

10-POINT WELL CONTROL PROGRAM FOR B.M. HOUCK #1

- 1.) Tertiary sediments are exposed at the surface.
- 2.) The estimated tops of important geologic markers are as follows;

<u>FORMATION NAME</u>	<u>SEA LEVEL DATUM</u>	<u>DEPTH (KB)*</u>
Fruitland	3893'	1854'
Pictured Cliffs	3743'	2004'
Chacra Sand	2608'	3139'
Mesa Verde	2133'	3614'

*KB= ground level elevation + 15' = 5747'

- 3.) The estimated depth intervals of potential fresh water and hydrocarbon zones are as follows;

<u>FORMATION NAME</u>	<u>DEPTH INTERVAL</u>	<u>SATURATING FLUID</u>
Ojo Alamo	904'-954'	fresh water
Fruitland	1854'-1959'	natural gas
Pictured Cliffs	2004'-2124'	natural gas
Chacra Sand	3139'-3149'	natural gas
Mesaverde	3614'-4679'	natural gas

- 4.) The proposed casing program is as follows;

<u>DEPTH INTERVAL</u> <u>(ft.)</u>	<u>CASING SIZE</u> <u>(O.D.-in.)</u>	<u>NOMINAL WEIGHT</u> <u>(#/ft.)</u>	<u>GRADE</u>	<u>CONDITION</u>
0-300'	9 5/8"	36	K-55	New
0-3340'	7"	23	K-55	New
3340'-TD*	4 1/2"	11.6	K-55	New

*proposed TD = 4730'

- 5.) A schematic of the BOP stack, showing sizes, pressure ratings, and the API series is included as Attachment 10-1. In addition to the BOP stack a rotating head will be used. The BOP stack and rotating head will be nipped up and pressure tested to 1000 psi, after cementing of the surface casing has been completed. Drilling will commence when it has been determined that the BOP stack will contain the test pressure. The BOP stack will be pressure tested to 1000 psi, when cementing of the intermediate casing string has been completed. Additional testing of the BOP stack will consist of daily mechanical checks of the pipe rams, and mechanical checks of the blind rams whenever the drill pipe is out of the hole.

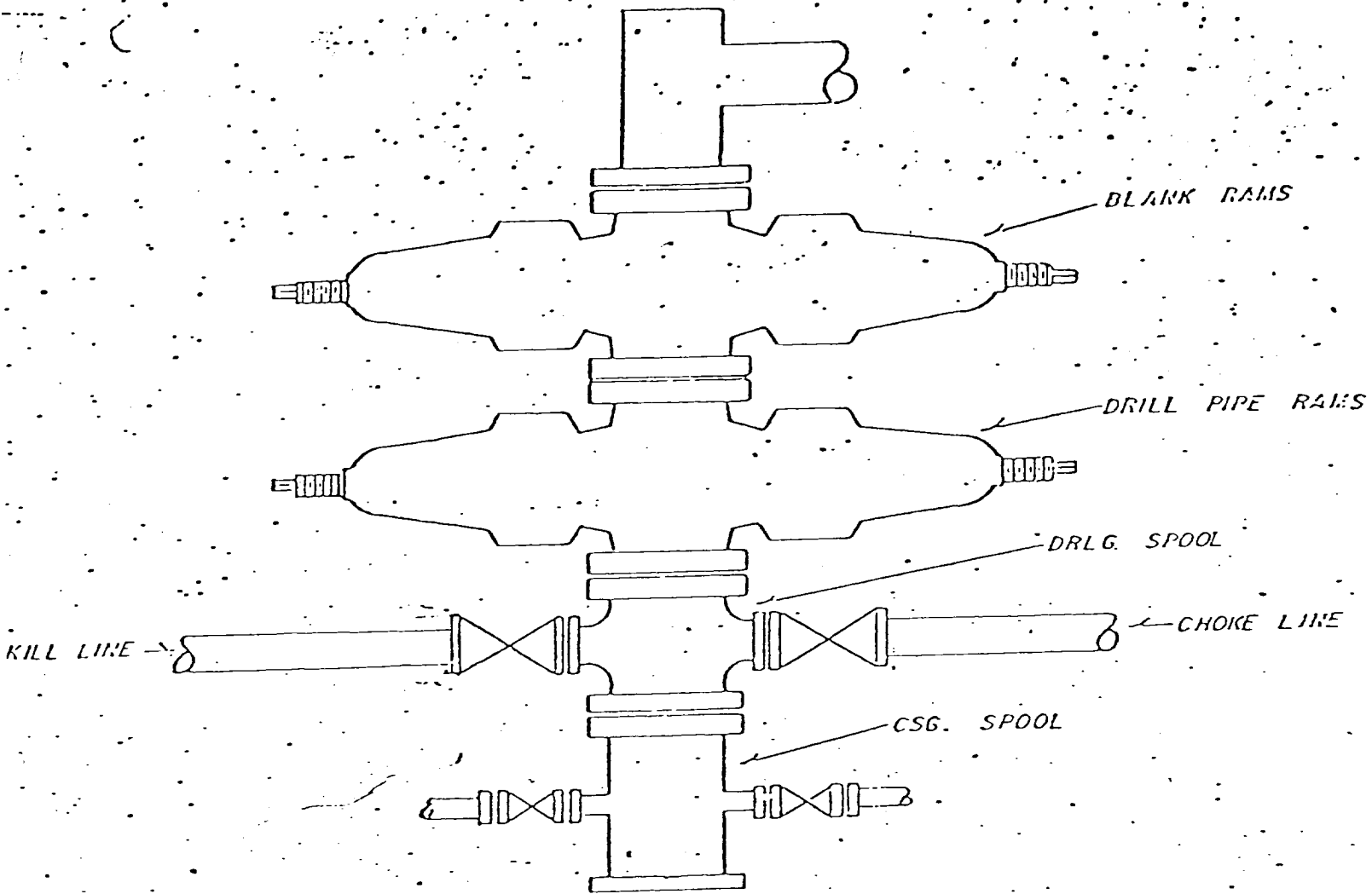
- 6.) The proposed mud program is as follows;

