Confidential – Release date – 10/2/78

Plugged & abandoned – 3-29-78

FILE NOTATIONS

...ered in NID File	..✓.....	Checked by Chief	.....
...tion Map Pinned	...✓....	Approval Letter	.
...d Indexed	..✓.....	Disapproval Letter	

COMPLETION DATA:

...ell Completed 3-29-78 ... Location Inspect...

..... WW..... TA...✓.. Bond ...

GW..... OS..... PA..✓... State or Fe...

LOGS FILED

Driller's Log.....✓...

Electric Logs (No.) ..✓.....

E..... I..... Dual I Lat..... GR-N.....

BHC Sonic GR..... Lat..... Mi-L..... Sc...

CBLog..... CCLog..... Others.....

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER — SINGLE ZONE [ ] MULTIPLE ZONE [ ]

2. NAME OF OPERATOR: Natomas Company

3. ADDRESS OF OPERATOR: 1121 First Place, Tulsa, Oklahoma 74103

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: NW.SE.Sec.25,T39S.R23E,S.L.M.
At proposed prod. zone: 1980' from E-line & 1980' from S-line ✓

5. LEASE DESIGNATION AND SERIAL NO.: U-5214

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: Navajo Surface McCracken Mesa

8. FARM OR LEASE NAME: Federal

9. WELL NO.: Unit #1-25

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Nw.SE.SEC.25-39S-23E S.L.M.

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approx. 7 miles west of Hatch Trading Post

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1980'

16. NO. OF ACRES IN LEASE: 600 acres

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40 acres

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: More than 2 miles

19. PROPOSED DEPTH: 6500'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 5165'grd.;5175'K.B.

22. APPROX. DATE WORK WILL START*: Feb.25,1978 ✓

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12¼"	8-5/8"	24#	250'	125 sks(cement to surface)
X' 7-7/8"	5½"	15.5#	T.D.	150 sks of RFC cement

It is planned to drill a well at the above location to test the oil and/or gas productive possibilities of the Ismay and Desert Creek zones in the Hermosa formation. The well will be drilled with rotary tools, using mud for circulation. Approx. 250' of 8-5/8", K-55, Range 2, 24# casing will be set and cemented with returns to the surface. A casing head and blowout preventer will be installed on top of the surface casing. The control equipment will be tested to 2000# pressure checking for leaks. All hydrocarbon shows will be drill-stem-tested when they are drilled. Some of the more favorable zones may be cored. In the event of production 5½'' ,15.5#, K-55, R-2 casing will be set and cemented with about 150 sacks of RFC cement. The productive zones will then be perforated and completed conventionally. A prognosis for the well is attached hereto. It should take about 25 days to drill the well.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED W. Don Quigley TITLE Cons. Geol. DATE Jan26,1978

(This space for Federal or State office use)

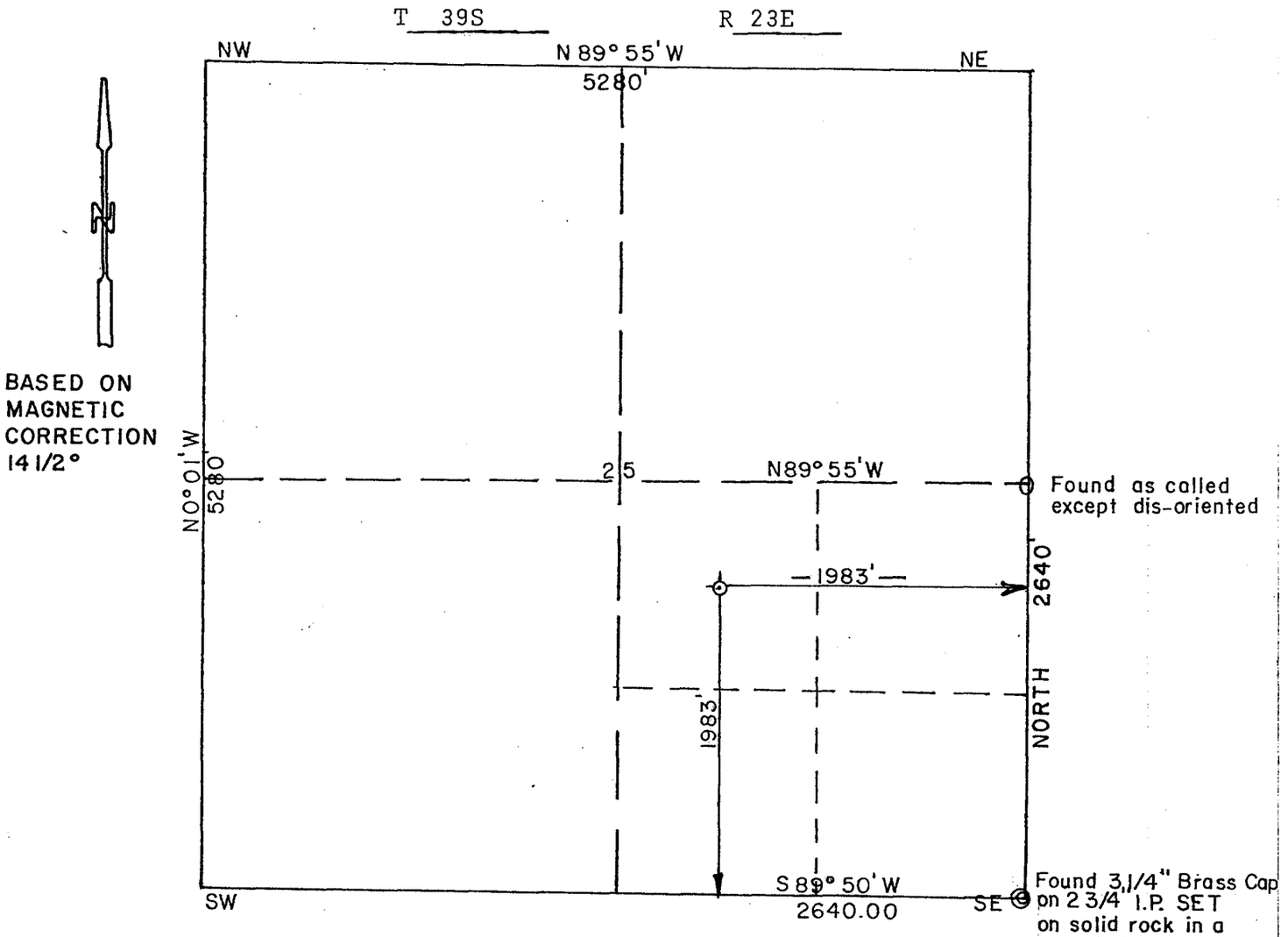
PERMIT NO. 43-037-30427 APPROVAL DATE

APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions On Reverse Side

WILLIAM H. SMITH
Surveying Consultant



I, William H. Smith of Moab, Utah, state that in accordance with a request from W. Don Quigley of Salt Lake City, Utah for Natomas North America Inc. I had an incomplete survey made under my supervision on the 13th day of Feburary, 1978. for the location and elevation of the McCracken Mesa Unit Well #1. As shown on the above map, the wellsite is in the NW 1/4 SE 1/4 of Section 25, Township 39 South, Range 23 East of the Salt Lake Base and Meridian, San Juan County State of Utah. Elevation is 5165' ungraded ground datum U.S.G.S. Montezuma Creek 15' topo spot elevation at South east Corner of said Section 25.

I cannot certify as to the correctness of this survey because when I returned on Feburary 14, 1978 to complete the survey I was denied access to the area by the Local Indian Citizens.

William H. Smith
R.L.S. NO. 2764

W. State

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER — SINGLE ZONE [ ] MULTIPLE ZONE [ ]

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9. WELL NO.: Unit #1-25

10. FIELD AND POOL, OR WILDCAT: Wildcat

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12. COUNTY OR PARISH: San Juan

13. STATE: Utah

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approx. 7 miles west of Hatch Trading Post

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1980'

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17. NO. OF ACRES ASSIGNED TO THIS WELL: 40 acres

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19. PROPOSED DEPTH: 6500'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 5165'grd.;5175'K.B.

22. APPROX. DATE WORK WILL START*: Feb.25,1978

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~~7~~ 7-7/8"	5½"	15.5#	T.D.	150 sks of RFC cement

It is planned to drill a well at the above location to test the oil and/or gas productive possibilities of the Ismay and Desert Creek zones in the Hermosa formation. The well will be drilled with rotary tools, using mud for circulation. Approx. 250' of 8-5/8", K-55, Range 2, 24# casing will be set and cemented with returns to the surface. A casing head and blowout preventer will be installed on top of the surface casing. The control equipment will be tested to 2000# pressure checking for leaks. All hydrocarbon shows will be drill-stem-tested when they are drilled. Some of the more favorable zones may be cored. In the event of production 5½", 15.5#, K-55, R-2 casing will be set and cemented with about 150 sacks of RFC cement. The productive zones will then be perforated and completed conventionally. A prognosis for the well is attached hereto. It should take about 25 days to drill the well.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED: K. Don Gingley TITLE: Cons. Geol. DATE: Jan26,1978

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

RECEIVED
JAN 30 1978
DIVISION OF OIL, GAS, & MINING

*See Instructions On Reverse Side

RES. PHONE 295-1870 BUS. PHONE 359-3575

W. DON QUIGLEY

CONSULTING GEOLOGIST
PETROLEUM - MINING WORK

57 W. So. Temple
XXXXXXXXX323XXXXXXXXXXXXXX - SALT LAKE CITY, UTAH 84111

WELL PROGNOSIS
FOR
NATOMAS COMPANY
McCRACKEN MESA UNIT #1-25 WELL
NW.SE.SEC.25-39S-23E
SAN JUAN COUNTY,UTAH

Location:NW.SE.Sec.25,T39S,R23E,S.L.M.,San Juan County, Utah (1980'from E-line and 1980'from S-line)

Elevations: 5155'grd.;5175' K.B.

Surface Casing: 8-5/8",24.00#, K-55,R-2 casing set at approx.250', and cemented with 125 sks cement with returns to the surface.

Expected Formation Tops:

Formation	Depth to Top	Thickness	Datum
Morrison	surface	500'	5175'
Entrada (Moab Tongue)	500'	150'	4675'
Entrada	650'	360'	4525'
Carmel	1010'	115'	4165'
Navajo	1125'	585'	4050'
Kayenta	1710'	55'	3465'
Wingate	1765'	425'	3410'
Chinle	2190'	685'	2985'
Shinarump*	2875'	75'	2300'
Moenkopi	2950'	300'	2225'
De Chelly	3250'	115'	1925'
Organ Rock	3365'	725'	1810'
Cutler	4090'	1125'	1085'
Hermosa	5215'	835'	-40'
(Ismay Zone)*	6050'	190'	-875'
(Black Shale)	6240'	40'	-1065'
(Desert Creek)*	6280'	---	-1105'
Total Depth	6500'		

* Zones that have potential hydrocarbon prospects.

1. It is planned to drill a 12¼" hole for the surface casing down to a depth of approximately 250', and set 8-5/8'',K-55, 24.00#, R-2 casing at that depth and cement same all the way to the surface. A casing head with flange (Series 900) will be mounted on top of the surface casing and a blowout preventer with blind rams and pipe rams (hydraulic) will be mounted on the casing head. A

drilling nipple with mud line to the mud tanks will be mounted on top of the blowout preventer. Fill and kill lines will be connected to the casing head below the blowout preventer and thru a manifold to permit rapid control in case of high pressure.

2. A 7-7/8" hole will be drilled below the surface casing, using mud for circulation. A mud logging laboratory will be employed on the well starting at a depth of approximately 2000'. The mud will be carefully controlled and kept at a weight of about 9 lbs/gal., a viscosity of about 35-45, and a water loss of below 10 cc/15 min.

3. Samples of the drill cuttings will be taken at 10-ft. intervals, beginning at a depth of about 1500'. These samples will be carefully examined and logged.

4. It is planned to drill-stem-test all favorable hydrocarbon shows as they are drilled. It is also possible that the Ismay and Desert Creek zones will be cored. This decision will be made at a later date and will be dependent on the type of show observed.

5. After the well reaches total depth the hole will be logged electrically, using a Dual Induction Laterolog, a gamma-density log, and a neutron porosity log. These will be carefully evaluated and correlated with the drilling information. Before logging the viscosity of the mud will be raised to about 90 to insure passage of the logging tools.

8. If good production is obtained, 5½" casing, 15.50#,K-55, R-2 ,will be set thru the productive zones and cemented with about 150 sks of RFC cement to insure good bond. After running bond and correlation logs, the pay zones will be perforated and probably treated with weak acid.

9. If the well is dry, the hole will be plugged and abandoned according to regulations; and the location cleaned, levelled and reseeded as soon as possible.

10. Estimated costs of the well to casing point are as follows:

Survey and permit work	$650.00
Road and location work	1500.00
Surface casing and cementing	2500.00
Casing head	500.00
Drilling contract (25 days at $3700/day)	92,500.00
Move-in & out	15,000.00
Drill-stem-tests (2)	4,000.00

Electric logs	$7700.00
Mud logging lab.	4500.00
Supervision & engineering	4500.00
Water hauling	10000.00
Mud	25000.00
Miscellaneous	10000.00
Total estimated cost	$178,350.00

W. Don Quigley
Consulting Geologist
AAPG Cert. #1296
APGS Cert. #3038

SURFACE USE AND OPERATING PLANS
FOR
NATOMAS COMPANY
MCCRACKEN MESA UNIT #1-25 WELL
NW.SE.SEC.25-39S-23E
SAN JUAN COUNTY, UTAH

1. Location: Due to problems with the Navajo people on the reservation who are prohibiting access to the surface, a survey plat showing the exact location of the well cannot be submitted at this time. However this plat will be submitted at a later date as soon as an agreement can be arranged with the Navajo people permitting access to the property. Map No. 1 shows the location of the proposed well site in relation to the highway #262 and to the secondary roads in the area. Since the location is adjacent to the hiway and short secondary road, preparation will be minimal.

2. Access Road: No new access road will be required. The well site is adjacent to an existing secondary road and less than ¼ mile from the hiway. Thus no other road will be necessary.

