

NTL-6 ENVIRONMENTAL PROTECTION STATEMENT

Operator: Western Oil & Minerals, Ltd.
Well No. and Lease: #5A Marron
Location: SE 27-27N-8W
County and State: San Juan County, New Mexico
Date: June 9, 1978

TO: District Engineer, U. S. Geological Survey,
Bureau of Land Management and/or U. S. Forest Service

I. General

The following information is provided in order that the environmental impact of proposed operations on subject leasehold may be evaluated. Oil and gas operations by this operator will be totally systemized between management and operations personnel to ameliorate and minimize any adverse effect on the environment.

Operator plans to conduct operations in such a fashion that will:

- (A) Result in diligent development and efficient resource recovery.
- (B) Afford adequate safeguard for the environment.
- (C) Result in proper rehabilitation of disturbed land.
- (D) Assure protection of public health and safety.
- (E) Conform with best available oil field practice.

II. Drilling Operations

A. Preliminary Environmental Review

Request for permission to stake well location and submission of topo map has been done previously.

B. Application for Permit to Drill, Deepen, or Plug Back

- (1) Form 9-331C (Application for Permit to Drill, Deepen, or Plug Back) is attached.
 - (2) Multi-Point Surface Use and Operations Plan is attached.
 - (3) If private surface is involved, Rehabilitation Agreement is attached (see Exhibit I-A).
 - (4) Form 9-331C
 1. Location - see 9-331C
 2. Elevation gl - see 9-331C
 3. Geologic name of surface formation - see 9-331C
 4. Type drilling tools - see 9-331C
 5. Proposed TD - see 9-331C
 6. Estimated tops of important geologic markers - see Exhibit I
 7. Estimated depth anticipated water, oil, gas, or other mineral bearing form - see Exhibit II
 8. Proposed casing program (size, grade, wgt., N or U) - see 9-331C
 9. Proposed setting depth each string (amt., type cmt. and additives) - see 9-331C
 10. Operator's planned minimum specs for pressure control equipment, schematic, sizes and pressure ratings (API series), testing procedures and frequency - see Exhibit III
 11. Type and characteristics of circulating medium (quantities and types of mud and weighting material to be maintained) - see Exhibit IV
 12. Testing, logging, and coring program w/provision for flexibility - see Exhibit V
 13. Any anticipated abnormal pressures, temperatures, or hazardous gases (H₂S), and mitigating plans if necessary - see Exhibit VI
 14. Anticipated starting date and duration of operation - see Exhibit VII
 15. Extraneous facets of proposed operation - see Exhibit VIII
 - (5) Provide copy of approved Application for Permit to Drill at well site - see dog house wall
-

EXHIBIT I (to accompany form 9-331C)

(4-6) Est. tops of important geologic markers.

San Jose (Tsj)	<u>sfc (6720' gl)</u>
Nacimiento (Tn)	<u> </u>
Ojo Alamo (Toa)	<u> </u>
Kirtland (Kkt)	<u> </u>
Fruitland (Kfl)	<u> </u>
Fruitland Coal	<u>2680'</u>
Pictured Cliffs (Kpc)	<u>2740'</u>
Lewis (Klw)	<u>2800'</u>
HBM	<u>3210'</u>
Mesa Verde Tran.	<u> </u>
Cliff House (Kch)	<u>4320'</u>
Menefee (Kmf)	<u>4395'</u>
Point Lookout (Kpl)	<u>5030'</u>
Mancos (Kmc)	<u>5230'</u>
Gallup (Kg)	<u> </u>
Tocito	<u> </u>
Sanostee	<u> </u>
Greenhorn (Kgh)	<u> </u>
Graneros (Kgn)	<u> </u>
Graneros SS	<u> </u>
Dakota (Kd)	<u> </u>
Morrison (Jm)	<u> </u>

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EXHIBIT II (to accompany form 9-331C)

(4-7) Est. depths anticipated water, oil, gas, or other mineral bearing formations.

Ojo Alamo (wtr)	_____
Fruitland (coal)	2680' _____
Pictured Cliffs (gas)	2740' _____
Cliff House (gas)	4320' _____
Menefee (coal and gas)	4395' _____
Point Lookout (gas)	5030' _____
Gallup (oil and gas)	_____
Dakota (oil and gas)	_____

YOUNG DRILLING CO.