<u>DEPTH INTERVAL</u> <u>(ft.)</u>	<u>MUD WEIGHT</u> <u>(P.P.G.)</u>	<u>VISCOSITY</u> <u>(Sec./qt.)</u>	<u>FLUID LOSS</u> <u>(ml.)</u>	<u>MUD</u> <u>TYPE</u>
0-300	8.5-8.9	60-70	N.C.	gel/lime
300-3340	8.7-8.9	28-30	N.C.	gel/lime w/ gel extender
3340-TD	N.A.	N.A.	N.A.	air

- 7.) Auxiliary equipment and procedures to be used in addition to the BOP stack are as follows;
- a.) upper and lower kelly cocks,
 - b.) a float at the bit,
 - c.) visual monitoring of mud and reserve pit levels, and
 - d.) a sub with a full opening valve will be available to be stabbed into the drill pipe when the kelly is not in the string.
- 8.) No coring, DST's or mud logging will be done in the subject well. The proposed logging program is as follows;

DEPTH INTERVAL (ft.)	LOG TYPE	SCALE (''/100')
300-1500	Dual Induction Laterlog	2
1500-3340	Dual Induction Laterlog	5
1500-3340	Compensated Neutron Formation Density	5
3340-TD	Gamma-Induction	5
3340-TD	Sidewall Neutron Porosity	5
3340-TD	Compensated Formation Density	5

- 9.) No potential drilling hazards (i.e. abnormal pressures or temperatures, hydrogen sulfide) are expected to be encountered in this well.
- 10) The anticipated spud date for the subject well is August 12, 1978. Drilling is expected to take 8 days.



BLOWOUT PREVENTER SCHEMATIC

ATTACHMENT 10-1

SURFACE USE AND OPERATION PLAN FOR
B.M. HOUCK #1

1.) Existing Roads;

- a.) The proposed well site as staked is 1050' FNL & 1840' FEL in section 13, T29N, R11W, San Juan County, New Mexico. (See Attach. 13-1).
- b.) The route to the B.M. Houck #1 is North out of Bloomfield on NM Hwy 44 for 1.2 miles, then East onto a light duty road for 2.4 miles. This route is marked on Attach. 13-1.
- c.) The access road to the well location is shown on Attach. 13-1.
- d.) N.A.
- e.) For this development well all existing roads within a 1-mile radius are shown on Attach. 13-1.
- f.) No improvement or maintenance is necessary on existing roads.