3. Location of Existing Wells: See attached map.

4. Location of Production Equipment: A plan for the anticipated production equipment, if the well is successful, is submitted on Plat No.2. This will probably be an oil well and will require pumping equipment, a heater-treater, and storage tanks. When production ceases this equipment will be removed and the land surface graded, levelled, and reseeded.

5. Water Supply: The water required for rig use and for drilling operations will be hauled to the location from the SanJuan River by truck. This will be a distance of about 11 miles.

6. Road Material: No additional road material such as gravel, sand, culverts will be required.

7. Waste Disposal: A reserve pit and burn pit will be constructed at the well site. See Plat No. 3. All excess water, mud, and drill cuttings will be deposited into the reserve pit which will be unlined. All trash, garbage and burnable material will be put into the burn pit which will be fenced with chicken wire to prevent spreading of the debris by the wind. Both of these pits will be folded in and covered as soon as feasible after the cessation of drilling operations. A toilet will be provided for the human waste.

8. Camp Facilities And Airstrips: No camp facilities other than two or three trailer houses at the well site will be needed. No airstrips will be required.

9. Well Site Layout: A plan for the drilling equipment layout required for the drilling of the well is submitted on Plat No. 3. The approximate dimensions of the site are shown. The site will be levelled for this equipment. Since the site is quite level, it will not be necessary to make any deep cuts or major surface disturbance. The reserve pit will be about 4-ft. deep with 4-ft. banks. The sage brush and surface soil will be pushed to one side for replacement after the operations have been concluded.

10. Restoration: After drilling operations have been concluded and the equipment removed, the well site area will be cleaned, levelled and restored to normal. The surface soil will be pushed back over the location and the site reseeded, and the pits will be folded-in and covered. All trash and debris will be buried by at least four feet. If the well is successful, the site will be cleaned and readied for the production equipment. The pits will be covered. A small fluid pit which will be fenced may be needed for water disposal.

11. Land Description: The proposed well site is on fairly level ground and will require a minimum of work to prepare it for the drilling operations. The land surface is covered with sage brush and grass. There are no trees or heavy brush on the site.

12. Representation: The operators representative at the well site will probably be W. Don Quigley of Salt Lake City, Utah. The drilling contractor has not been definitely chosen to date. The location and restoration work will probably be done by C&W Construction Co. of Moab, Utah.

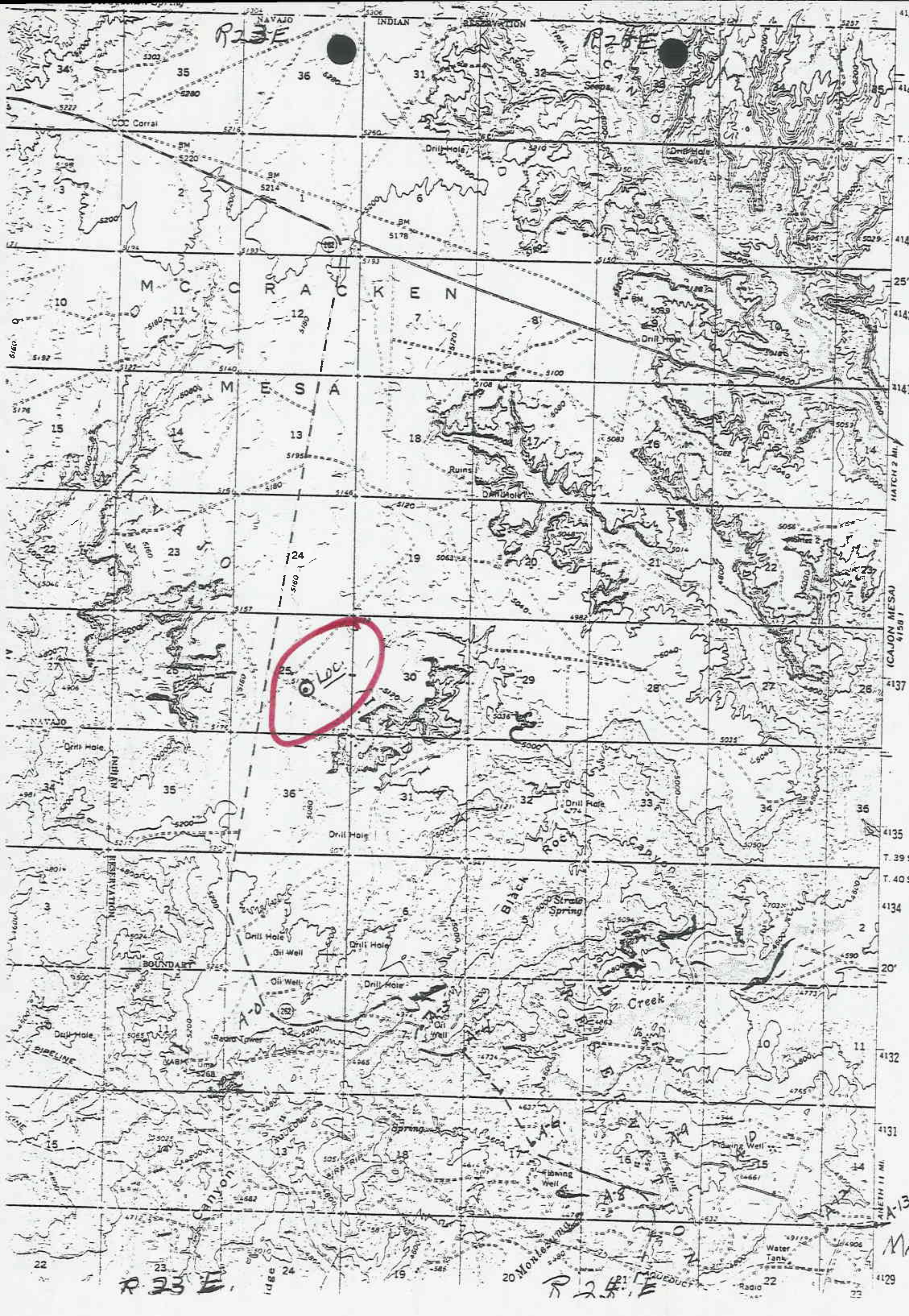
13. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route; that I am familiar with the conditions which presently exist; that 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 the Natomas Company and its contractors in conformity with this plan and terms and conditions under which it is approved.

Date: Jan.25,1978

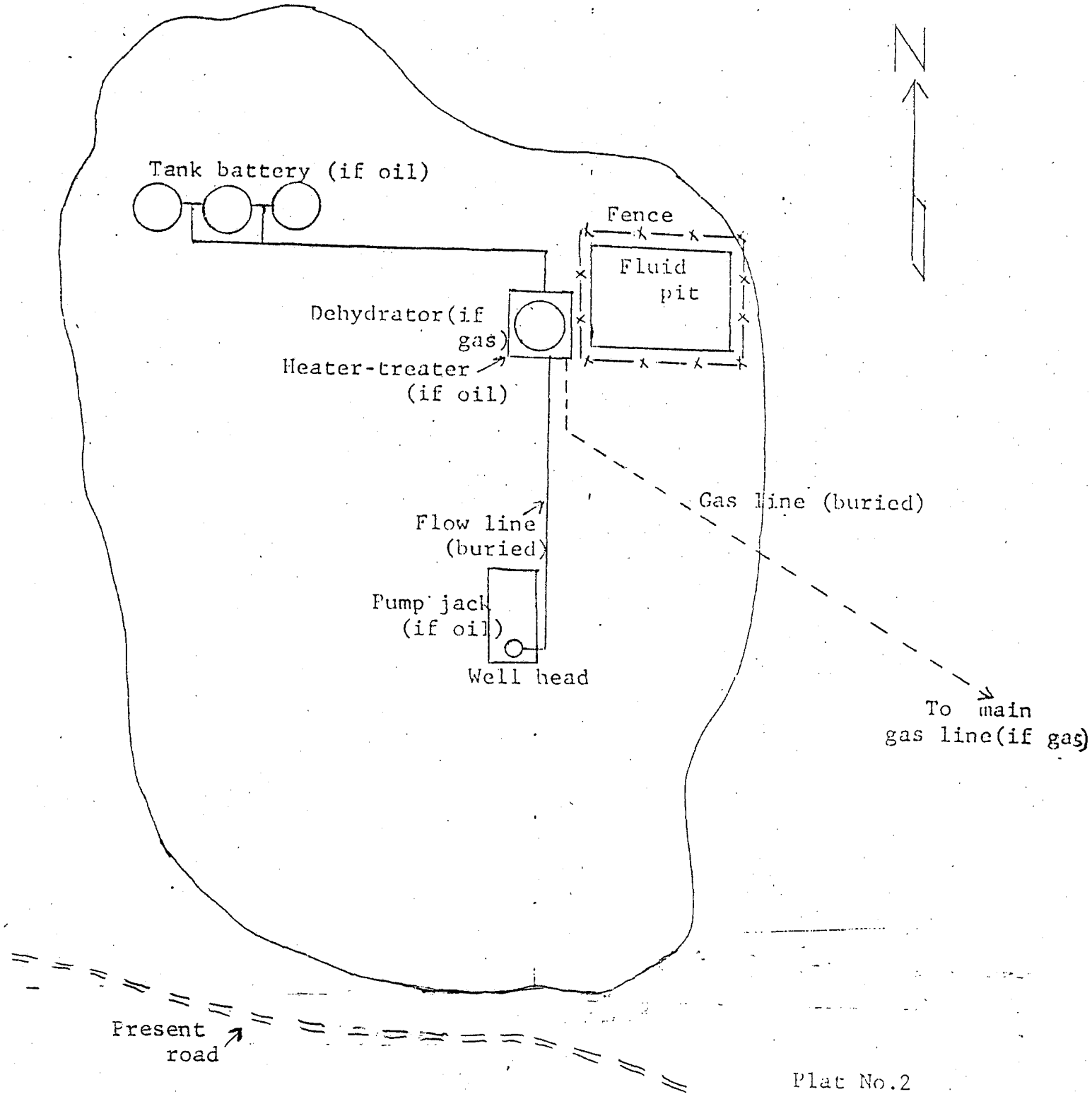
W. Don Quigley

W. Don Quigley, Consultant


NAVAJO
INDIAN
RESERVATION
R23E
R24E
M C C R A C K E N
M E S A
CCC Corral
Drill Hole
Seeps
T. 38 S.
T. 39 S.
T. 40 S.
Ruins
HATCH 2 MI.
(CAJON MESA)
LOC.
NAVAJO
Black Rock Canyon
Strata Spring
BOUNDARY
Oil Well
Creek
Radio Tower
PIPELINE
Spring
AIRSTRIP
Flowing Well
Canyon
Montezuma
AQUEDUCT
Water Tank
Radio
ANETH 11 MI.
A-13
R.23 E.
R.24 E.

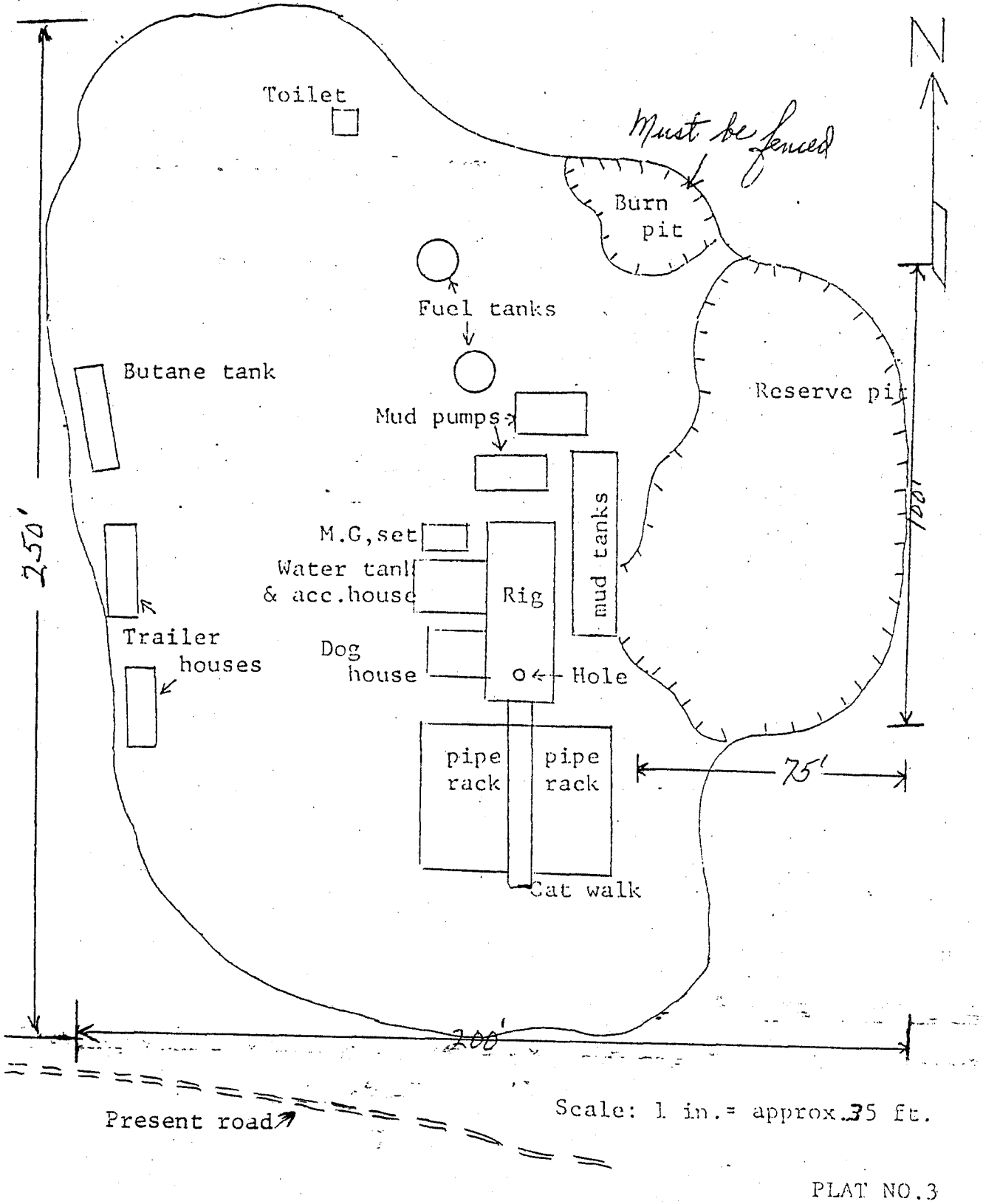
MAP NO. 1

PLAN FOR PRODUCTION EQUIPMENT
NATOMAS COMPANY
MCCRACKEN MESA UNIT #1-25 WELL
SAN JUAN COUNTY, UTAH



Plat No.2

DRILLING EQUIPMENT LAYOUT
FOR
NATOMAS COMPANY
MCCRACKEN MESA UNIT #1-25
SAN JUAN COUNTY, UTAH



Scale: 1 in. = approx. 35 ft.