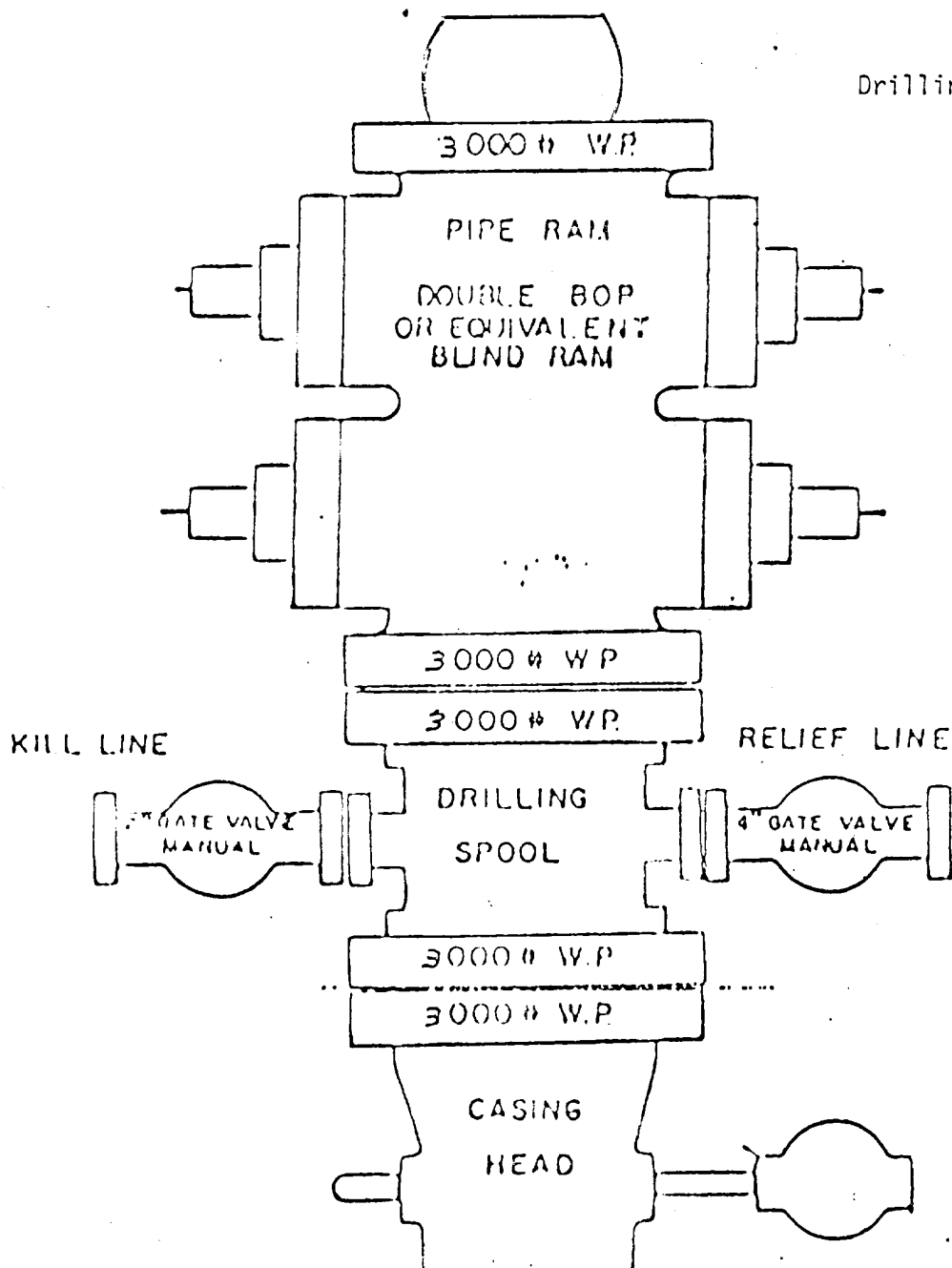
P. O. BOX 717

FARMINGTON, NEW MEXICO 87401

Western Oil & Minerals, Ltd.
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 SE27-27N-8W
 San Juan County, New Mexico

SCHEMATIC DRAWING OF BLOWOUT PREVENTER STACKRIG 2 AND RIG 3

Drilling Bowl for Rotating Head



Shaffer Hydraulic
 double gate BOP
 (or equivalent)
 API Series 900
 3000# W.P.
 6000# Test

DRILLING CONTRACTOR FURNISHES EVERYTHING ABOVE CELLAR WALL.

SCHEMATIC BLOW-OUT EQUIPMENT

EXHIBIT III

EXHIBIT III (to accompany form 9-331C)

(4-10) Planned pressure control, planned testing, frequency and procedures. Testing procedure of pressure control equipment and frequency will be conducted in accordance with approved API procedures and/or best oil field practice in area concerned.

- (a) Visual inspection will be made of its equipment before installation.
 - (b) After installation, equipment will be tested at manufacture's rated, equipment pressure, or at least as high as obtainable with wellsite equipment.
 - (c) Pressure control equipment will be operationally tested each trip for bit, but not more than once per day.
-

EXHIBIT IV (to accompany form 9-331C)

(4-11) Planned types and characteristics of circulating medium.

<u>Depth</u>	<u>Mud Weight</u>	<u>Viscosity</u>
0-700'	8.4 - 8.7	29 - 36
<p>Spud with fresh water gel slurry. Adjust viscosity as needed to keep hole clean and remove cuttings. Water loss adjusted to minimize fluid loss into shales. Hole will be circulated and cleaned before running surface and/or intermediate casing strings. Shale shaker will be used to remove cuttings except as selectively shut down to prevent loss of LCM. Desilter will be used if necessary. A gas buster will be installed if considered necessary.</p>		
700-TD	8.7 - 9.0	32 - 40 36 - 50 for logging and testing
<p>Gradual improvement of mud quality will be instituted in functional incremental degrees as required or judged necessary. Quality mud will be in total circulating system before penetrating projected pay zone. Quality mud will be used to log well and run long string of casing.</p>		
<p>LCM will be stacked at drillsite in sufficient quantity to handle any foreseen problems. Additional quantities will be on call at stock points at Farmington for additional backup.</p>		
<p>Weighting material will be on hand or available at stock points in Farmington in case of need.</p>		

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EXHIBIT V (to accompany form 9-331C)

(4-12) Planned testing, logging, and coring program (with provision for flexibility).

DST's planned: None

Cores planned: None

Logs planned : Suitable Resistivity, reciprocal Conductivity, and SP log in fluid filled hole; Gamma-ray Induction if hole dry.

Suitable porosity log if tools available, GR Comp. Den. and/or Comp. Neut. with caliper.

All logs in API units.

If circumstances arise, will consider a selected DST and/or core if additional reservoir information desired.

EXHIBIT VI (to accompany form 9-331C)

(4-13) Anticipated abnormal pressures, temperatures, or hazardous gases (H₂S).

(a) Anticipated abnormal pressures: None

(b) Anticipated abnormal temperatures: None

(c) Anticipated hazardous gases (H₂S): None

If any of the foregoing are unexpectedly encountered, suitable steps will be taken to mitigate.

EXHIBIT VII (to accompany form 9-331C)

(4-14) Anticipated starting date and duration of operation.

- (a) Anticipated starting date: August 21, 1978
- (b) Duration of operation: Drilling and completion 19-1/2 days
- (c) Depending on weather and rig availability, will either complete well with the drilling rig on the hole or in the logistical alternative, subsequently use a completion rig. Unless operational problems are encountered, expect to perf., frac., run tubing, and clean up well in approximately 8 days.

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EXHIBIT VIII (to accompany form 9-331C)

(4-15) Extraneous facets of proposed operation.

(a) None.

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III. Multi-Point Surface Use and Operations Plan

Plan submitted is in sufficient detail to permit complete appraisal of environmental effects associated with proposed project.

Submitted in triplicate to USGS District Engineer along with form 9-331C.

A-1. Existing Roads (see Exhibit A)

- (a) Topo or county road map.
- (b) Proposed route shown including distances to highway or county road.
- (c) Proposed access roads labeled.
- (d) Wildcat - all existing roads within 3-mile radius.