2.) Planned Access Roads;

No access roads will need to be constructed or reconstructed. Route to well from existing access road is along an existing trail on firm ground that won't require any grading.

3.) Location of Existing Wells;

The location of wells within a 1-mile radius of this development well are indicated below;

- a.) no water wells,
- b.) 1 abandoned well (See Attach. 13-3),
- c.) no temporarily abandoned wells,
- d.) no disposal wells,
- e.) no drilling wells,
- f.) 16 producing gas wells (See Attach. 13-3),
- g.) no shut in wells,
- h.) no injection wells,
- i.) no monitoring or observation wells for other resources.

4.) Location of Existing and/or Proposed Facilities;

- a.) Facilities owned by Getty within a 1-mile radius of the proposed well site are as follows;

- 1.) no tank batteries,
- 2.) production facilities are 4-each of the following;
 - a.) a 2'x 8' horizontal 3-phase separator,
 - b.) a 210 barrel oil storage tank (10'x 15'),
 - c.) and a water dump pit (8'x 12'x 6' deep).

These facilities are on the Getty gas wells which are indicated on Attachment 13-3.

- 3.) no oil gathering lines,
- 4.) no gas gathering lines,
- 5.) no injection lines,
- 6.) no disposal lines.

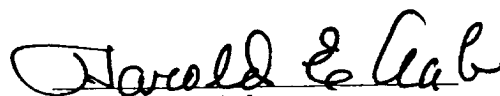
- b.)

- 1.) New facilities in the event of production will be located on the well pad as shown in Attach. 13-4.

- 2.) The dimensions of new facilities in the event of production will be;
 - a.) a 2'x 8' horizontal 3-phase separator,
 - b.) a 210 barrel oil storage tank (10'x 15'),
 - c.) and a water dump pit (8'x 12'x 6' deep).
 - 3.) The water dump pit will be constructed with a back-hoe by removal of native soil
 - 4.) an earthen dike utilizing soil in the immediate area will be constructed to contain oil should a spill occur. The burn pit will be fenced and flagged to protect wildlife and livestock.
 - c.) After completion of construction, in the event the well is a producer, the reserve pit will be filled and leveled to as near the same topography as before being disturbed. All of the site which is not utilized in normal production operations will be leveled and topsoil redistributed over that area. Seeding of that area will be in accordance with BLM requirements and at a time of the year when establishment is most likely to be successful.
- 5.) Location and Type of Water Supply
- a.) Water for drilling will come from either the San Juan River or else Citizens Ditch (See Attach. 13-5).
 - b.) Water for drilling will be transported by truck, no new roads will be needed.
 - c.) No water well will be drilled on lease.
- 6.) Source of Construction Materials
- The only construction materials which will be utilized are native soils from the immediate well area. The soils used will be located on federal land.
- 7.) Methods for Handling Waste Disposal
- 1.) Drill cuttings are to be contained in an earthen reserve pit.
 - 2.) Drilling fluids are to be contained in an earthen reserve pit.
 - 3.) The produced fluids will be contained in a test tank until such time as construction of treating facilities is complete.
 - 4.) A waste hole for sewage discharge from trailer will be drilled.
 - 5.) Garbage and other waste materials are to be contained in a trash pit fenced with small mesh wire. This trash is to be burned periodically.
 - 6.) All trash is to be gathered, burned and buried at completion of drilling operations.
- 8.) Ancillary Facilities
- There are no airstrips or camps planned.
- 9.) Wellsite Layout
- 1.) See Attach. 13-4 for cross section of drill pad with cuts & fills.
 - 2.) See Attach. 13-4 for location of mud tanks, reserve, burn & trash pits, pipe racks, living facilities and soil material stockpiles.