PLAT NO. 3

WELL CONTROL EQUIPMENT

NATOMAS COMPANY

MCCRACKEN MESA UNIT #1-25 WELL

The following control equipment is planned for the above designated well: (See attached diagram).

1. Surface Casing:
   A. Hole size for surface casing is 12 1/4"
   B. Setting depth for surface casing is approx. 150 ft.
   C. Casing specs. are: 8 5/8" D.D., J-55, 24.00#, 8 rd. thread, new or used.
   D. Anticipated pressure at setting depth is approx. 20 lbs.
   E. Casing will be run using three centralizers and a guide shoe, and will be cemented with 80 sks of cement with returns to the surface.
   F. Top of the casing will be at ground level.
2. Casing Head:
   Flange size: 10", A.P.I. Pressure rating: 2000# W.P., Series 600; Cameron, OCT, or equivalent; new or used; equipped w/two 2" ports with nipples and 2'', 2000# W.P. ball or plug valves. Casing head and valves set above ground level.
3. Intermediate Casing:
   None.
4. Blowout Preventors:
   A. Double rams; hydraulic; one set of blind rams; one set of rams for 3½" or 4" drill pipe; 10"flange; 2000# or greater W.P.; Series 900; equipped with mechanical wheels and rod for back-up; set on top of casing head flange and securely bolted down, and pressure tested for leaks up to 2000#p.s.i.
   B.Rotating Head: (none needed)
   Shaffer, Grants or equivalent; set on top of blowout preventor and bolted securely; complete with kelly drive, pressure lubricator; 3½" or 4" rubber for 2000# W.P.;need not have hydril assembly on bottom.
   C.Fill and Kill Lines:
   The fill and kill lines (2" tubing or heavy duty line pipe) are to be connected thru the 2" valves on the casing head.
5. Auxillary Equipment:
   A float valve is to be used in the bottom drill collar at all times. A safety valve that can be stabbed into the drill pipe or drill collars is to be kept handy on the derrick floor at all times.
6. Anticipated Pressures:
   The shut-in or formation pressures that will be encountered in the subject well are not known to be abnormally high. The pressure in the Shinarump at a depth of about 2900' should not be over 1000#; and the pressures in the Ismay and Desert Creek zones should not be over 1750#.

7. Drilling Fluids:

Normal fresh water gel mud will be used for the circulation medium on the subject well. The mud weight will be controlled at about 9 lbs/gal.; the viscosity at about 35-45 while drilling; and the water loss at about or below 10 cc/15 minute period.

8. Production Casing:

A. Hole size for production casing: 7-7/8"

B. Approx. setting depth: ~~6500~~'

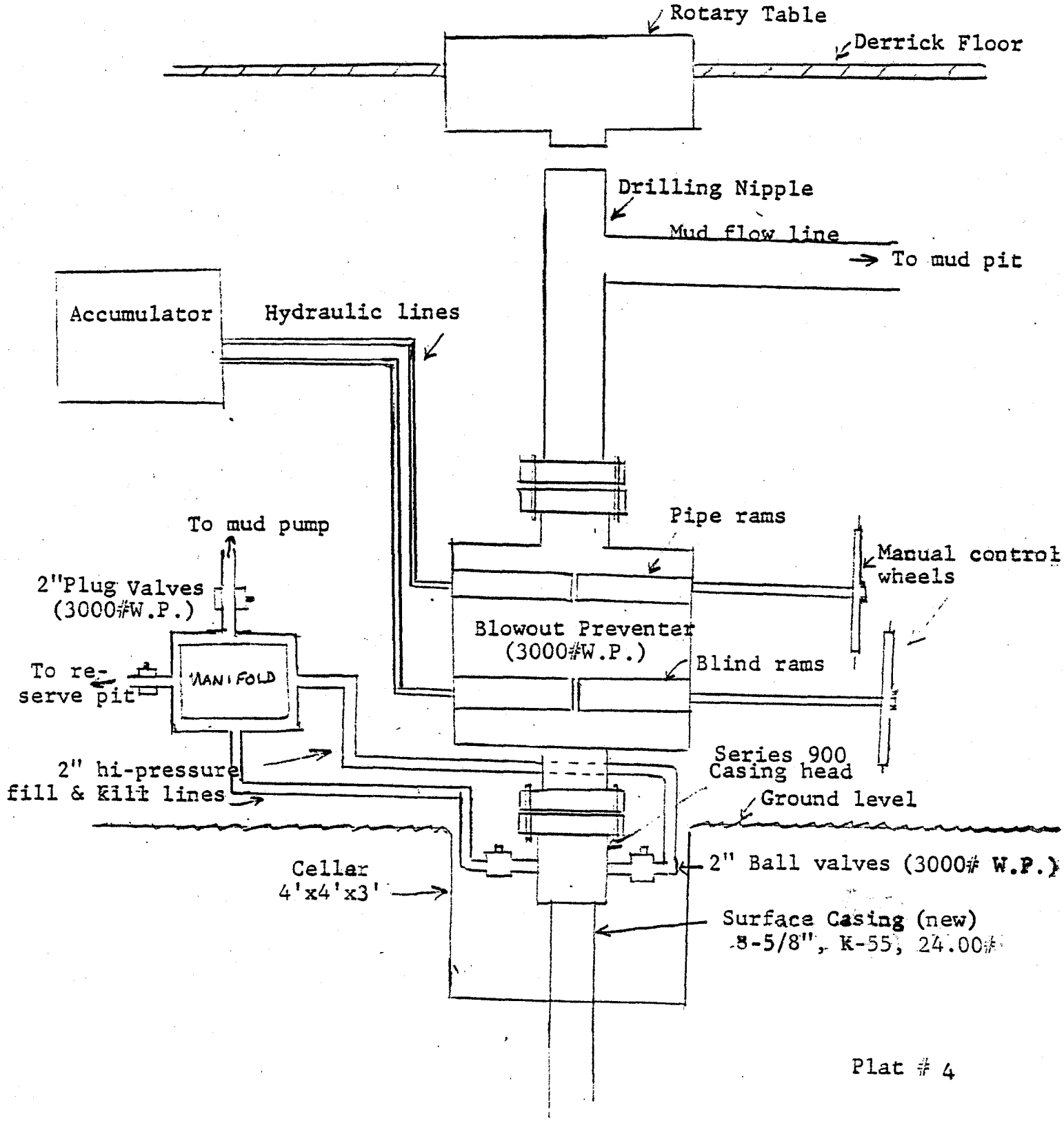
C. Casing specs.: 5½"O.D.,14.50#,J-55, new

D. Casing will be set thru the pay zones and cemented with sufficient thixatropic or RFC cement to bring the cement top about 200 ft. above the top of the uppermost ~~pay~~ zone.

E. The pay zones will be perforated, broken down, and fracture treated,if necessary, The required surface equipment will then be installed.

SCHEMATIC DIAGRAM OF
CONTROL EQUIPMENT FOR T

NATOMAS COMPANY
MCCRACKEN MESA UNIT #1-25 WELL
SAN JUAN COUNTY, UTAH



Plat # 4

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

** FILE NOTATIONS **

Date: Feb. 1-

Operator: Natomas Co.

Well No: McCracken Mesa Unit #1-25

Location: Sec. 25 T. 39S R. 23E County: San Juan

File Prepared: / ✓ / *Entered on N.I.D.:* / ✓ /

Card Indexed: / ✓ / *Completion Sheet:* / ✓ /

API NUMBER: 43-037-30427

CHECKED BY:

Administrative Assistant JW

Remarks:

Petroleum Engineer OK PW

Remarks:

Director ✓

Remarks:

INCLUDE WITHIN APPROVAL LETTER:

Bond Required: OK Ltd. *Survey Plat Required:* / X /

Order No. _____ / / *Surface Casing Change* / / *to* _____

Rule C-3(c), Topographic exception/company owns or controls acreage within a 660' radius of proposed site / /

O.K. Rule C-3 / ✓ / *O.K. In* _____ *Unit* / /

Other:

/ ✓ / *Letter Written/~~Approved~~*

FILE IN QUADRUPLICATE
FORM OGC-8-X

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116

REPORT OF WATER ENCOUNTERED DURING DRILLING

Well Name & Number: McCracken Mesa Unit #1-25

Operator: Natomas North America, Inc. Address: 1121 First Place, Tulsa Okla

Contractor: Signal Oilfield Service Address: Denver, Colo.

Location NW 1/4 SE 1/4; Sec. 25 T. 39 S, R. 23 E; San Juan County.

Water Sands:

	Depth: From-	To-	Volume: Flow Rate or Head	Quality: Fresh or Salty
1.	500' -	850'	Untested - Entrada -	Probably fresh
2.				
3.				
4.				
5.				

(Continue on Reverse Side if Necessary)

Formation Tops:

See well report

Remarks:

NOTE: (a) Upon diminishing supply of forms, please inform this office.
(b) Report on this form as provided for in Rule C-20, General Rules and Regulations and Rules of Practice and Procedure.
(c) If a water analysis has been made of the above reported zone, please forward a copy along with this form.

Hold for plat

Verbal 2/14 for dirt work - 1980 FSA & 1980 FEA

Jim Arnold

Natomas

25-9S-23E

February 14, 1978

Natomas Company
1121 First Place
Tulsa, Oklahoma 74103

Re: Well No. McCracken Mesa Fed. 1-25
Sec. 25, T. 39 S, R. 23 E,
San Juan County, Utah

Gentlemen:

Insofar as this office is concerned, approval to drill the above referred to well is hereby granted in accordance with Rule C-3, General Rules and Regulations.

Should you determine that it will be necessary to plug and abandon this well, you are hereby requested to immediately notify the following:

PATRICK L. DRISCOLL - Chief Petroleum Engineer
HOME: 582-7247
OFFICE: 533-5771

Enclosed please find Form OGC-8-X, which is to be completed whether or not water sands (aquifers) are encountered during drilling.

Further, it is requested that this Division be notified within 24 hours after drilling operations commence, and that the drilling contractor and rig number be identified.

The API number assigned to this well is #3-037-427.

Very truly yours,

DIVISION OF OIL, GAS, AND MINING

CLEON B. FEIGHT
Director

Sheree,

Here is the survey plat that should go with the applic. for the McGrath Mesa Unit # 1 well

Sec 25-39S-23E

Don!

CIRCULATE TO:

DIRECTOR ☐
PETROLEUM ENGINEER ☐
MINE COORDINATOR ☐
ADMINISTRATIVE ASSISTANT ☐
ALL ☐

RETURN TO Kathy D. FOR FILING

file

March 6, 1978

MEMO TO FILE

Re: Natomas Inc.
Well No. McCracken Mesa #1-25
Sec. 25, T. 39S., R. 23E.
San Juan County, Utah

This Office was informed that the above drilling well had spudded in on February 28, 1978. Signal oilfield service is the contractor and will be using their Rig #20.

PATRICK L . DRISCOLL

Patrick L. Driscoll

CHIEF PETROLEUM ENGINEER
DIVISION OF OIL, GAS, AND MINING

PLD/ksw

CONFIDENTIAL

PLEASE KEEP THIS REPORT CONFIDENTIAL FOR AT LEAST SIX MONTHS.

DRILLING HISTORY

AND

GEOLOGIC REPORT

ON
McCRACKEN MESA UNIT #1-25 WELL

SAN JUAN COUNTY, UTAH

CONFIDENTIAL

By

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April 3, 1978

DRILLING HISTORY
AND
GEOLOGIC REPORT
ON
McCRACKEN MESA UNIT #1-25 WELL

Operator: Natomas North America, Inc.
1121 First Place, Tulsa, Okla. 74103

Contractor: Signal Oilfield Service Co.
1200 Security Life Bldg., Denver, Colo. 80202

Location: NW. SE. Sec. 25, T 39S., R 23E., SLM; San Juan County, Utah (1983' fr. S-line and 1983' from E-line)

Elevation: 5165' grd; 5175' K.B.

Spudded-in: Feb. 28, 1978

Total Depth: 6400'

Finished Drlg: Mar. 26, 1978

Surface Casing: 8 5/8", 24.00#, K-55; STC., R-3 set at 322' K.B. and cemented w/140 sks, regular, Class B cement w/3% CaCl. Good returns to surface.

Bottom Formation: Hermosa - Desert Creek

Production Zones: None

Plugged and Abandoned: Mar. 29, 1978

Drilling History

Feb. 25-26: Moving in and rigging up. Signal Oilfield Service Co. - Rig #20.

Feb. 27: 0800-1600 hrs. - Finished rigging up.
1600-2400 hrs. - Waiting on pump clutch. Mixed 50 sks of gel and 1 sk of lime.

Feb. 28: Waited on clutch till 0800 hrs.

0800-1000 hrs: Installed pump clutch.
1000-1130 hrs: Drilled rat hole.
1200 hrs: Spudded in, drilling 12¼" surface hole.
Drilled 0-155' (155'). Made rd-trip at 40 ft. for second bit. Bit #1 (HTC-RR) made 40' in 1 hr.

Mar. 1: Drilled 155' to 326' (117'). Finished drilling surface hole at 1300 hrs. Ran deviation survey. Survey at 280' was 1°. Came out of hole with collars. Laid down one 8" collar.