Development well - all existing roads within 1-mile radius.

- (e) Improvement and/or maintenance of existing roads will be only as necessary and normally consist of minor blade work.

A-2. Planned Access Roads (see Exhibit A)

- (a) Identify permanent and temporary access roads.
 - 1. Planned data on newly constructed access roads (see Exhibit A-1).
 - a. Width
 - b. Maximum grade

- c. Turnouts
- d. Drainage design
- e. Location and size of culverts
- f. Surfacing material
- g. CL staked or flagged
- h. Where existing fence to be cut
- i. Gates or cattleguard to be used
- j. Any existing gates to be replaced
- k. Any existing cattleguards to be replaced

A-3. Location of Existing Wells (see Exhibit B)

- (a) Wildcat - all wells within 2-mile radius
(include water wells - use topo)
- (b) Development well - all wells within 1-mile radius
(include water wells - use topo)

A-4. Location of Existing and/or Proposed Facilities - tank batteries, production facilities, and production, gathering, and service lines (see Exhibit C)

- (a) Existing facilities within 1-mile radius of location owned or controlled by operator to be shown on a plat or map.
- (b) Are there existing facilities owned within 1 mile located on drill-site pad?
- (c) Protective measures to functionally minimize and/or ameliorate hazards to livestock, waterfowl, and other wildlife will be to suitably fence any pits, if considered necessary, of both temporary and permanent nature.
- (d) Are new facilities on proposed well expected to be located on drill-site pad?
- (e) All production facilities will be located on the drillsite in optimum positions with due organizational regard to traffic mobility and ROW sale line options and flexibility.
- (f) All disturbed areas not needed for operation and maintenance will be reseeded, as required by surface jurisdictional and management agencies or fee land owner.
- (g) Future prospects for additional development of this leasehold have been functionally considered in this plan.

A-5. Location and Type of Water Supply (see Exhibit D)

- (a) Location of water for drilling purposes and method and route of transportation are stated in above mentioned Exhibit.
-

A-6. Source of Construction Materials (see Exhibit E)

- (a) Location of proposed source of sand, gravel, stone, soil, or construction materials and transportation route are described in above mentioned Exhibit.

A-7. Method of Handling Waste Disposal (see Exhibit F)

- (a) A brief written narrative description of method and location for safe containment and desposal of each type of waste material which results from drilling of proposed well and eventual disposal of drilling fluids and any produced oil or water recovered during testing operations are described in above mentioned Exhibit.

A-8. Ancillary Facilities (see Exhibit G)

- (a) Plans and maps for camps, airstrips, location and land area required, and methods and standards of construction are detailed in above mentioned Exhibit. Center lines of camps and airstrips shall be staked on the ground.

A-9. Well-site Layout (see Exhibit H)

- (a) A proposed plat of well-site layout showing cuts and fills and relation to topography is provided, including cross sections. The proposed location of mud tanks, pits (reserve, burn, and trash), pipe racks, access roads, turn-around areas, living facilities, soil material stockpiles (if necessary), and orientation of rig are indicated. Plans to line pit are noted.

A-10. Plans for Restoration of Surface (see Exhibit I)

- (a) Proposed program for surface restoration upon completion of operation is outlined in above mentioned Exhibit. Waste disposal is outlined in Exhibit F. Proposed timetable for commencement and completion of rehabilitation operations is also provided.

A-11. Other Information (see Exhibit J)

- (a) General description of topography.
 - (b) Soil characteristics.
 - (c) Formation lithologies.
 - (d) Geologic features.
 - (e) Flora.
 - (f) Fauna.
 - (g) Surface use activities.
 - (h) Surface ownership at well location.
 - (i) Surface ownership lands crossed by newly constructed or upgraded roads.
 - (j) Any other information considered to be useful by operator to USGS and BLM and/or Forest Service.
 - (k) Proximity to steep hillsides.
 - (l) Proximity to steep gullies.
 - (m) Proximity to water wells (see Exhibit B).
 - (n) Proximity to ponds.
-

- (o) Proximity to streams.
- (p) Proximity to other facilities.
- (q) Proximity to occupied dwellings.
- (r) Proximity to archeological sites.
- (s) Proximity to historical sites.
- (t) Proximity to cultural sites.
- (u) Information concerning cuts and fills of roads (see Exhibit A-1).
- (v) Information concerning cuts and fills of location (see Exhibit H).
- (w) Construction practices necessary to accommodate potential geologic hazards.

A-12. Operator's Representative (see Exhibit K)

- (a) Name, address, and phone number of operator's field representative(s).

A-13. Certification (see Exhibit L)

- (a) Signed by field representative.

IV. Environmental Analysis Requirements

- A. If preliminary inspection is not made prior to staking, an on-site inspection will normally be required by representatives of District Engineer (USGS), operator, and Federal Surface Management Agency.

V. Approval of Subsequent Operations

- A. Must be done on 9-331A or 9-331C and approval obtained before work started.
- B. Operator must submit for approval suitable plan prior to any new construction or alteration of any existing facilities, including roads, dams, and production facilities.

VI. Agreement for Rehabilitation of Privately-Owned Surface (see Exhibit K, if applicable)

- A. Form 9-331C shall contain information landowner's rehabilitation requirements.
- B. Written agreement or letter must be furnished.
- C. If landowner's requirements are impossible or impractical, a letter describing situation will be acceptable.
- D. If no arrangements made, USGS will request appropriate Federal agency to recommend surface restoration requirements.