- 3.) See Attach. 13-4 for rig orientation, parking areas and access road.
 - 4.) Pits will not be lined.
- 10.) Plans for Restoration of Surface
- 1.) Pit area will be fenced and allowed to dry. Pits will be backfilled, leveled, contoured and re-seeded, as required by BLM.
 - 2.) Revegetation and rehabilitation, including access roads will be done as required by BLM.
 - 3.) Prior to rig release, the pits will be fenced and so maintained until cleanup.
 - 4.) If oil is on pit, it will be removed or overhead flagging will be installed.
 - 5.) Estimated date for starting rehabilitation operations is August 26, 1978, and completion of rehabilitation operations is estimated to be October 30, 1978.
- 11.) Other Information
- a.) The well location is located on a mesa top, with ground cover composed of sparse grass and silt.
 - b.) Surrounding lands are either farmed or left idle.
 - c.) No occupied dwellings are in the well site vicinity. The San Juan River is located approximately 1.6 miles south of the location. Citizen's Ditch is located approximately .8 miles South of the location. No known archeological, historical or cultural sites are in the proposed well area.
- 12.) Lessee's or operator's representative
- | | |
|----------------------|-----------------------------|
| Dick P. Hergenreter | Office phone (505) 325-9682 |
| Getty Oil Company | Mobile phone (505) 325-1873 |
| P.O. Box 510 | go through contact radio |
| Farmington, NM 87401 | svc. for car # 604 |
| | |
| Harold E. Aab | Office phone (307) 265-8386 |
| Getty Oil Company | Mobile phone (307) 265-4100 |
| P.O. Box 3360 | |
| Casper, WY 82602 | |
- 13.) Certification
- I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge true and correct; and, that the work associated with the operation proposed herein will be performed by Getty Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