1400-1600 hrs: Ran 8 jts of 8 5/8", 24.00#, K-55, R-3, STC casing, with guide shoe on bottom and 4 centralizers placed over every 2nd collar. Landed at 322'K.B. and cemented with 140 sks regular, Class B cement w/3% CaCl. Good returns to surface. Plug down at 1715 hrs.

1715-2400 hrs: Waiting on cement. Cut off casing and welded on casing head (Cameron - Series 900 - 8" flange). Bit #2 (HTC-RR - button) drilled 286' (40' to 326') in 14½ hrs. Drilled at avg. rate of 20 ft/hr.

Mar. 2: Drilled 326'-1110' (784'). Nippled-up. Began drilling ahead with 7 7/8" bit and clear water at 1100 hrs. Drilling at rate of 90 ft/hr. in Morrison sediments. Estimate top of Bluff sandstone at 320 ft; Curtis-Summerville at 620'; and Entrada at 750'. Survey at 669' was 3/4°.
Drilling time: 13 hrs; Nippling-up: 11 hrs.

Mar. 3: Drilled 1110' to 2290' (1180'). Drilling ahead with clear water and Benex at rate of 50'/hr. Survey at 1200' was 1¼°. Estimate top of Carmel at 1170'; Navajo at 1290'; Kayenta at 1760'; Wingate at 1830'; and Chinle at 2210'.
Drilling time: 23¼ hrs; Rig Service: ¼ hr; Survey: ½ hr.

Mar. 4: Drilled 2290' to 2807' (517'). Drilling at rate of 22 ft. per hr. in Chinle sediments, using water and Benex. Turning table at 60 RPM; bit weight is 35,000-40,000 lbs, and pump pressure is 1000#.
Drilling time: 23 3/4 hrs; Rig Service: ¼ hr.

Mar. 5: Drilled 2807' to 3320' (513'). Drilling at avg. rate of 20 ft/hr. with water and Benex. Estimate top of Shinarump at 2970' (no shows of hydrocarbons); top of Moenkopi at 3060'; and top of De Chelly at 3270'. Survey at 3182' was 1 3/4°.
Drilling time: 23 3/4 hrs; Rig Service: ¼ hr.

Mar. 6: Drilled 3320' to 3361' (41'). 0200 hrs: Started out of hole for new bit. Survey at 3361' was 1½°. Bit #3 (HTC-J-22) made 3035' (326' to 3361') in 83¼ hrs. Drilled at an avg. rate of 36.5 ft/hr.
0945: Back in hole and hit bridge and fill 300' from bottom. Began washing to bottom.
0945-2400 hrs: Washing to bottom. Had to mix mud and raise viscosity to 100 to clean up hole.
Drilling time: 1½ hrs; Survey time: ½ hr; Trip time: 7¼ hrs; Rig service: ½ hr; Washing to bottom: 14¼ hrs.

Mar. 7: Drilled 3361' to 3634' (273'). Drilling ahead with mud (Wt: 9.2#/gal; Visc: 45; W.L.: 8.2) in Organ Rock sediments at 10 to 12 ft/hr. Est. top of Organ Rock at 3350'. Drilling with 40,000# on bit, at 60 RPM and 1200# pump pressure. Survey at 3582' was 1 3/4°.
Drilling time: 23¼ hrs; Rig service: ¼ hr; Survey time: ½ hr.

Mar. 8: Drilled 3634' to 3944' (310'). Mud wt. is 8.9; Visc. is 35; Water loss is 10.0; pH is 8.5; solids is 4.25%. Drilling in Organ Rock sediments at an avg. rate of 15 ft/hr.
Drilling time: 23½ hrs; Rig service: ½ hr.

Mar. 9: Drilled 3944' to 4250' (306'). Drilling ahead at rate of 15 ft/hr. in Organ Rock and Cutler sediments. A questionable top of the Cutler would be about 4100'.
Drilling time: 23 3/4 hrs; Rig service: ¼ hr.

Mar. 10: Drilled 4250' to 4461' (211'). Made rd. trip at 4432' because of hole in pipe. Put on new bit. Bit #4 (HTC-J-33) made 1071' (3361' to 4432') in 84 hrs. Drilled at an avg. rate of about 14 ft/hr. Strapped in hole (+2½' corr.). Washed 25' to bottom. Survey at 4286' was 1½°.
Drilling time: 15 hrs; Survey time: ½ hr; Rig service and repair rotary clutch: 1 hr; Trip time: 7½ hrs.

Mar. 11: Drilled 4461' to 4756' (295'). Drilling ahead in red beds at avg. rate of 12 to 15 ft/hr.
Drilling time: 23 3/4 hrs; Rig service: ¼ hr.

Mar. 12: Drilled 4756' to 5000' (244'). Drilling at rate of about 10 to 12 ft/hr. Estimate top of Rico formation at about 4880'. Rate of penetration has decreased slightly. Drilling time: 23½ hrs; Rig service: ½ hr.

Mar. 13: Drilled 5000' to 5238' (238'). Drilling with 50,000# on bit at 55 RPM and 1200# pump pressure. Mud weight is 8.9 lbs/gal; Viscosity is 37; water loss is 10 cc. Drilling at a rate of about 10 ft/hr. Estimate top of Hermosa at 5110'. Drilling time: 23½ hrs; Rig service: ½ hr.

Mar. 14: Drilled 5238' to 5455' (217'). Drilling at rate of about 9 ft/hr. in limestone and shale of Hermosa formation. Drilling time: 23 3/4 hrs; Rig service: ¼ hr.

Mar. 15: Drilled 5455' to 5650' (195'). Drilling in Hermosa sediments at an avg. rate of 9 ft/hr. No shows or gas readings. Drilling time: 22½ hrs; Rig service: ¼ hr; Rig repair: 1¼ hrs.

Mar. 16: Drilled 5650' to 5781' (131'). Made rd. trip at 5768' for new bit. Bit #5 (HTC-J33) made 1336' (4432' to 5768') in 131½ hrs. Drilled at avg. rate of 10 ft/hr. Found hole tight at 3000' to 2750' (Chinle section). Found one cone loose on bit. Had 25' of fill on bottom when going back in hole with Bit #4. (No reading.) Drilling time: 14½ hrs; Trip time: 8½ hrs; Rig service: ¼ hr; Circulation time: 3/4 hr.

Mar. 17: Drilled 5781' to 5966' (185'). Drilling in dolomite and limestone at 9 to 10 ft/hr. Drilling time: 23 3/4 hrs; Rig service: ¼ hr.

Mar. 18: Drilled 5966' to 6004' (38'). Had slight drilling break at 5980' and a gas kick (64 units) at 5990'. Est. top of Ismay at 5960' or 5980'. Drilled to 6002' and decided to core. Circulated hole from 0300 to 0800 hrs. (5 hrs.) and built mud viscosity to 45; weight 9.4 and water loss at 8.2 cc. Came out of hole. Installed new air compressor on rig. Took 5 hrs. to do the repair. (1330 to 1830 hrs.) Picked up core barrel (60'-6¼" barrel). Went in hole. Had 80' of reaming and fill. Drilling time: 3½ hrs; Circulating time: 6½ hrs; Trip time: 9 hrs; Repair time: 5 hrs. Bit #4 (HTC-J-33) made 236' (5768' to 6004') in 29½ hrs. Drilled at avg. rate of 7½ ft/hr. in lower-upper Hermosa sediments.

Mar. 19: Drilled (cored) 6004' to 6061' (57'). Finished reaming to bottom at 0130 hrs. and began coring. Coring at rate of 3-4 ft/hr. Gas readings are up to 100 units. Finished coring at 2000 hrs., and started out of hole

with core barrel.
Coring time: 18½ hrs; Circ. time: 1½ hrs; Trip time: 4 hrs.

Mar. 20: Drilled 6061' to 6101' (40'). Got out of hole with core barrel at 0130 hrs. Laid down core. Recovered 57 feet. Top 21 feet (6004' to 6025') was sucrosic dolomite with tiny vugs, hairline fractures, fossils, and slight oil stain with lt. blue fluorescence. Bottom 36 feet (6025' to 6061') was dense dark gray dolomite with fossils, grading into dolomitic shale at bottom (6040' to 6061'). Set core barrel back and went back in hole with Bit #4. Had 125 ft. of fill up. Began drilling ahead at 0900 hrs. Drilled to 6101' at 1730 hrs. Circulated for 1½ hrs and came out of hole to run DST #1. Got out of hole at 2330 hrs and began picking up test tool (Halliburton). Bit #4 (RR-HTC-J33) made 40' in 8 3/4 hrs. Drilled at average rate of 4½'/hr. Bit #4 has made 1347' in 122¼ hrs. Drilling time: 8 3/4 hrs; Circ. time: 2¼ hrs; Rig service: ¼ hr; Survey time: ¼ hr; Laying down core: 3 hrs; Trip time: 10½ hrs. Survey at 6100' was ½°.

Mar. 21: Drilled 6101' to 6113' (13'). Finished picking up test tool and went in hole to run DST #1. On bottom at 0645 hrs.

Interval: 5972' to 6101' (129')
Initial Open: 30 min.
Initial Shut-in: 1 hr.
Final Flow: 1 hr.
Final Shut-in: 2 hrs.
Blow: none (Dead thru-out test)
Rec.: 531' of drilling fluid
Sample Chamber: 200# pressure, 2240 cc. of highly oil and gas cut mud.

Pressures:					
IHP	=	2939#	FHP	=	2939
IFP	=	409-425#	FFP	=	409-428#
ISIP	=	561#	FSIP	=	561#
BHT	=	130°			

Came out of hole and laid down test tool. Finished at 1700 hrs. Went back in hole with core barrel. Had to wash 60 feet to bottom. Began coring at 2230 hrs. Coring real slow (1 to 2 ft/hr.). Drilling time: 1½ hrs; Test time: 11½ hrs; Trip time: 9½ hrs; Washing to bottom: 1½ hrs.

Mar. 22: Drilled 6113' to 6134' (21'). Coring ahead at rate of 1½ ft/hr. Decided to quit coring and use a bit instead, because of the slow rate. Quit coring at 2200 hrs and started out of hole. No gas shows after trip - gas worked out of mud.
Coring time: 20 3/4 hrs; Rig service: ¼ hr; Repair time: 1 hr; Trip time: 2 hrs.

Mar. 23: Drilled 6134' to 6235' (101'). Finished coming out of hole with core barrel. Laid core and core barrel down. Recovered 32½' of core. Mostly dense, hard dolomite with seams of anhydrite w/some waxy oil spots along fractures. Some live oil stain at bottom of core. Started back in hole with Bit #6 (Smith-F3) at 0400 hrs. Had 40 ft. of fill on bottom. Began drilling ahead at 0900 hrs. Drilling at rate of 6 ft/hr. Drilling time: 15 hrs; Trip time: 6 hrs; Rig service and repair: 1½ hrs; Lay down core and core barrel: 1½ hrs. Christensen Core head (Diamond-MC-20) made 33' in 22 hrs. Cored at avg. rate of 1½' per hr. in Ismay zone.

Mar. 24: Drilled 6235' to 6335' (100'). Est. top of black shale (Gothic shale) at 6230' and top of Desert Creek zone at 6265'. Had good vugular porosity in limestone in Desert Creek zone at 6295' to 6326', and drilling break also. No fluorescence or shows in samples. Gas reading at 8 units; but has wet-heavy fractions. Had drilling break at 6295' to 6307'. Drilled at rate of 1 min/ft. Had another break at 6314' to 6326' and one at 6328' to 6335'. Samples were chalky limestone and sucrosic limestone with vugular porosity. No fluorescence but had a fair cut. Gas readings increased to 54 units with some heavy fractions. Cuttings gas was 90 units with some heavy fractions. Decided to run a drill-stem-test. Circulated and mixed mud for 4 hrs. Brought mud viscosity up to 55. Started out of the hole at 1500 hrs. Picked up test tool and went in hole to run DST #2. (Opened tool at 2300 hrs.)

Interval: 6291' to 6335' (44')
Initial Open: 15 min.
Initial Shut-in: 1½ hrs.
Final Flow: 1 3/4 hrs.
Final Shut-in: 2½ hrs.
Blow: Weak initial - increasing to strong in 5 minutes. (Bottom of bucket - 15" of water.) Final open - weak initial increasing to strong in 10 min., (bottom of bucket) and steady thru-out test.

Rec.: 3000' (est.) of gas in drill pipe. 665' of fluid (180' of oil and gas cut mud and 475' of salt water). Resistivity = .062 ohms at 70°, and 134,000 ppm chlorides.

Sample Chamber: 300# pressure. Gas - TSTM; 2200 cc. of fluid (300 cc. of lt. brown oil and 1900 cc. of salt water).

Pressures:	IHP	= 3034#	FHP	=	2993#
	IFP	= 68-163#	FFP	=	163-354#
	ISIP	= 2761#	FSIP	=	2638#+
	BHT	= 126°			

Drilling time: 10 3/4 hrs; Circ. and mix mud: 4 hrs; Trip time: 6½ hrs; Pick up test tools: 1½ hrs; Rig service: ¼ hr; Test time: 1 hr.

Mar. 25: Drilled 6335' to 6390' (55'). Finished testing (DST #2) and came out of hole. Laid down test tool and loaded same. Finished loading tool at 1300 hrs. Cut off drilling line. Went back in hole with Bit #6 (Smith F-3). Began drilling ahead at 1730 hrs. Had 35 units gas when first circulation was up, with 50 units C_1, 25 units of C_2, 14 units of C_3, 4 units of NC_4. Had drilling break at 6353' to 6360' which gave 24 units gas with C_1 = 40 units; C_2 = 36 units; C_3 = 25 units; and C_4 = 6 units. Samples are sucrosic limestone with scattered oil stain and slight cut. Drilling time: 5½ hrs; Test time: 5½ hrs; Trip time: 9 hrs; Cut Drlg line: 2 hrs; Lay down test tools: 2 hrs.