VII. Well Abandonment (see Exhibit L, if applicable)

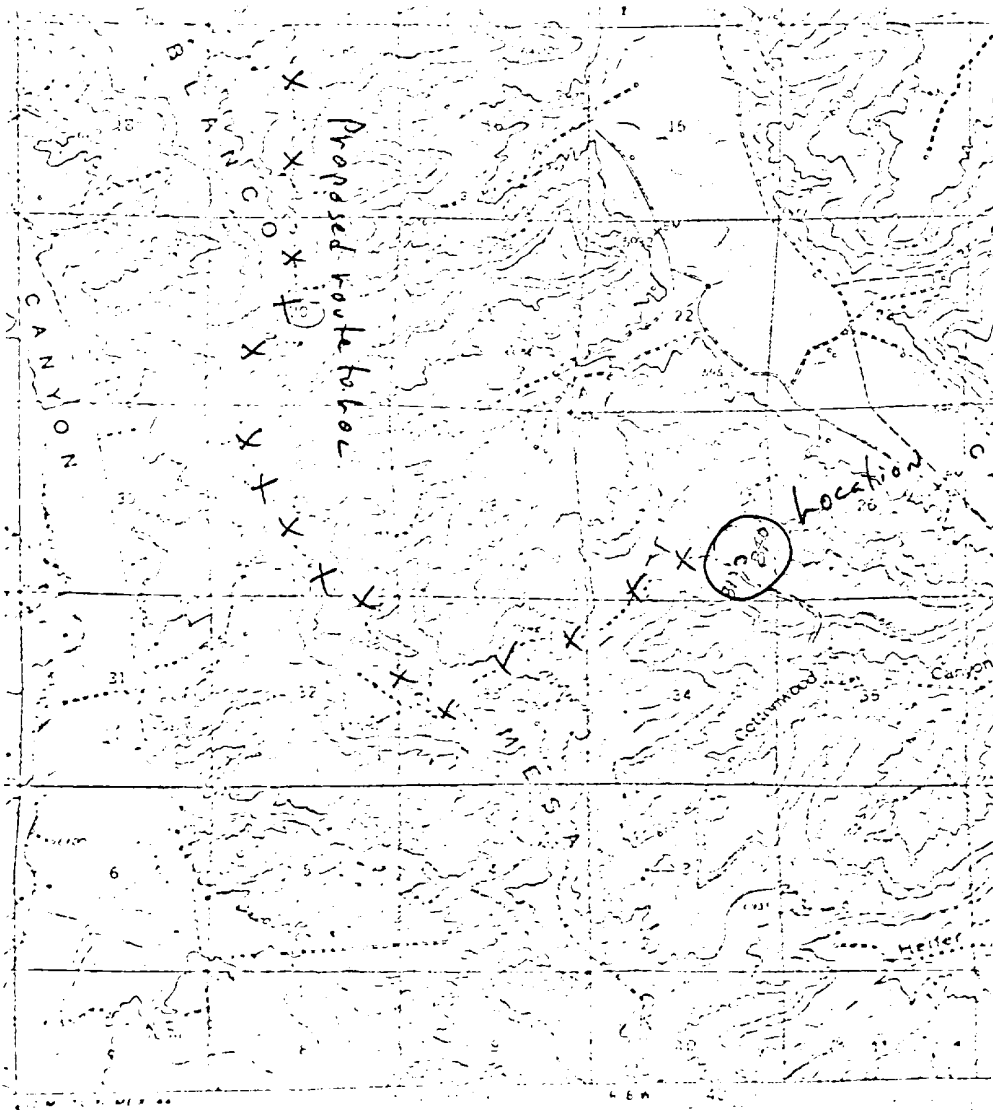
- A. No well abandonment operations will be commenced without prior approval of District Engineer.
 - B. Upon completion of abandonment or rehabilitation operations, District Engineer to be notified by Sundry Notice.
-

VIII. Water Well Conversion (see Exhibit M, if applicable)

- A. Well that encounters usable fresh water will not be approved if Federal Surface Management Agency wants to acquire well.
 - B. If Federal Surface Management Agency elects to acquire well, it will reimburse operator for cost of any recoverable casing or well-head equipment which it requests to be left in or on the hole.
 - c. Operator completes cleanup.
-

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Exhibit A



No significant access road
needed; access will be from
nearby dirt road.

Submitted by the Ge
CASS

Western Oil & Minerals, Ltd.
San Juan County, New Mexico

WESTERN OIL & MINERALS, Ltd
SE1/4 Sec. 27, T 27 N, R 8 W.
San Juan County, New Mexico

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EXHIBIT A-1 (to accompany Exhibit A)

(III-A-2-1) Planned data on newly constructed access roads.

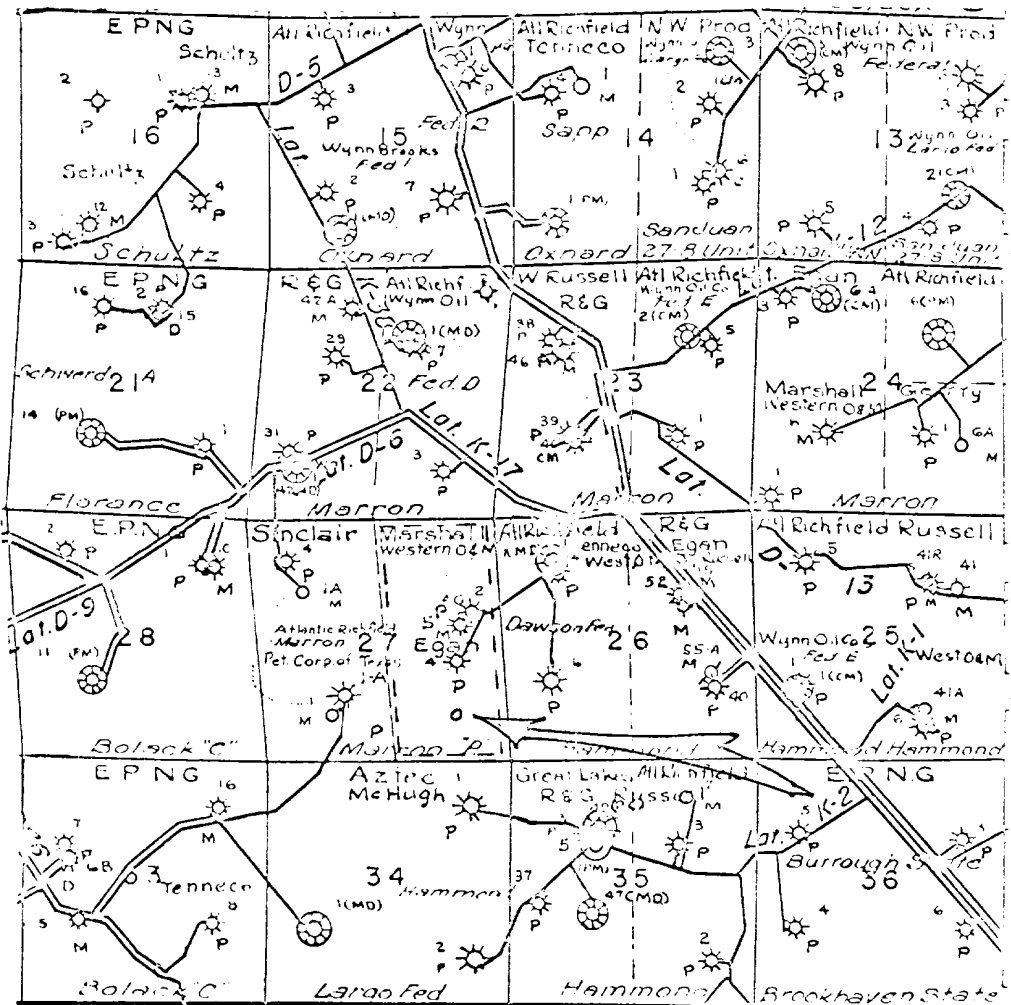
(a) Width	<u>16-1/2'</u>
(b) Maximum grade	<u>less than 1%</u>
(c) Turnouts	yes <u>no</u>
(d) Drainage design	<u>natural</u>
(e) Location and size of culverts	<u>none</u>
(f) Surfacing material	<u>none</u>
(g) CL staked or flagged	yes <u>no</u>
(h) Where existing fence to be cut	<u>none</u>
(i) Gates or cattleguard to be used	yes <u>no</u>
(j) Any existing gates to be replaced	yes <u>no</u>
(k) Any existing cattleguards to be replaced	yes <u>no</u>