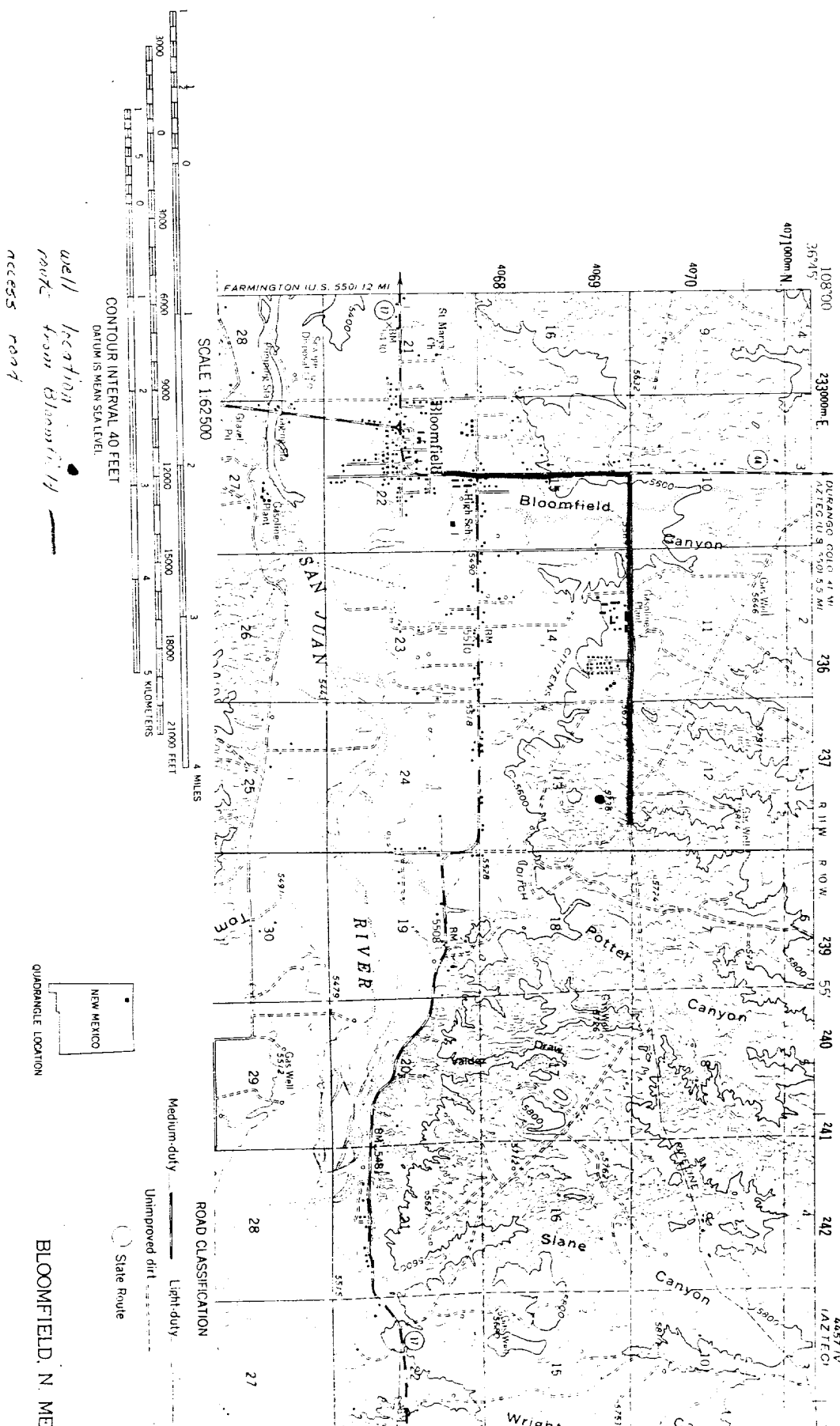
DATE 6-9-78


Harold E. Aab
Area Superintendent

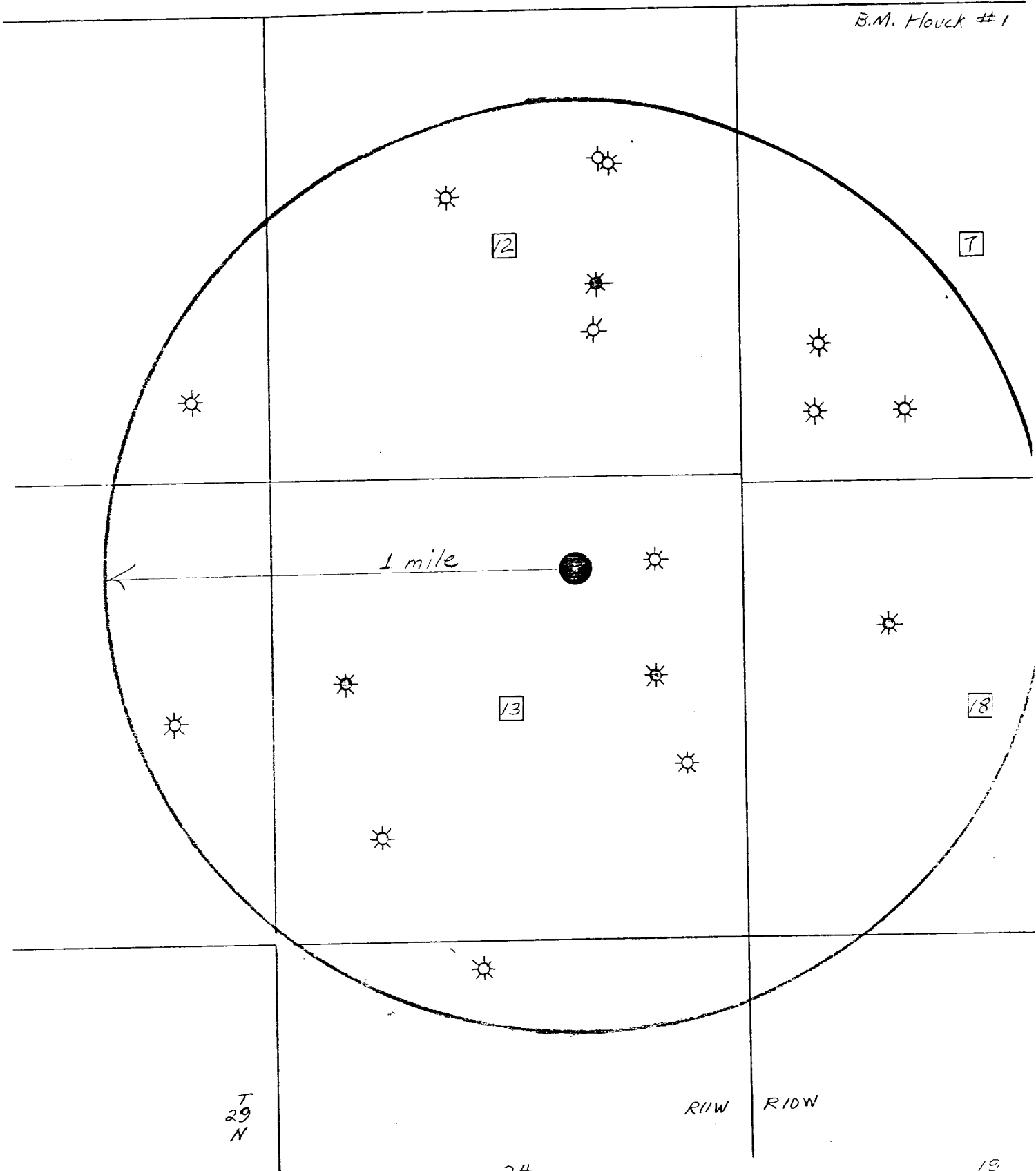
4367 SE
1:24,000
1:24,000

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NTI-6;13
B.M. HOUCK #1



Attachment 13-1



San Juan County, New Mexico

Attachment 13-3

Scale - 1" = 1500'

Proposed well location
 Getty gas well
 Other gas well
 P+A well

RIG & SURFACE FACILITIES
ATTACHMENT 13-4