Mar. 26: Drilled 6390' to 6400' (10'). Finished drilling at 0130 hrs. Mixed mud and circulated for 2 3/4 hrs in preparation to logging. Mud wt. is 9.4, Viscosity is 85, and water loss is 8 cc. Came out of hole. Bit #6 (Smith-F3) made 266' in 33¼ hrs. Drilled at avg. rate of 8 ft/hr. Began logging hole at 0915 hrs and finished at 1530 hrs. Ran Dual-Induction Laterlog, Gamma-Density, and Compensated Neutron logs. Logs showed 3 potential zones below 6330' so decided to run DST. Tester arrived on location at 1900 hrs. Picked up test tool and started in hole.

Mar. 27: Finished trip in hole with test tool. On bottom at 0030 hrs and began DST #3.

Interval: 6330' to 6400'
Initial Open: 15 min.

Initial Shut-in: 1¼ hrs.
Final Flow: 2 hrs.
Final Shut-in: 2½ hrs.
Blow: Weak initial - (8" in water). Weak initially on final open but increasing to strong in 10 min. (bottom of bucket); and then steady to end of test.
Rec.: 2400' of gas in drill pipe and 120' of drilling mud.
Sample Chamber: 25# pressure and 500 cc. of mud.

Pressures:	IHP	= 3157#	FHP	=	3157#
	IFP	= 82#	FFP	=	109#
	ISIP	= 272#	FSIP	=	109#
	BHT	= 134°			

Finished test at 0700 hrs and came out of hole and laid down and loaded test tool. Finished loading out tools at 1300 hrs. Decided to straddle test zone at 6132' to 6142' so called tester back. Tester arrived at 1800 hrs. Picked up test tool and started in hole with hook-wall and straddle packers at 2000 hrs. (Strapped-in).

Mar. 28: Set packers at 6112' and 6150' at 0145 hrs. Ran DST #4:

Interval: 6112' to 6150'
Initial Flow: 15 min.
Initial Shut-in: 1½ hrs.
Final Flow: 1½ hrs.
Final Shut-in: 2 hrs.
Blow: Had good blow on initial flow (bottom of bucket in 4 min.). Final blow was weak decreasing to very weak in 65 min.
Rec.: 35 ft. of drilling mud.
Sample Chamber: 50# pressure and 50 cc. of mud.

Pressures:	IHP	= 2993#	FHP	=	2993#
	IFP	= 2-5#	FFP	=	2-5#
	ISIP	= 5#	FSIP	=	5#
	BHT	= 125°			

Finished test at 0700 hrs and came out of hole. Laid down test tools and loaded same. Finished at 1300 hrs. Waited 2 hrs on orders. Decided to plug and abandon well. Laid down drill collars. Went to bottom with drill pipe. Placed cement plugs as follows:

Plug #1 - 60 sks - 6400-6200' across Desert Creek zone.

Plug #2 - 40 sks - 5150-5000' across top of Hermosa.
Plug #3 - 40 sks - 3350-3200' across De Chelly
Plug #4 - 30 sks - 2370-2270' across top of Chinle and base of Wingate.
Plug #5 - 60 sks - 1100-900' across bottom of Entrada.

Mar. 29: Finished placing plugs at 0200 hrs. Released rig at 0800 hrs. Began rigging down. Will place a plate on top of casing head and spot weld in place. Will clean location and fence pits.

GEOLOGIC REPORT
ON
McCRACKEN MESA UNIT #1-25 WELL

Introduction

The Natomas North America Inc. - McCracken Mesa Unit #1-25 well was designed to test the possibilities of additional reef-type reservoir production of oil and/or gas from the Ismay or Desert Creek zones of the Hermosa formation, apart from the Aneth Field to the south. It was postulated that a north-trending anticlinal nose extended northward from the Aneth Anticline for a distance of five or six miles. This was based on prior structural information indicated by data from a number of wells drilled in the surrounding area.

It was further postulated that a northwest trending channel or seaway which was favorable for the building of Ismay reefs, or receiving detrital deposits from the same, existed in the area. This zone extended northwestward from the Ismay Field, thru the Bluff wells, the Cowboy Field, and on to the northwest.

After a considerable delay and much expense in obtaining permission from the local Indians who live on the land in the area, the well was finally spudded on February 28, 1978. The well was drilled to a depth of 6400' on March 26, 1978. This depth was at the top of the Paradox section of the Hermosa formation. No favorable production zones were found in the Ismay or Desert Creek zones,

so the well was abandoned on March 29, 1978. Two cores and four drill-stem-tests were taken in these zones, trying to find a productive horizon without success. The electric logs indicated low porosity in most of the section and high water content (100%) in the one zone of good porosity. This porous zone was in the Desert Creek and was also drill-stem-tested. Some oil and gas cut mud along with salt water were recovered in the test.

Drilling History

A complete daily drilling history of the McCracken Mesa Unit #1-25 well precedes this section of the report. No particular problems were encountered during the process of drilling the well. As noted above, two cores were taken and four drill-stem-tests were made. The details of the tests and results are given under the 'Drilling History'. Both cores, Core #1 - 6004' to 6061' (57') and Core #2 - 6101' to 6134' (33'), were taken thru the Ismay section and both cores were very tight with little or no porosity. The detailed description of the cores is attached to the back of this report.

The well was plugged and abandoned on March 29, 1978 and five plugs were placed as noted above (See Drilling History). The well was plugged back to 900' and the top part was left open for completion of a water well by the Bureau of Indian Affairs. A plate was welded on the top of the casing head to protect the hole until the water completion work can be begun.

General Geology and Stratigraphy

In general, the original premises of structure and stratigraphy concerning the Ismay section were not confirmed by the subject well. The structure, instead of being a north-trending anticlinal nose, appears to be a north-trending synclinal nose. However, the structural data from the well and surrounding wells tend to suggest that the subject well may have been located on the west flank of an anticlinal feature which trends eastward from the well site. It is possible that some geophysical work in the area could provide some additional information as to whether or not this structure exists.

Likewise, the possible presence of a reef zone or detrital bank in the Ismay section was not confirmed by the subject well. However, a very porous, vugular limestone was encountered in the upper part of the Desert Creek section which could act as an important reservoir horizon. This zone gave up a small amount of oil and gas, along with some salt water when tested. The Ismay

section was almost completely devoid of any porosity and was composed of hard crystalline dolomite with a few fossils (Spirifers and Crinoids).

In general, the stratigraphy of the subject well was quite uniform in comparison with adjacent wells. The various formations were in sequence and were fairly normal and consistent in their thicknesses. Initially, it was felt that the Upper Hermosa was approximately normal in thickness, but the electric logs indicated a slightly thicker section (about 100' thicker). This tends to confirm the proximity of the well location to a synclinal feature rather than being on an anticlinal nose.

The oil and gas shows obtained in the subject well were primarily confined to the Ismay and Desert Creek members of the Hermosa formation. There was a very slight gas kick (4 to 8 units) on the gas detector in the top of the Cutler formation at 4110' to 4150'. There were no other shows in this zone; which was a red, very fine grained, tight micaceous sandstone and sandy siltstone. This may have been due to some gas in the mud stream generated by certain chemicals.

The first good gas kick encountered in the well was in the upper Ismay section from 5980' to 6000'. The gas detector registered a maximum of 64 units thru this zone. Wet fractions were also indicated by the chromatograph. This show was in fractured, sucrosic, chalky limestone and dolomite. No fluorescence was observed in the samples but there was a slight oil cut. The next 57 feet (6004' to 6061') of this section were cored. While coring, gas readings up to 100 units were obtained. The core, however, did not show any appreciable porosity (a maximum of 2.7%) or hydrocarbon saturation. A drill-stem-test of the zone did recover some oil and gas cut mud in the sample chamber. Shut-in pressures were low (561#) and very slow to build, indicating a very tight section.

The next significant hydrocarbon show was obtained at 6295' to 6335'. Gas readings up to 54 units with 50 units of C_1, 36 units of C_2, 25 units of C_3, and 14 units of C_4 were obtained thru this zone. A drill-stem-test of this section recovered 180' of oil and gas cut mud, and 475' of salt water, and the sample chamber contained about 300 cc. of light brown oil along with 1900 cc. of salt water. The most significant thing about this test was the unusually high shut-in pressure of 2761#. This is about 1000# higher than any other test in surrounding wells in the Desert Creek zone. The highest shut-in pressure obtained in this zone in the Aneth Field was 2200#. Thus the anomalous pressure obtained in the subject well is quite significant and tends to

suggest that a hydrocarbon reservoir may be in the near vicinity in the Desert Creek section of the Hermosa formation.

The lower portion of the Desert Creek had some gas shows (24 units on the hot wire, and 26 units C_1, 20 units C_2, 15 units C_3, and 12 units C_4 on the chromatograph) and there was some scattered oil stain and a slight cut on samples of light brown sucrosic limestone with poor porosity. The electric logs showed some porosity, up to about 13% in one spot in this section, so it was felt that a drill-stem-test was warranted. The drill-stem-test, however, recovered 120 ft. of drilling mud and about 2400 ft. of gas in the drill pipe. The shut-in pressures were low and very slow to build (272# initial and 109# final), indicating a very tight section with low permeability.

The formations with their tops, thicknesses, and datum points which were encountered in the subject well as determined from the electric logs are as follows:

Formation	Depth to Top	Thickness	Datum
Burro Canyon	Surface	50'	5175' K.B.
Morrison	50'	575'	5125'
Curtis-Summerville	625'	130'	4550'
Entrada	755'	425'	4420'
Carmel	1180'	120'	3995'
Navajo	1300'	465'	3875'
Kayenta	1765'	55'	3410'
Wingate	1820'	500'	3355'
Chinle	2320'	640'	2855'
Shinarump	2960'	90'	2215'
Moenkopi	3050'	210'	2125'
De Chelly	3260'	80'	1915'
Organ Rock	3340'	750'	1835'
Cutler*	4090'	810'	1085'
Rico	4900'	190'	275'
Hermosa	5090'	890'	85'
Ismay (Upper)*	5980'	84'	-805'
Ismay*	6064'	158'	-889'
Gothic Shale*	6222'	38'	-1047'
Desert Creek*	6260'	100'	-1085'
Paradox*	6360'	—	-1185'

* Sections which had hydrocarbon shows.

Comparison of the above datum point on the top of the Ismay marker (lower Ismay) with some of the nearby wells is as follows:

Subject Well (McCracken Mesa Unit #1-25)	-889'

Carter-Arrowhead (SW. SW. Sec. 31-39S-24E)	-830'
Carter-#2 Hickman (NW. SW. Sec. 1-40S-23E)	-765'
Shell-#31-34 Unit (NW. NE. Sec 34-39S-23E)	-642'
Sunray Mid-Cont. #1 Utah-Fed A (SW. SW. Sec. 17 T 39S-R 24E)	-937'

Thus it is obvious that the subject well was lower structurally than most of the wells, except the Sunray well in Sec. 17 of 39S - 24E. Based on these data plus data from other wells, there is a definite syncline just west of the subject well which trends northward. The data also suggest that there may be an anticline just east of the subject well, and this could be most important.

A detailed sample descriptive log of the cuttings from the subject well is attached hereto.

Conclusion and Recommendation

The Natomas-North America Inc. - McCracken Mesa Unit #1-25 well was an important well, even though it was not successfully completed as a producing well. The data from the well help to evaluate the prospects for production from the Ismay - Desert Creek sections of the Hermosa formation in the area; and may have provided clues toward the location of another anticline and possible field.

The subject well did not confirm the presence of an anticlinal nose or reef and detrital bank in the Ismay section as was originally postulated. However, a porous, possible karst type, potential reservoir horizon was found in the Desert Creek section which had unusually high pressure, and which could lead to future important discoveries.

Hydrocarbon shows were obtained in the Ismay and Desert Creek sections in the subject well; however drill-stem-tests of these shows failed to recover any appreciable amounts of hydrocarbons or indicate good productive zones. Four drill-stem-tests were taken without success; but the data may be helpful in locating future reservoirs. Two cores were taken in the Ismay section and both cores were devoid of porosity and were composed mostly of dense, hard, crystalline dolomite with a few fossils.

The data from the subject well together with data from surrounding wells suggest the presence of an anticline which is located just east of the well site. In fact, the subject well could be located on the west flank of this possible structural feature. It

is believed that some detailed magnetic geophysical work might be able to locate this possible feature and fully outline it in detail. There may be some faulting in the area which could also be detected by this work. It is recommended that this work be done as soon as possible and that additional lands be acquired accordingly. If the work is successful and positive, then an additional well should be planned and scheduled as soon as possible.

W. Don Quigley

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CIRCULATE TO:

DIRECTOR ☐
PETROLEUM ENGINEER ☐
MINE COORDINATOR ☐
ADMINISTRATIVE ASSISTANT ☐
ALL ☐

RETURN TO Kathy A.
FOR FILING

March 28, 1978

MEMO TO FILE:

RE: NOTOMES N. AMERICA
Mc CRACKEN 1-25
SEC. 25, T. 39S., R. 23E.

On March 28, 1978, Mr. Don Quigley called in a plugging program for the above named well. The program was designed by Mr. Jerry Long of the U.S.G.S. and given verbal approval by Mr. Brian Buck. The details are:

FORMATION	DEPTH
Curtis	
Summerville	625'
Entrada	755'
Carmel	1,180'
Navajo	1,300'
Kayenta	1,765'
Wingate	1,820'
Chinle	2,320'
Shinnarump	2,960
Moenkopi	3,050'
De Chelly	3,260'
Organ Rock	3,340'
Cutler	4,090'
Rico	4,900'
Hermosa	5,090'
U. Ismay	5,980'
L. Ismay	6,064'
Desert Creek	6,260'
Paradox	6,360'
TOTAL DEPTH	6,400'
FRESH WATER ZONES	500 - 850'

PLUGGS will be set as follows:

850' - 1,050'
2,270' - 2,370'
3,200' - 3,350'
5,000' - 5,150'
6,200' - 6,400'

From 0-850' the hole will be left open and cased for the Tribe for a water well.

BRIAN W. BUCK

BWB

ENGINEERING GEOLOGIST

BWB/ksw

Core #1 - 6004' to 6061' (57')
Full Recovery

6004'-10': Dk. brn. sucrosic dolomite with minute vugs.; fossiliferous, hairline fractures - slight oil stain - scattered light blue fluorescence.

