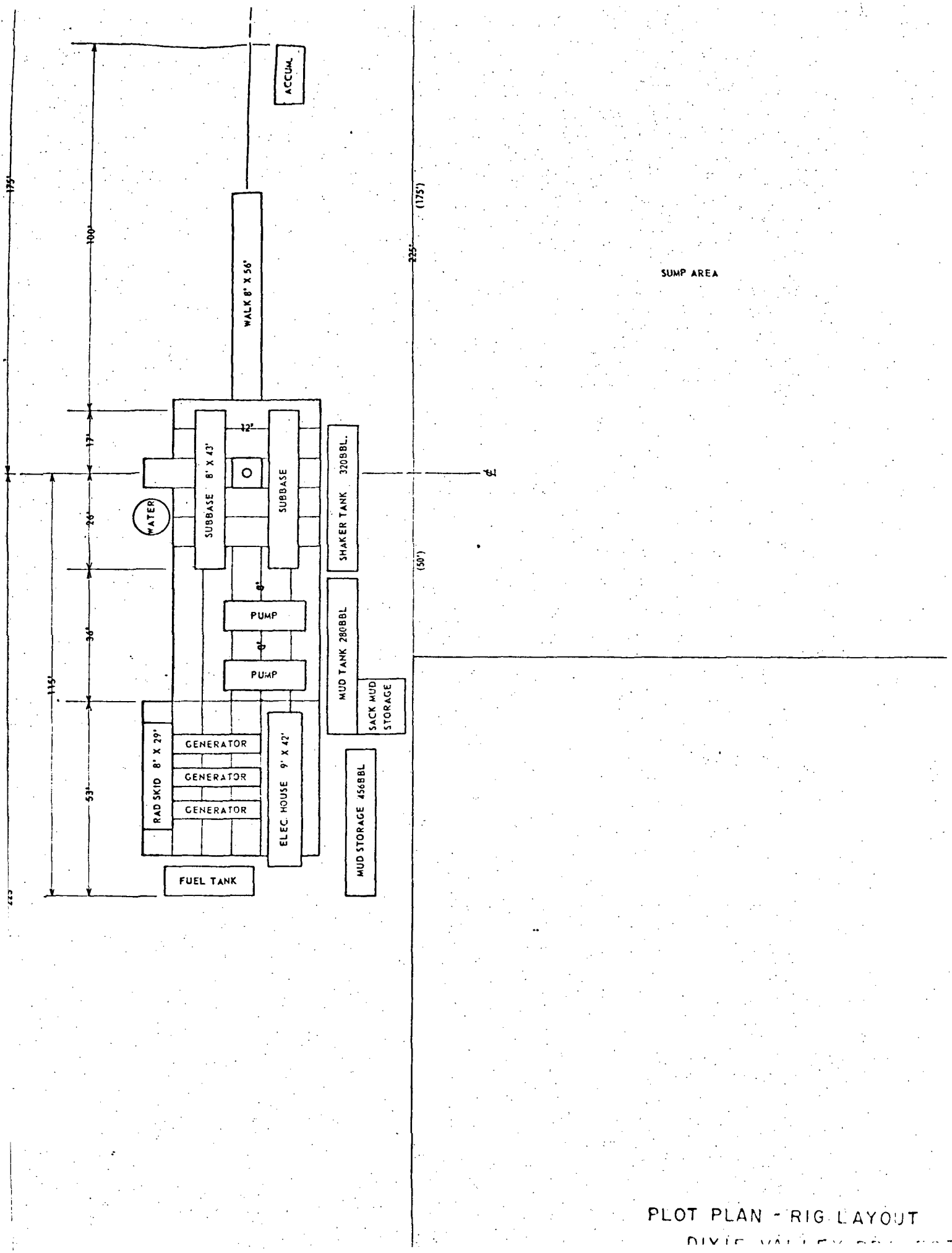


TOTAL MATERIAL REQUIREMENT

$$6257 + 14815 = 21072 \text{ cubic yds.}$$

ROAD CONSTRUCTION

Culverts will be placed in road as required for natural drainage.



PLOT PLAN - RIG LAYOUT

DIVISION VALLEY

METHODS OF DISPOSING OF WASTE MATERIAL

Reserve pits will be located adjacent to each drill pad for containment. If the well is completed as a producing well the reserve pits will be left intact for future use during fasting, workovers, or deepening.