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Exhibit B

R8W

T27N



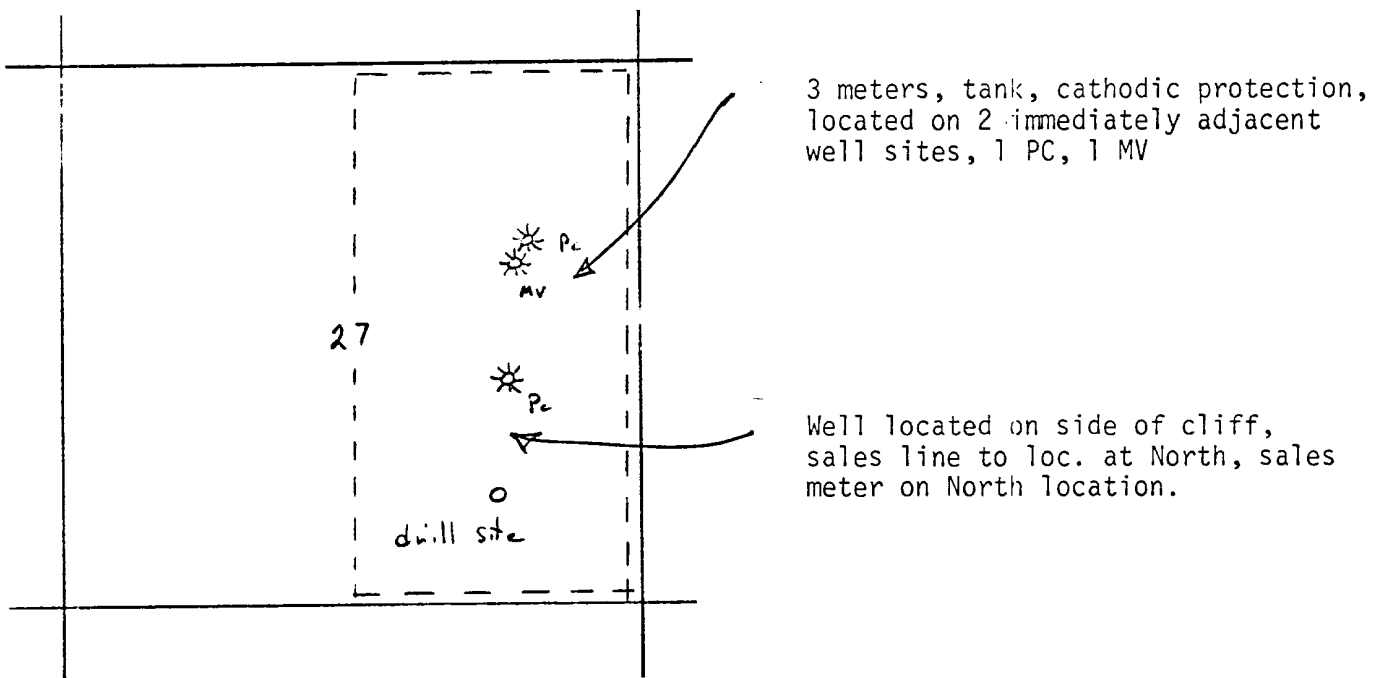
Location Map
 Western Oil & Minerals, Ltd. #5A Marron
 SE 27-27N-8W
 San Juan County, New Mexico

-There are no known water wells within 1-mile radius of drillsite.

EXHIBIT C

(III-A-4) Location of existing or proposed facilities.

(a) Facilities within 1-mile radius.



(b) Are there existing facilities owned within 1 mile
located on drill-site pads?

Yes

No

(c) Are new facilities for proposed well expected to
be located on drill-site pad?

Yes

No

EXHIBIT D

(III-A-5) Location, route, and method of transportation, and type of water supply.

- (a) Location: Drilling and frac water will be hauled up Hollis Pass, or up from Blanco Wash on west side of Blanco Mesa; both water sources from industry maintained water holes.
 - (b) Route of transportation: Depending on road conditions, either up Hollis Pass from Largo Canyon, or up west side of Blanco Mesa from Ballard Camp.
 - (c) Method of transportation: Water trucks.
 - (d) Type of water supply: Fresh water.
-

EXHIBIT E

(III-A-6) Source of construction materials.

- (a) Sand: None
- (b) Gravel: None
- (c) Stone: None
- (d) Soil: None
- (e) Lumber will be purchased from suppliers in the Farmington/Aztec area and will use transportation route below.
- (f) Planned transportation route will be on suitable public or private roads, normally from Farmington, New Mexico. Road and weather conditions at time of operations may have some effect on actual route. Plat below shows probable route of transportation.