6010'-17': Dk. brn. to gry sucrosic limestone and dol., vugular with horizontal and vertical fractures; light oil stain, fossils, lt. blue scattered fluorescence. Very sl. bleeding of high gravity oil.

6017'-25': Dk brn. to blk. dense to sl. sucrosic dol. with some small vugs and vert. fractures with waxy residual oil on frac. Sl. oil stain and fluorescence. A few fossils (spirifers).

6025'-35': Dk. gray, dns. dol. with fossils (spirifers). Slight fluorescence.

6035'-40': Dk. gry to brown, dns. dol. with fossils (one crinoid stem). Sl. fluor.

6040'-50': Dk. gry v. dense dolomitic shale. W/conc. cl. and w/a few fossils. W/scat. oil st. and fluor.

6050'-61': Dk. gry. v. dns. dolomitic, brittle sh. w. conc. clev. and no oil stain or fluor.

Core #2 - 6101' to 6133'

6101'-05': Dk brn to gry, hd. dense mica. dol. No porosity.

6105'-10': Dk brn, hd, mica., dns. dol. w/some clr. Xln. anhy. seams; some dol. with pisolitic structure, but most with concoidal clev. Some waxy dk brn residual oil spots w/no fluorescence.

6110'-15': Dk brn to gry dens. dol. w/some clr. Xln anhy. seams.

6115'-20': Dk brn to gry dens dol. w/anhy. seams and some dk brn waxy resid. oil on seams. No fluor. but has sl. cut. Some pisolitic struct., conc. cl.

6120'-25': Dk brn dens dol., and brn waxy anhy. Some frac. and seams w/dk brn waxy oil - no fluor., sl. cut.

6125'-30': Dk brn dns hd. dol. w/some anhy (dk brn). Some dol. with oil stain, live fluor. and good cut.

6130'-33': Dk brn to dk gry. hd. dol. shale with some oil stain w/sl. fluorescence.

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

10

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

RECEIVED APR 6 1978 DIVISION OF OIL, GAS & MINING

5. LEASE DESIGNATION AND SERIAL NO.: U-5214

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Surface

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other Abandoned

7. UNIT AGREEMENT NAME: McCracken Mesa

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Natomas North America, Inc.

9. WELL NO.: Unit #1-25

3. ADDRESS OF OPERATOR: 1121 First Place, Tulsa, OK 74103

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: 1980' FEL & 1980' FSL, Sec. 25
At top prod. interval reported below: same
At total depth: same

CONFIDENTIAL

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 25-39-23E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
43-037-427	2-14-78	San Juan	Utah

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2-28-78	3-26-78	3-[illegible]-78	5165' GR, 5175' KB	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
6400' MD	–	–	→	0-T.D.	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: None

25. WAS DIRECTIONAL SURVEY MADE: yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL, GR-Density, CNL

27. WAS WELL CORED: yes

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8"	24#	322'	12-1/4"	140 sx cmt	None

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (*Interval, size and number*): None

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Division Production Manager DATE April 4, 1978

*(See Instructions and Spaces for Additional Data on Reverse Side)

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.
If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.
Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.
Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.
Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.
Item 29: *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.
Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Ismay	5,972'	6,101'	DST #1 30 min. IFP, 60 min. ISIP, 60 min. FFP, 120 min SFIP. Tool open w/no blow, recovered 531' drlg mud. Sampler contained 2240 cc oil & GCM at 200 psi. IHP 2939#, IF 409-425#, ISIP 561#, FF 409-428#, FSIP 561#, FHP 2939#.
Desert Creek	6,291'	6,335'	DST #2 Tool open 1-3/4 hrs w/weak blow incr to strong blow in 10 min & remaining steady thruout test. Recovered 3000' gas, 180'oil & GCM & 475' SW. Sampler cont. 1900 cc SW & 300 cc oil at 300#, IHP 3034#, IFP 68-163#, ISIP 2761#, FFP 163-354#, FSIP 2638#, FHP 2993#, BHT 126°F.
Desert Creek	6,330'	6,400'	DST #3 IFP 15 min. ISIP 1¼ hr, FFP 2 hr, FSIP 2½ hr, opened on initial flow w/8" blow incr to strong blow & remained steady thruout test. Rec. 2400' gas & 120' mud. Sampler cont. 500 cc mud at 25#, IHP 3157#, IFP 82#, ISIP 109#, FSIP 109#, FHP 3157#, BHT 134°F.
Ismay	6,112'	6,150'	DST #4 15min. IFP, ISIP 90 min, FF 190 min, FSIP 120 min, open w/good blow dec to very weak in 65 min. Recovered 35' mud & sampler cont 50 cc mud at 50#.

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT. DEPTH

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: U-5214

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other Abandoned

7. UNIT AGREEMENT NAME: McCracken Mesa

8. FARM OR LEASE NAME: Federal

2. NAME OF OPERATOR: Natomas North America, Inc.

9. WELL NO.: Unit #1-25

3. ADDRESS OF OPERATOR: 1121 First Place, Tulsa, Oklahoma, 74103

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface NW.SE.Sec.25,T39S,R23E,S.L.M.
At top prod. interval reported below 1980'from S-line & 1980'from E-line
At total depth

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: NW.SE.Sec.25-39S-23E S.L.M.

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: San Juan | 13. STATE: Utah

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
Feb.28'78	Mar.26'78	xxxxxxxx	5165'grd;5175'K.B.	5165'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
6400'	none	none	→	0-6400'	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: None

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: Dual Induction Laterolog, Gamma-Density; Comp. Neutron

27. WAS WELL CORED: Yes

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8 5/8"	24#	322'	12¼"	140 sks	none

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
None				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (*Interval, size and number*): None

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
None		

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
None							

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

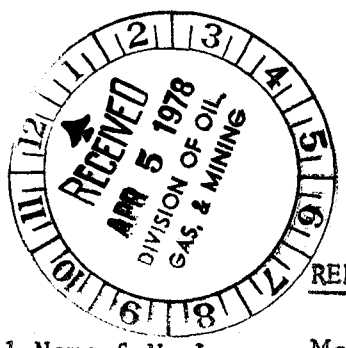
35. LIST OF ATTACHMENTS: Drilling History and Geologic Report.

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED H. Dow Quigley TITLE Cons. Geol. DATE Apr.4,1978

*(See Instructions and Spaces for Additional Data on Reverse Side)

FILE IN QUADRUPLICATE
FORM OGC-8-X



STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116

CONFIDENTIAL

REPORT OF WATER ENCOUNTERED DURING DRILLING

Well Name & Number: McCracken Mesa Unit #1-25

Operator: Natomas North America, Inc. Address: 1121 First Place, Tulsa, OK. 74103

Contractor: Signal Oilfield Service Address: Denver, Colo.

Location NW 1/4 SE 1/4; Sec. 25 T. 39 ~~N~~ S R. 23 E ~~W~~; San Juan County.

Water Sands:

	Depth: From-	To-	Volume: Flow Rate or Head	Quality: Fresh or Salty
1.	500'-850'		Untested	Entrada — Probably fresh
2.				
3.				
4.				
5.				

(Continue on Reverse Side if Necessary)

Formation Tops:

See well report.

Remarks:

NOTE: (a) Upon diminishing supply of forms, please inform this office.
(b) Report on this form as provided for in Rule C-20, General Rules and Regulations and Rules of Practice and Procedure.
(c) If a water analysis has been made of the above reported zone, please forward a copy along with this form.

Utah State 7.

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

CONFIDENTIAL

RECEIVED
APR 5 1978
DIVISION OF OIL, GAS, & MINING

BEST COPY AVAILABLE

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER Dry hole

2. NAME OF OPERATOR
Natomas North America, Inc.

3. ADDRESS OF OPERATOR
1121 First Place, Tulsa, Oklahoma 741[illegible]

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface NW.SE.Sec. 25,T39S,R23E,S.L.M.
1980'from E-line & 1980'from S-line

5. LEASE DESIGNATION AND SERIAL NO.
U-5214

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
McCracken Mesa

8. FARM OR LEASE NAME
Federal

9. WELL NO.
Unit #1-25

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
NW.SE.Sec.25-39S-23E
S.L.M.

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
5165'grd.;5175'K.B.

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	X	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	X
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

The above well was drilled to a depth of 6400' which was at the top of the Paradox section of the Hermosa formation, and found no favorable reservoir of hydrocarbons. Therefore permission was requested and granted to plug and abandon the well as follows:

Plug #1 ---6400' to 6200'---60 sks cement --- thru Desert Creek and Isma
Plug #2 ---5150' to 5000'---40 sks cement --- across top of Hermosa
Plug #3 ---3350' to 3200'---40 sks cement --- thru the De Chelly
Plug #4 ---2370' to 2270'---30 sks cement --- top of Chinle
Plug #5 ---1100' to 900' ---60 sks cement --- at base of Entrada

Plate welded on top of the casing head at the surface. The upper part of the hole was left open so B.I.A. could complete well as a water well.

The well was plugged and abandoned as per the above instructions. The pits were fenced-in and the location cleaned, on Mar.29, 1978.

APPROVED BY THE DIVISION OF
OIL, GAS, AND MINING
DATE: April 7, 1978
BY: P L Small

18. I hereby certify that the foregoing is true and correct

SIGNED K. Wm Quigley TITLE Cons. Geol. DATE Apr. 4, 1978

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.
U-5214

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT —" for such proposals.)

RECEIVED
APR 6 1978
DIVISION OF OIL, GAS, & MINING

1. OIL WELL [X] GAS WELL [ ] OTHER

7. UNIT AGREEMENT NAME
Navajo Surface

8. FARM OR LEASE NAME
McCracken Mesa Federal

2. NAME OF OPERATOR
Natomas North America, Inc.

9. WELL NO.
Unit #1-25

3. ADDRESS OF OPERATOR
1121 First Place, Tulsa, OK 74103

10. FIELD AND POOL, OR WILDCAT
Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface

1980' FEL & 1980' FSL, Sec. 25, Being the NW/4 SE/4

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 25-39S-23E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
5165' FR, 5175 KB

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]	(Other) Drilling Operations			[X]
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

3-24-78 Drlg at 6,284'.

3-25-78 T.D. 6,335'. Ran DST #2, Desert Creek FM (6,291-6,335') IFP 15 min, ICIP 1½ hrs, FFP 1-3/4 hrs, FCIP 2½ hrs. Opened on ititial flow w/weak blow increasing to strong blow in 5 min. Opened on final flow w/weak blow increasing to to strong in 10 min & remaining steady thruout. Recovered 3,000' gas, 180' oil & GCM & 475' SW. IHP 3034 psi, IFP 68-163 psi, ISIP 2761 psi, FFP 163-354 psi, FSIP 2638 psi, FHP 2993 psi, BHT 126°F.

3-26-78 Drld to 6,400' T.D.

3-27-78 T.D. 6,400'. DST #3, Desert Creek (6,330-6,400'). IFP 15 min, ISIP 1½hr, FFP 2 hr FSIP 2½ hr. Opened on initial flow w/8" blow, increasing to strong blow & remained steady thruout test. Recovered 2,400' gas & 120' mud. IHP 3157#, IFP 82#, ISIP 272#, FFP 109#, FSIP 109#, FHP 3157#, BHT 134°F.

3-28-78 DST#4, Ismay Formation (6,112-6,150'). IFP 15 min, ICIP 90 min, FFP 90 min, FCIP 120 min. Open w/good blow to very weak in 65 min. Recovered 35' mud. IHP 2993#, IFP 2-5#, ISIP 5#, FFP 2-5#, FSIP 5#, BHT 125°F. Prep to P&A.

3-29-78 T.D. 6,400'. Well plugged & abandoned as follows:

Plug #1 60 sxs cement from 6,400' to 6,200' (Desert Creek).
Plug #2 40 sxs cement from 5,150' to 5,000' (Top- Hermosa).
Plug #3 40 sxs cement from 3,350' to 3,200' (De Chelly).
Plug #4 30 sxs cement from 2,370' to 2,270' (Top - Hermosa).
Plug #5 60 sxs cement from 1,100' to 900' (Base - Entrada).

Welded plate on casing head and turned well over to Bureau of Indian Affairs for the purpose of completing as a water well.

18. I hereby certify that the foregoing is true and correct

SIGNED [signature] TITLE Division Production Manager DATE April 3, 1978

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

CORE ANALYSIS RESULTS FOR

NATOMAS NORTH AMERICA, Inc.

McCRACKEN MESA NO. 1-25

WILDCAT

SAN JUAN COUNTY, UTAH

CONFIDENTIAL

CL-511-2

CORE LABORATORIES, INC.

Petroleum Reservoir Engineering

DALLAS, TEXAS

Company NATOMAS NORTH AMERICA INC. Formation ISMAY Page 1 of

Well McCRACKEN MESA 1-25 Cores DIA CONV 4" File RP-3-2849

Field WILDCAT Drilling Fluid WATER BASE MUD Date Report MAR 20, 78

County SAN JAUN State UTAH Elevation 5175 KB Analysts TRUITT

Location NW SE SEC 25 T 39S R23E Remarks CONVENTIONAL CORE ANALYSIS

CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	RESIDUAL SATURATION		PROBABLE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL		OIL % VOLUME % PORE	TOTAL WATER % PORE		
	6004-05							DOLO, dk gy dns--no analysis
1	6005-10	0.01		0.3	0.0	66.7		LS, gy dns
2	6010-11	0.01		0.5	0.0	40.0		LS, gy dns
3	6011-12	0.01		0.6	0.0	66.7		LS, gy vf-xln
4	6012-13	0.01		1.5	0.0	73.3		LS, gy vf-xln arg
5	6013-14	0.01		1.0	0.0	60.0		LS, gy vf-xln
6	6014-15	0.01		2.5	0.0	88.0		LS, gy vf-xln
7	6015-16	0.01		0.7	0.0	57.1		LS, gy dns
8	6016-20	0.01		0.5	0.0	80.0		LS, gy vf-xln arg
9	6020-25	0.01		2.7	0.0	92.6		LS, gy vf-xln arg
	6025-61							SHALE, calc no analysis
	6061-6101							DRILLED
	6101-6134							SHALE, anhy no analysis

NOTE:

(*) REFER TO ATTACHED LETTER.