B.M. HOUCK #1

Scale: 1" = 50'

Rig Layout

1. Reserve Pit
2. Trash Pit
3. Mud Pits
4. Mud Pumps
5. Water Tank
6. Utility House
7. Rig Substructure
8. Dog House
9. Catwalk
10. Pipe Racks
11. Derrick Stand

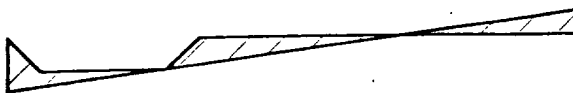
Surface Facilities

1. 15'x10' Cond. Tank
2. 2'x 8' Separator
3. 8'x12'x6'
4. Water Pit
5. Buried Flowline

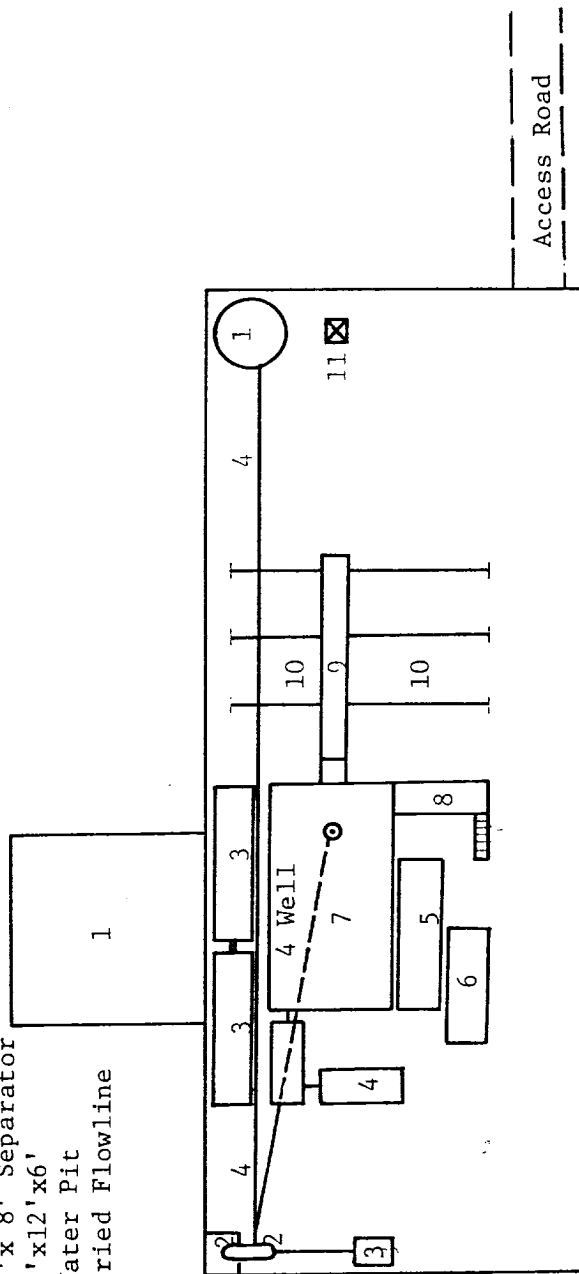


fill

7'



cut 3'