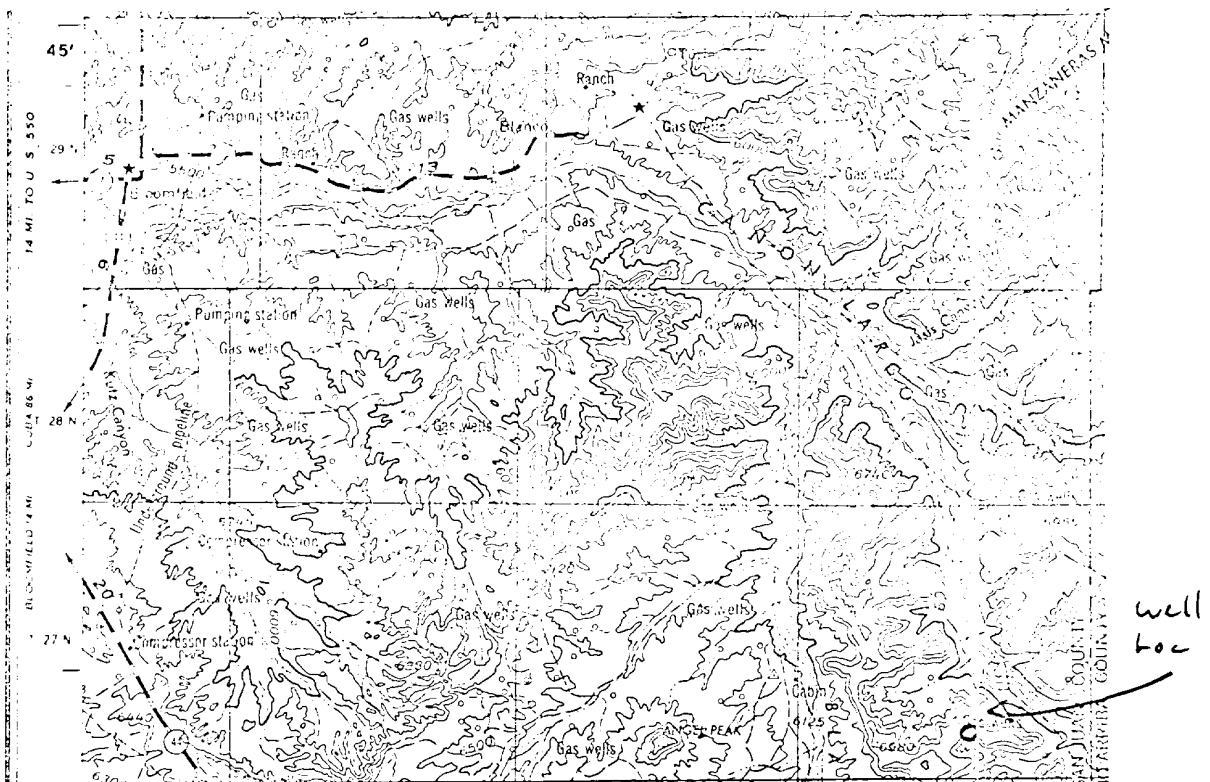


EXHIBIT F

(III-A-7) Method of handling waste material.

- (a) Drill cuttings will be buried in reserve pit.
- (b) Drilling fluids will be collected in reserve pit, allowed to evaporate and dry, and buried when dry.
- (c) Small amounts of produced fluids will be collected in reserve pit, allowed to evaporate, and buried when dry.
- (d) Any sewage will be covered and buried when portable toilet moved.
- (e) Any garbage, cans, and general trash will be burned in burn pit and covered when reserve pit covered. Other general debris and waste material, such as junk iron, wire line, cans, and bags will either be burned or buried in reserve pit.
- (f) Drilling crews, under the supervision of contractor or operator, will control and dispose of waste material during drilling operations.
- (g) Roustabout or completion crews will dispose of trash after well is completed or abandoned. After drying of reserve pit, a general cleanup and covering of the pit along with leveling of location or drillsite will take place.