(1) INCOMPLETE CORE RECOVERY--INTERPRETATION RESERVED.

(2) OFF LOCATION ANALYSES--NO INTERPRETATION OF RESULTS.

CORE LABORATORIES, INC. *Petroleum Reservoir Engineering*

COMPANY NATOMAS NORTH AMERICA, INC. FIELD WILDCAT FILE RP-3-2849

WELL McCRACKEN MESA 1-25 COUNTY SAN JAUN DATE MARCH 27, 1978

LOCATION NW SE SEC 25 T39S R23E STATE UTAH ELEV. 5175 KB

CORE-GAMMA CORRELATION

VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG

(PATENT APPLIED FOR)

GAMMA RAY

RADIATION INCREASE →

COREGRAPH

TOTAL WATER

PERCENT TOTAL WATER

80 60 40 20 0

PERMEABILITY

MILLIDARCYS

100 50 10 5 1

POROSITY

PERCENT

10 5

OIL SATURATION

PERCENT PORE SPACE

0 20 40 60 80

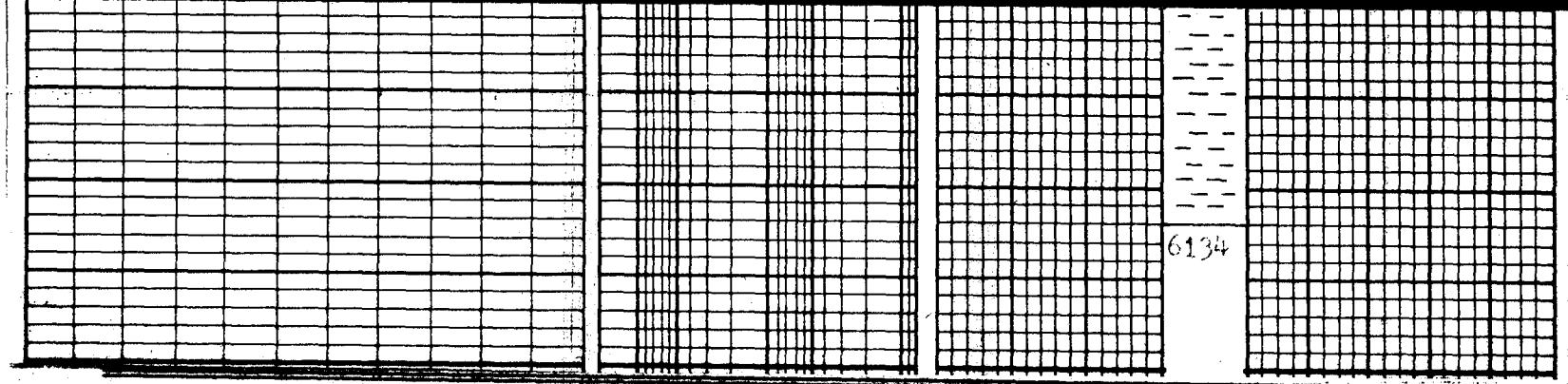
USMAY

6004

6050

6061

6101

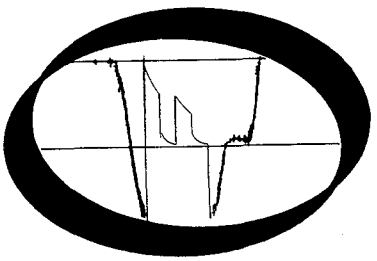


INTERPRETATION OF DATA

6005.0-6025.0 Feet - Non-productive where analyzed due to low permeability and porosity.

These recovery estimates represent theoretical maximum values for solution gas and water drive. They assume that production is started at original reservoir pressure; i.e., no account is taken of production to date or of prior drainage to other areas. The effects of factors tending to reduce actual ultimate recovery, such as economic limits on oil production rates, gas-oil ratios, or water-oil ratios, have not been taken into account. Neither have factors been considered which may result in actual recovery intermediate between solution gas and complete water drive recoveries, such as gas cap expansion, gravity drainage, or partial water drive. Detailed predictions of ultimate oil recovery to specific abandonment conditions may be made in an engineering study in which consideration is given to overall reservoir characteristics and economic factors.

Formation Testing Service Report



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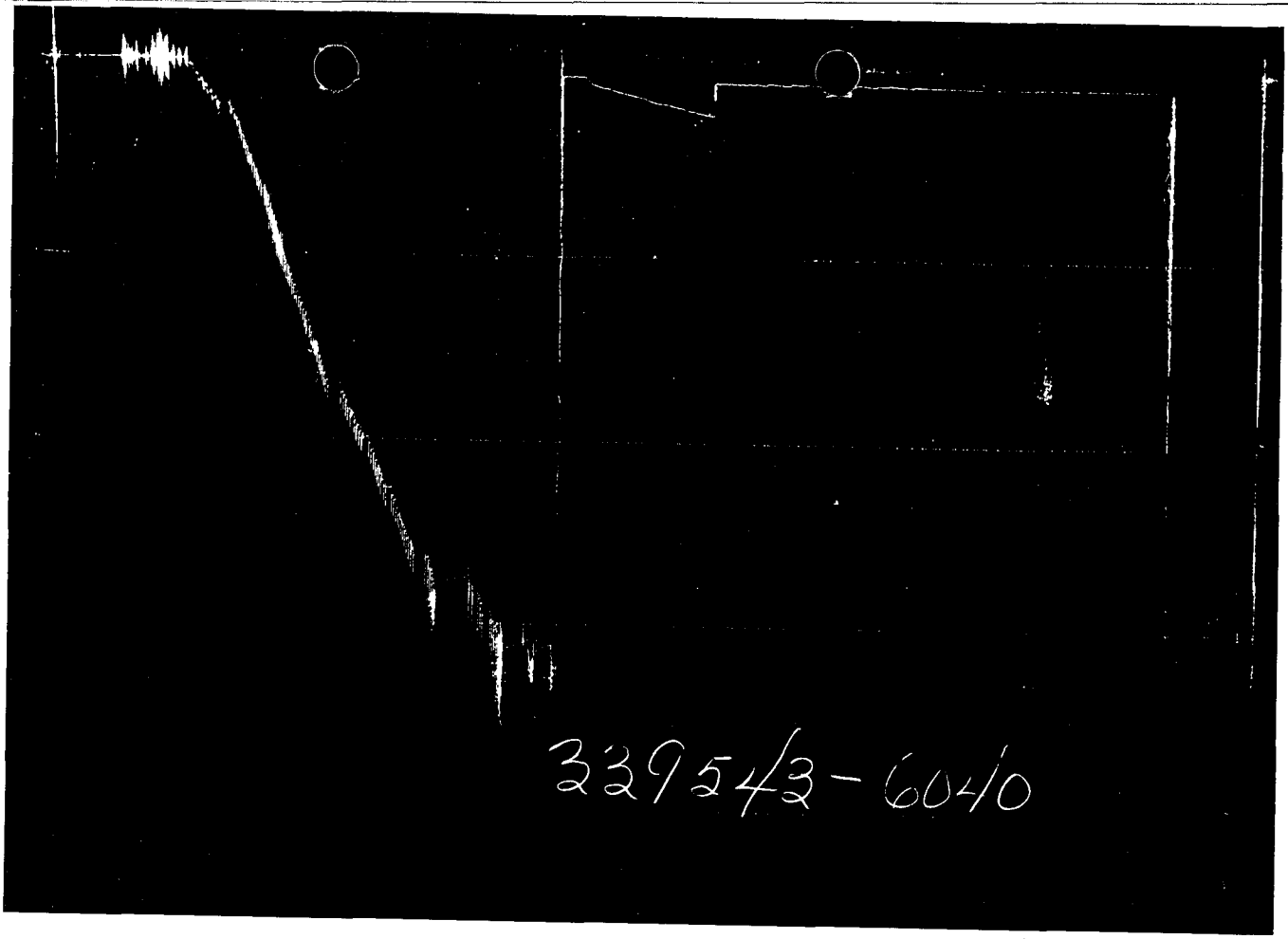
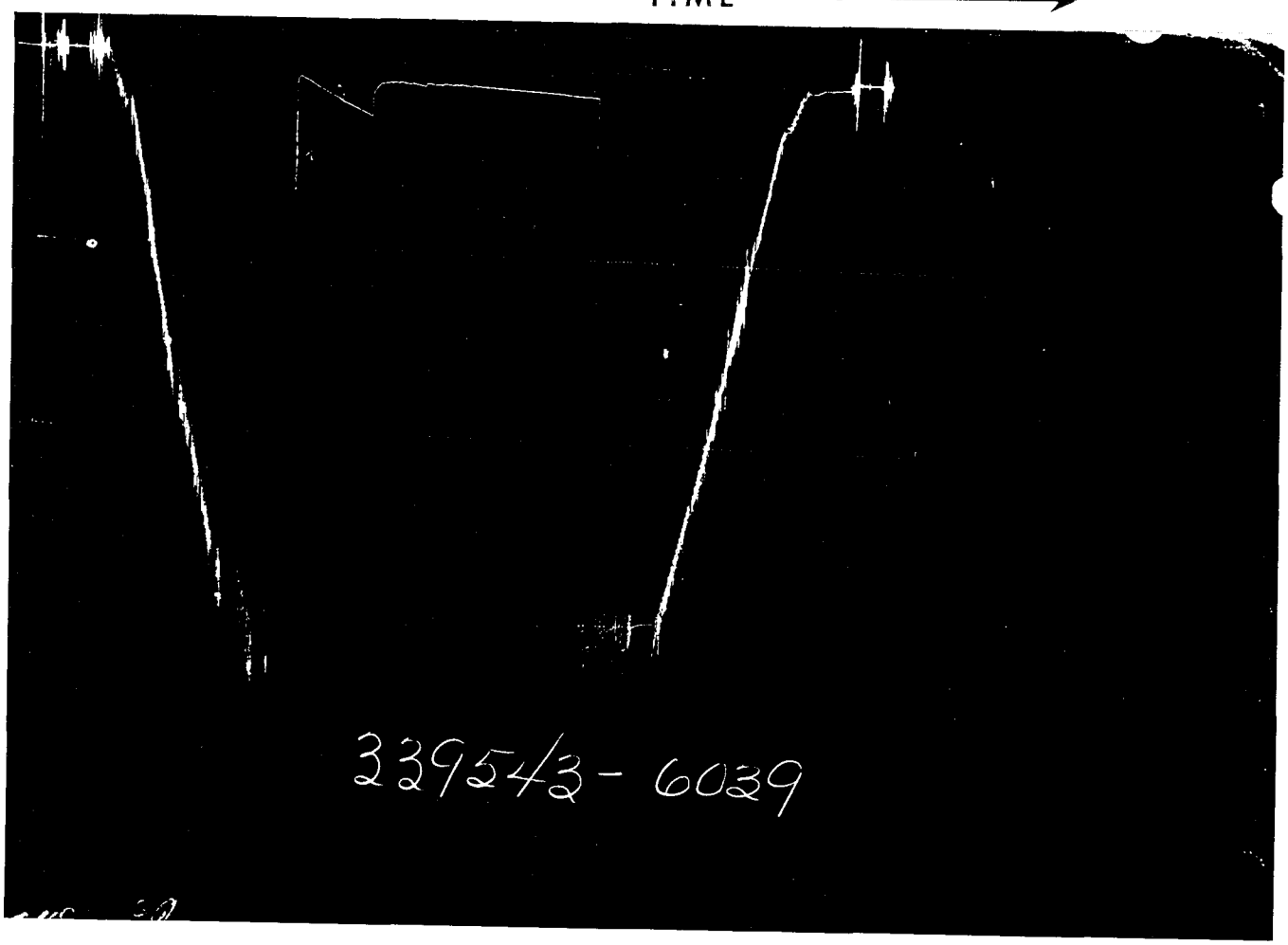
HALLIBURTON SERVICES
DUNCAN, OKLAHOMA



PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA

Sampler Pressure 40 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas
cc. Oil
cc. Water
cc. Mud
Tot. Liquid cc.
Gravity ° API @ °F.
Gas/Oil Ratio cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.		ppm
Recovery Mud	@	°F.		ppm
Recovery Mud Filtrate	@	°F.		ppm
Mud Pit Sample	@60	°F.	140,000	ppm
Mud Pit Sample Filtrate	@	°F.		ppm

Mud Weight 9.3 vis 90 sec

Date 3-28-78 Ticket Number 339334
Kind of Job STRADDLE HOOK WALL Halliburton District FARMINGTON
Tester MR. PAGE Witness MR. QUIGLEY
Drilling Contractor SIGNAL DRILLING COMPANY SM

EQUIPMENT & HOLE DATA

Formation Tested Hermosa Ismay
Elevation - Ft.
Net Productive Interval - Ft.
All Depths Measured From Rotary kelly bushing
Total Depth 6400' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 285' ?? I.D. 2 1/4"
Drill Pipe Length 5987' ?? I.D. 3.826"
Packer Depth(s) 6106-6112-6150' Ft.
Depth Tester Valve 6083' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke 1/4" Bottom Choke 3/4"

Recovered 31 Feet of drilling fluid
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET

TEMPERATURE	Gauge No. 6040	Gauge No. 6039	Gauge No.	TIME
	Depth: 6093 Ft.	Depth: 6146 Ft.	Depth: Ft.	
	12 Hour Clock	24 Hour Clock	Hour Clock	Tool Opened 0150 A.M. P.M.
Est. 150 °F.	Blanked Off no	Blanked Off yes	Blanked Off	Opened Bypass 0700 A.M. P.M.
Actual °F.	Pressures	Pressures	Pressures	

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		2993	3008	2993	3012				
First Period	Flow Initial	1	32	1	31			———	———
	Flow Final	3	35	5	35			15	
	Closed in	5	63	5	64			90	
Second Period	Flow Initial	1	25	1	30			———	———
	Flow Final	3	27	5	31			90	
	Closed in	5	32*	5	49			120	
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic		Chart time expired		2993	2954			———	———

*Read at the end of approximately 45 minutes when chart time apparently expired.