If the well is not completed as a producing well the reserve pits will be evaporated to dryness and then reclaimed by filling and grading.

Effluents produced during testing operations are of better quality than existing surface waters in area. Approval to allow the produced effluents to flow into the natural drainage will again be requested from appropriate agencies.

A burn pit will be used at each drill site for the disposal of flammable waste material such as mud socks and rags. Solid waste such as cans and bottles will be placed in a pit which will be covered over with dirt after the drill rig has been removed from the location.

A "sanihut" will be provided for the use of the drilling crews and other personnel working on the drilling operation.

ENVIRONMENTAL PROTECTION

The following practices will be followed with regard to environmental protection.

FIRE

All Local, State, and Federal fire standards applicable to the operator's activities will be observed. Vegetation removed in pad and road construction will be placed at a reasonable distance from drilling sites. Smoking will be permitted only in designated areas with care being taken to avoid accidental ignition of brush or other flammable materials. All vehicles on the location will meet applicable state highway standards. Water and fire extinguishers will be kept available at all times at each location.

SOIL EROSION

Road improvements will be limited to that which is necessary. The drainage pattern and topography of area will be considered in the design of the access roads.

NOISE AND AIR QUALITY

Noise generated by drilling operations should have little or no effect on the environment.

The drilling operations should have little effect on the air quality of the area. H₂S emissions for nearby well have monitored concentrations of less than 1 ppm during drilling/flow test operations.

HAZARDS TO PUBLIC HEALTH AND SAFETY

Drilling operations can be hazardous to passers-by and other unauthorized personnel. For this reason, areas in which drilling and other operations underway will be restricted, except to authorized personnel. In addition sumps and other excavations will be fenced to prevent accidents. The proposed sites are in locations which are not readily accessible to the general public. Should any emergency arise during the proposed operation, the appropriate local, state, and federal agencies will be notified on matter pertaining to their interest.

BLOWOUT PREVENTION PROGRAM

As detailed in the Drilling and Completion Procedure our blowout prevention program consists of three phases: blowout prevention containment devices (blowout preventers, rotating head and master gate), blowout warning devices (pit level alarm, degasser, temperature monitor), and blowout control drills for crew members.

The containment devices will be equipped with high temperature resistant packing elements and ram rubbers. All of the containment devices used will be rated and tested to 2,000 psi except for the rotating head which is 1,000 psi W.P. All of the containment devices will be installed and used above ground level so that any leaks will be visible and accessible for repair. As outlined in the Drilling Procedure, blowout preventers will be pressure tested when installed; then pressure tested not less than once each week; and again pre-sure tested if any of the equipment is removed or if any seals are broken for any reason. The equipment will be tested for operating ability not less than once each day.

The warning device in use on this well will consist of a pit level alarm rigged to actuate both an audio and visual warning in event the level of fluids in the mud pits increases or decreases. The warning device will be located on the rig floor near the drillers station. In addition to mud level monitoring, mud temperatures will be monitored and recorded, which will also serve as a warning device as temperatures increase.

A blowout contingency plan in detail will also be placed in a conspicuous place near the rig floor and will concern actions to be taken after kick control procedures are begun. This plan will consist of three main thrusts; containment of well fluids, insulation of the public from danger, and cleanup measures.

The reserve pit built on the well site will at all times be capable of handling several thousand barrels of well fluids in addition to drilling fluids discarded as normal operating procedure. If this pit should prove to be inadequate for fluid containment, additional earthen pits will be made to hold well fluids.

The access road to the well site will be equipped with signs warning the general public of possible danger and advising unauthorized personnel to stay away from the well site at all times.

CULTURAL RESOURCES STATEMENT

A field inventory of the proposed drilling sites has been conducted by an approved archaeologist and submitted to the Supervising BLM Office. This report found no significant artifacts and have recommended clearance to conduct proposed operations. Copy of report will be forwarded as soon as we received it.

PLANT SURVEY

A botanical field inventory of the proposed drilling area has been schedule with the Nevada State Museum on May 17, 1979. This inventory should required 2 days for the proposed area and a copy of the report will be forwarded as soon as we receive it. This study will be conducted by Ms. Ann Pinzl, Botanist for the State Museum.