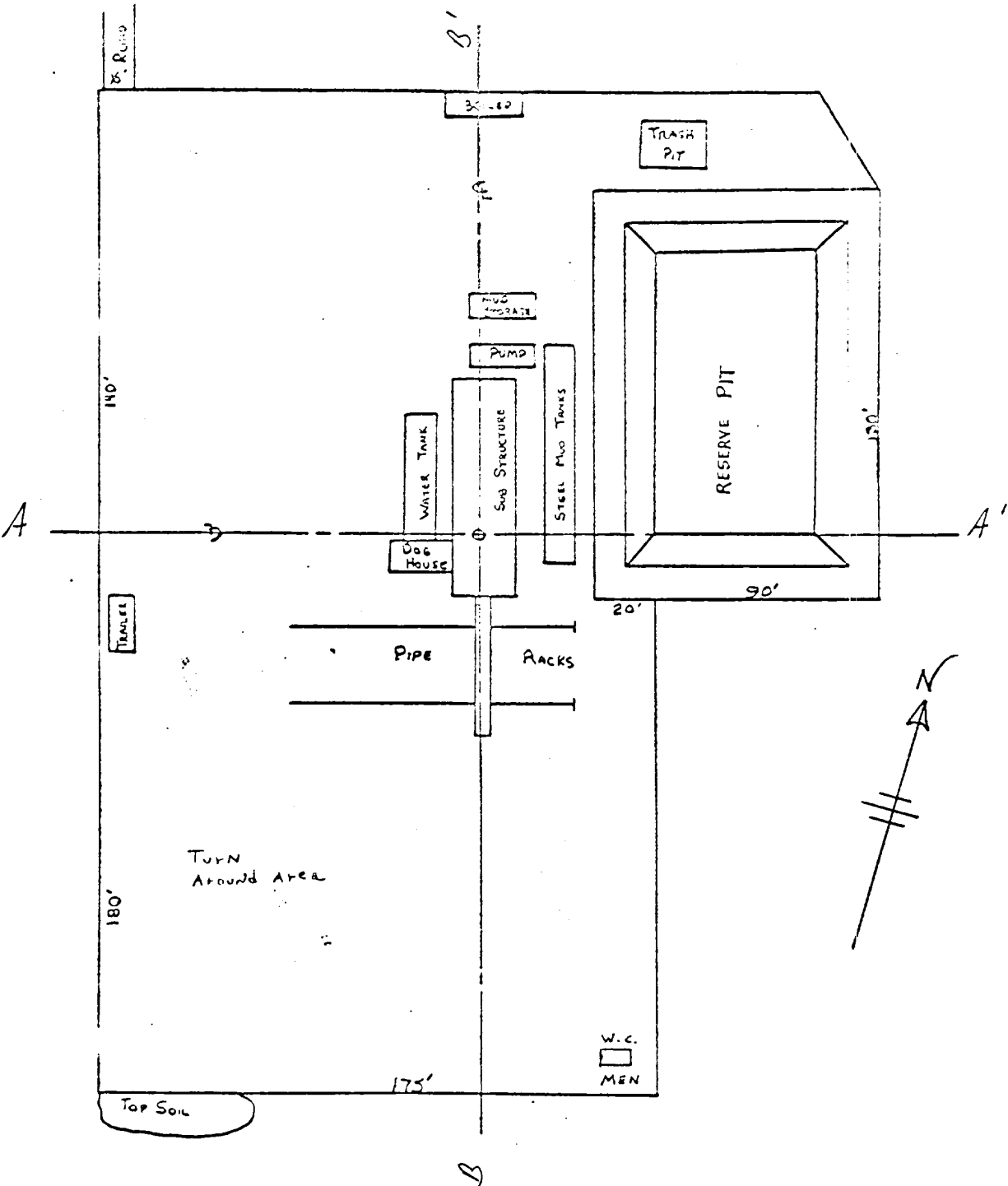
EXHIBIT G

(III-A-8) Ancillary facilities.

- (a) Camps planned: None (may have small house trailer on location for tool pusher).
 - (b) Airstrips planned: None.
 - (c) Area and land required for above: None.
-

EXHIBIT H

(III-A-9) Planned wellsite layout.



Reserve pit will be unlined.

EXHIBIT H-1

Western Oil & Minerals, Ltd.
#5A Marron
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San Juan County, New Mexico

(III-A-9) Planned wellsite layout.