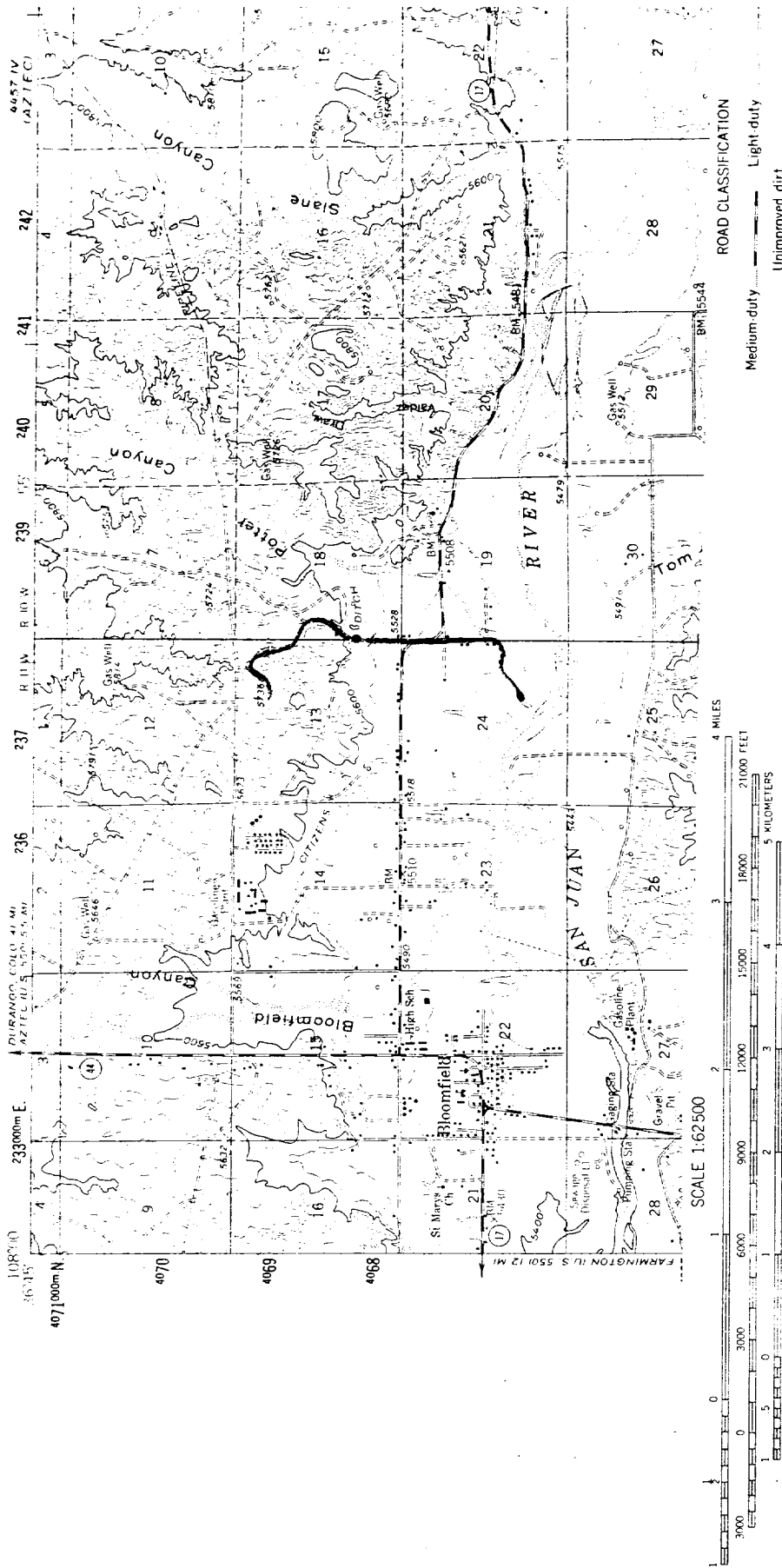


cut 2'



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

4357 1 SE
(FLORA VISTA)
1:24,000



CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

water supply location •
route from well to water location —

BLOOMFIELD, N. M.

Attachment 13-5