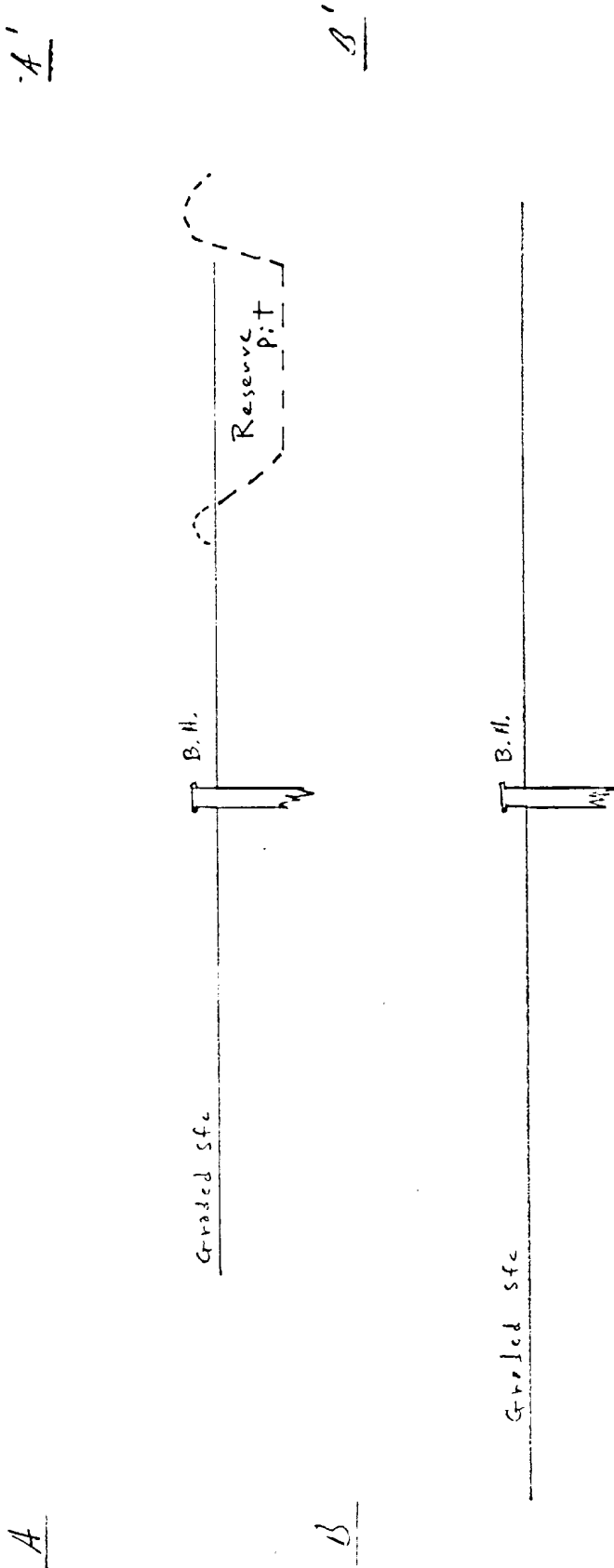


EXHIBIT I

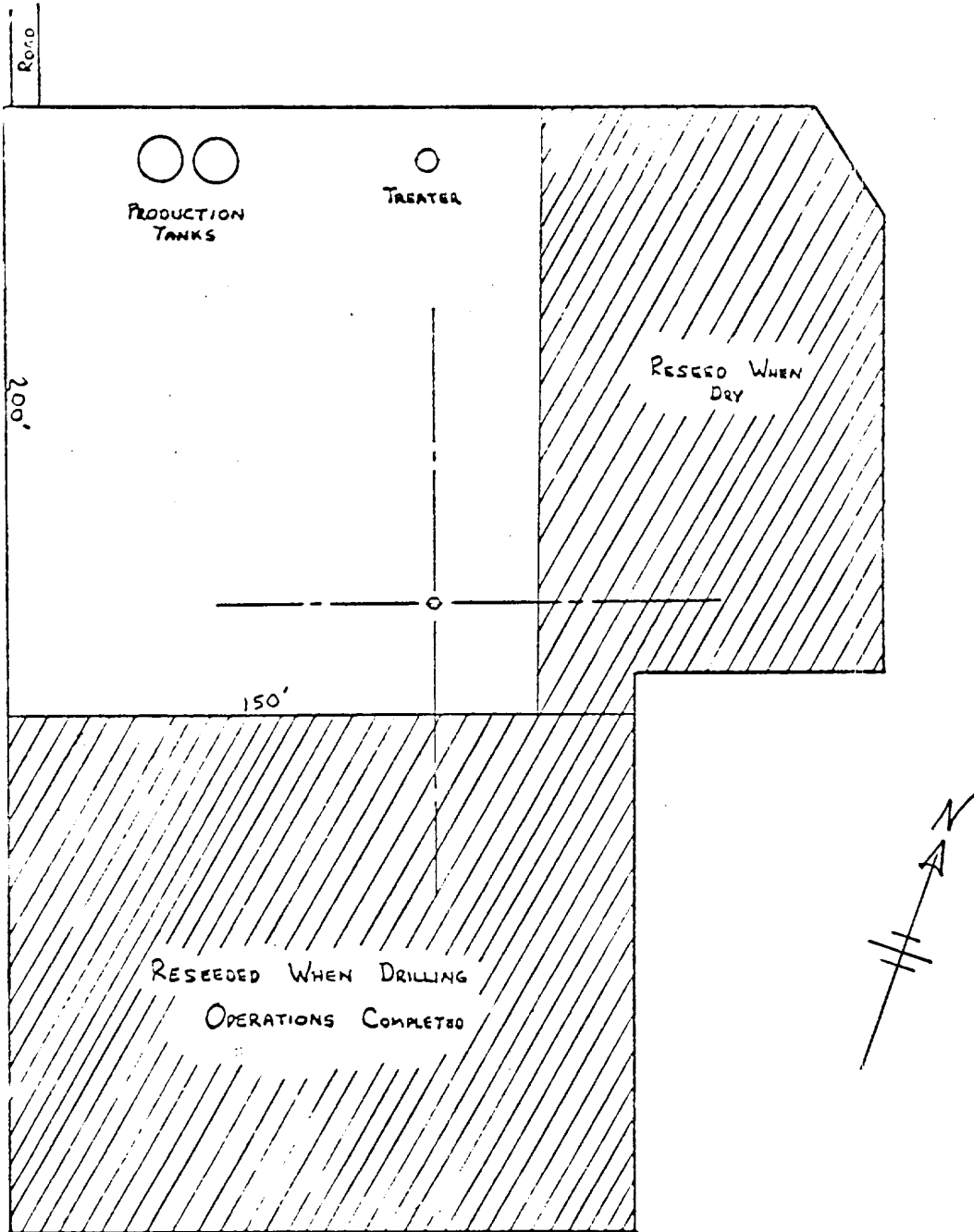
Western Oil & Minerals, Ltd.

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San Juan County, New Mexico

(III-A-10) Planned restoration of surface.



- (a) Waste disposal outlined in Exhibit F.
- (b) Rehabilitation commencement of wellsite surface will take place when well is completed and reserve pit is dry. Work will be completed 2½ days after commencement.
- (c) Reseeding will take place within one week of completion of foregoing.

EXHIBIT J

(III-A-11) Other information.

- (a) Area is flat to gently rolling with occasional mesa-valley topography developed. Area drained by ephemeral arroyos and washes.
 - (b) Sandy and clayey loam, where bare rock and shale exposed, no soil profile is developed.
 - (c) Surface formation lithologies are sandstone, siltstone, and shale.
 - (d) No unusual geologic features are present. Surface geomorphic features are described in (a).
 - (e) Flora: Normal dry land grasses are present, shrubs such as sagebrush, Mormon tea, and occasional yucca are present. Trees such as pinon and juniper dot the landscape.
 - (f) Fauna: Rabbit, coyotes, and occasional deer are known. Domestic cattle, horses, and sheep occasionally graze the area. Small dry land mammals, rodents, and reptiles are present. It is doubtful that the peregrine falcon and the black-footed ferret exist in the area. A normal suite of birds, such as the pinon jay, raven, and an occasional hawk have been seen.
 - (g) There is no surface use activity except sporadic grazing.
 - (h) Federal, Fee, State, Indian.
 - (i) Federal, Fee, State, Indian.
 - (j) None
 - (k) None; adjacent to N, S, E, W.
 - (l) None; adjacent to N, S, E, W.
 - (m) See Exhibit B.
 - (n) None; adjacent to N, S, E, W.
 - (o) None; adjacent to N, S, E, W.
 - (p) None; adjacent to N, S, E, W.
-

EXHIBIT J (cont.)

(q) None; adjacent to N, S, E, W.

(r) None; adjacent to N, S, E, W.

(s) None; adjacent to N, S, E, W.

(t) None; adjacent to N, S, E, W.

(u) See Exhibit A-1.

(v) See Exhibit H.

(w) None.

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EXHIBIT K

(III-A-12) Operator's representatives.

(a) Elliott A. Riggs
Petroleum Club Plaza Building
P. O. Box 711
Farmington, New Mexico 87401

Office (505) 325-9881
Residence (505) 325-8194

(b) Norma Jean Sanders
P. O. Drawer 1228
415 W. Main
Farmington, New Mexico 87401

Office (505) 327-9393
Residence (505) 327-9479

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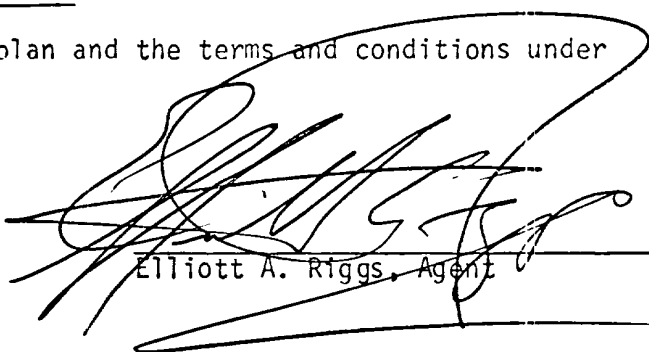
EXHIBIT L

(III-A-13) Certification.

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite 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 operations proposed herein will be performed by Western Oil & Minerals, Ltd.

_____ and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

June 9, 1978
Date


Elliott A. Riggs, Agent