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 SM 9/76

Legal Location Sec. - Twp. - Rng. SEC 25 39S-23
Lease Name MESA UNIT
Well No. 1-25
Test No. 4
Tested Interval 6112-6150'
Field Area WILDCAT
County SAN JUAN
State UTAH
Lease Owner/Company Name NATOMAS NORTH AMERICA INCORPORATED
Mea. From Tester Valve

FEDERAL MC CRAKEN

14

Casing perfs.____ Bottom choke____ Surf. temp.____ °F Ticket No. 339334

Gas gravity____ Oil gravity____ GOR____

Spec. gravity____ Chlorides____ ppm Res.____ @____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
0150	1/4"				Opened tool with fair blow
0154	"				Good blow to bottom of bucket
0205	"				Closed tool
0335	"				Opened with weak blow
0340	"				Weak blow
0345	"				Weak blow
0350	"				Weak blow
0355	"				Weak blow, no gas
0400	"				Weak blow, no gas
0405	"				Weak blow decreasing
0410	"				"
0415	"				"
0420	"				Weak blow, no gas
0425	"				Very weak blow, no gas
0430	"				Very, very weak blow
0435	"				"
0440	"				"
0445	"				"
0450	"				"
0455	"				Very, very weak blow
0500	"				Closed tool
0700					Came out of hole with tools.

TICKET NO. 339334

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6''	2½''	1.20'	
Water Cushion Valve				
Drill Pipe	4½''	3.826''	5987' ??	
Drill Collars	6½''	2 1/4''	285' ??	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5''	.83''	7'	
Hydro-Spring Tester	5''	3/4''	5'	6083'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5''	3''	5'	6093'
Hydraulic Jar	5''	1''	5'	
VR Safety Joint	5''	1''	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4''	1.50''	6'	6106'
Distributor				
Packer Assembly	6 3/4''	1.50''	6'	6112'
Flush Joint Anchor			38'	
Pressure Equalizing Tube	1''	1/2''	42'	
Blanked-Off B.T. Running Case	5''	3''	5'	6146'
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly	6 3/4''	1.50''	6'	6150'
Anchor Pipe Safety Joint				
Side Wall Anchor	7''	1.90''	4'	6154'
Drill Collars				
Flush Joint Anchor				
Blanked-Off B.T. Running Case				
Total Depth				6400'

FORM 187-R1—PRINTED IN U.S.A.

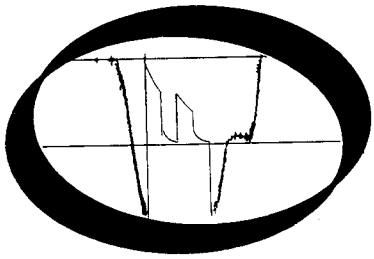
EQUIPMENT DATA

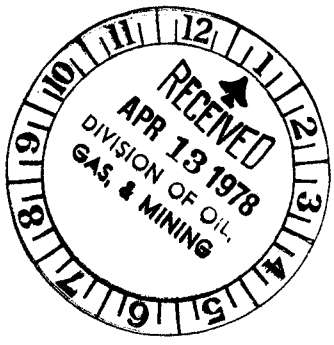
LITTLE'S 96676 75C 8/

14

Formation Testing Service Report

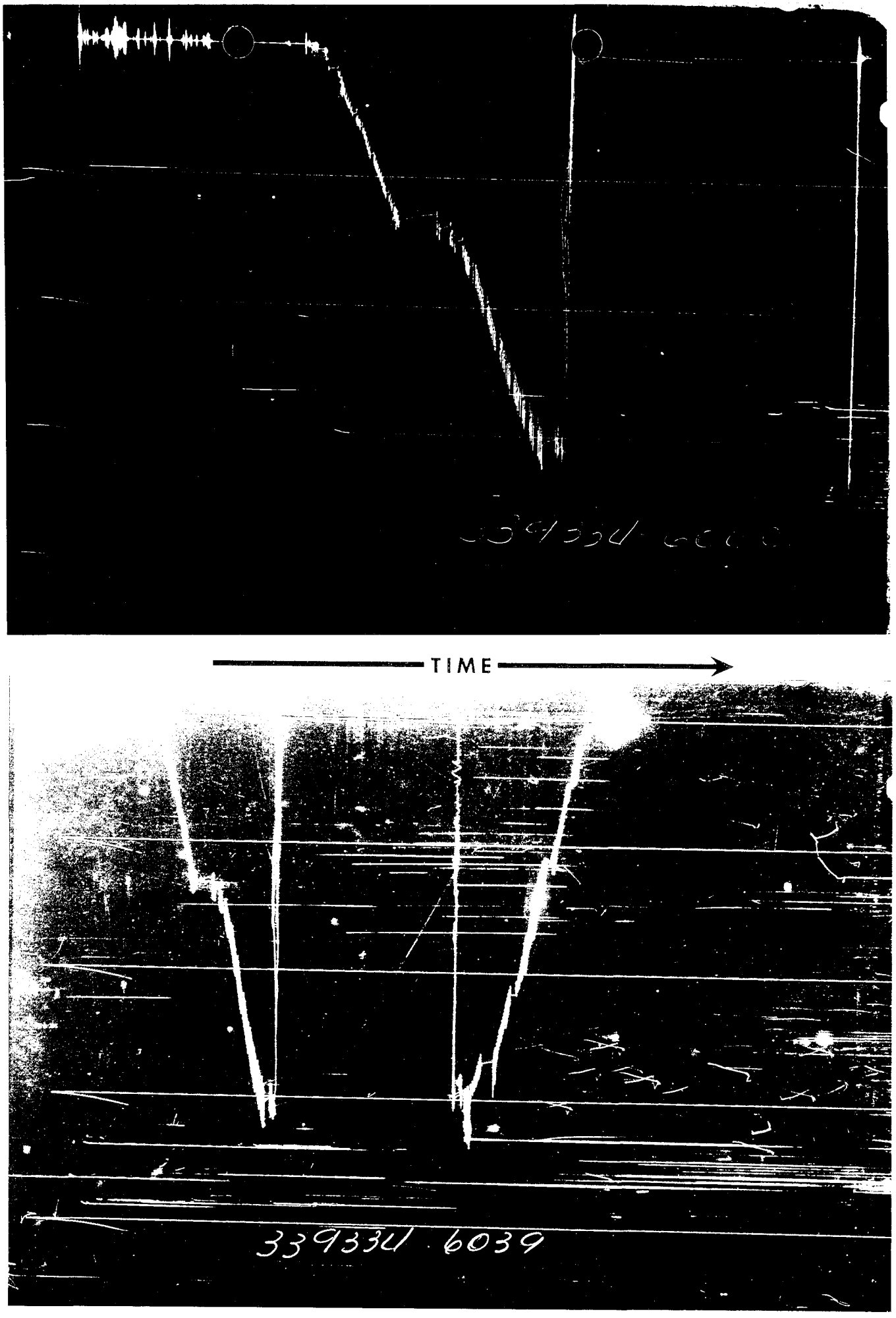
CONFIDENTIAL





HALLIBURTON SERVICES

DUNCAN, OKLAHOMA



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA

Sampler Pressure 25 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas Too small to measure
cc. Oil
cc. Water
cc. Mud 500
Tot. Liquid cc.
Gravity ° API @ °F.
Gas/Oil Ratio cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.		ppm
Recovery Mud	@	°F.		ppm
Recovery Mud Filtrate	@	°F.		ppm
Mud Pit Sample	@	°F.		ppm
Mud Pit Sample Filtrate	@	°F.		ppm

Mud Weight 9.3 vis 90 sec

Date 3-27-78 Ticket Number 339543
Kind of Job OPEN HOLE Halliburton District FARMINGTON
Tester MR. SMITH Witness MR. QUIGLEY
Drilling Contractor SIGNAL DRILLING OCMPANY BJ

EQUIPMENT & HOLE DATA

Formation Tested Desert Creek
Elevation 5175' Ft.
Net Productive Interval 36' Ft.
All Depths Measured From Rotary Kelly Bushing
Total Depth 6400' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 496' I.D. 2.25"
Drill Pipe Length 5796' I.D. 3.826"
Packer Depth(s) 6323' 6329' Ft.
Depth Tester Valve 6307' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke 3/4" Adj. Bottom Choke 3/4"

Recovered 120 Feet of drilling mud.
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET....

TEMPERATURE	Gauge No. 6040		Gauge No. 6039		Gauge No.		TIME	
	Depth: 6311' Ft.		Depth: 6396' Ft.		Depth: Ft.			
	12 Hour Clock		24 Hour Clock		Hour Clock		Tool Opened	A.M. 0050 P.M.
Est. °F.	Blanked Off NO		Blanked Off YES		Blanked Off		Opened Bypass	A.M. 0650 P.M.
Actual 134 °F.	Pressures		Pressures		Pressures			
	Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic	3096	3091	3157	3124				
First Period Flow Initial	54	54	82	93			———	———
First Period Flow Final	54	56	82	110			15	
First Period Closed in	215	253	273	285			75	
Second Period Flow Initial	81	79	109	108			———	———
Second Period Flow Final	81	79	109	108			120	
Second Period Closed in	81	87	109	135			150	
Third Period Flow Initial							———	———
Third Period Flow Final								
Third Period Closed in								
Final Hydrostatic	3096	3007	3157	3041			———	———

Legal Location Sec. - Twp. - Rng. 25 39S 23E
Lease Name MC CRACKEN
Well No. I-25
Test No. 3
Field Area WILDCAT
County SAN JUAN
State UTAH
Meas. From Tester Valve
Tested Interval 6329' to 6400'
Lease Owner/Company Name NOTAMAS OIL COMPANY

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 5M 9/76

14

Casing perfs.____ Bottom choke____ Surf. temp____ °F Ticket No. 339543

Gas gravity____ Oil gravity____ GOR____

Spec. gravity____ Chlorides____ ppm Res.____ @____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1915					Picked up tools and tripped in hole.
0050					Opened tool with a weak blow.
0105					Increased to a fair blow.
0105					Closed tool.
0220					Reopened tool with a fair blow.
0230					Increased to a good blow, continuing
					same throughout flow period.
0420					Closed tool.
0650					Tripped out.

FORM 182-RI—PRINTED IN U.S.A.

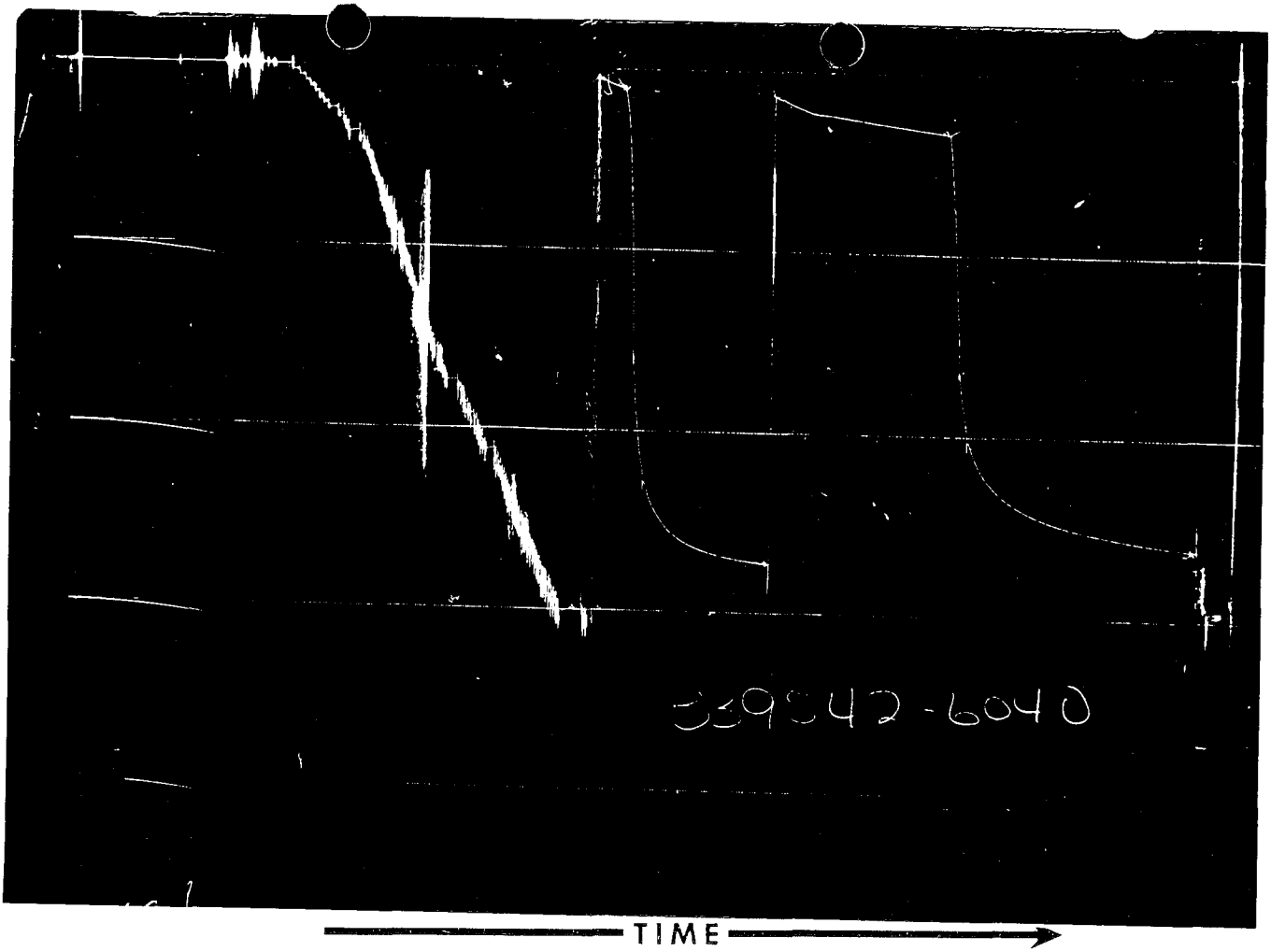
PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

14

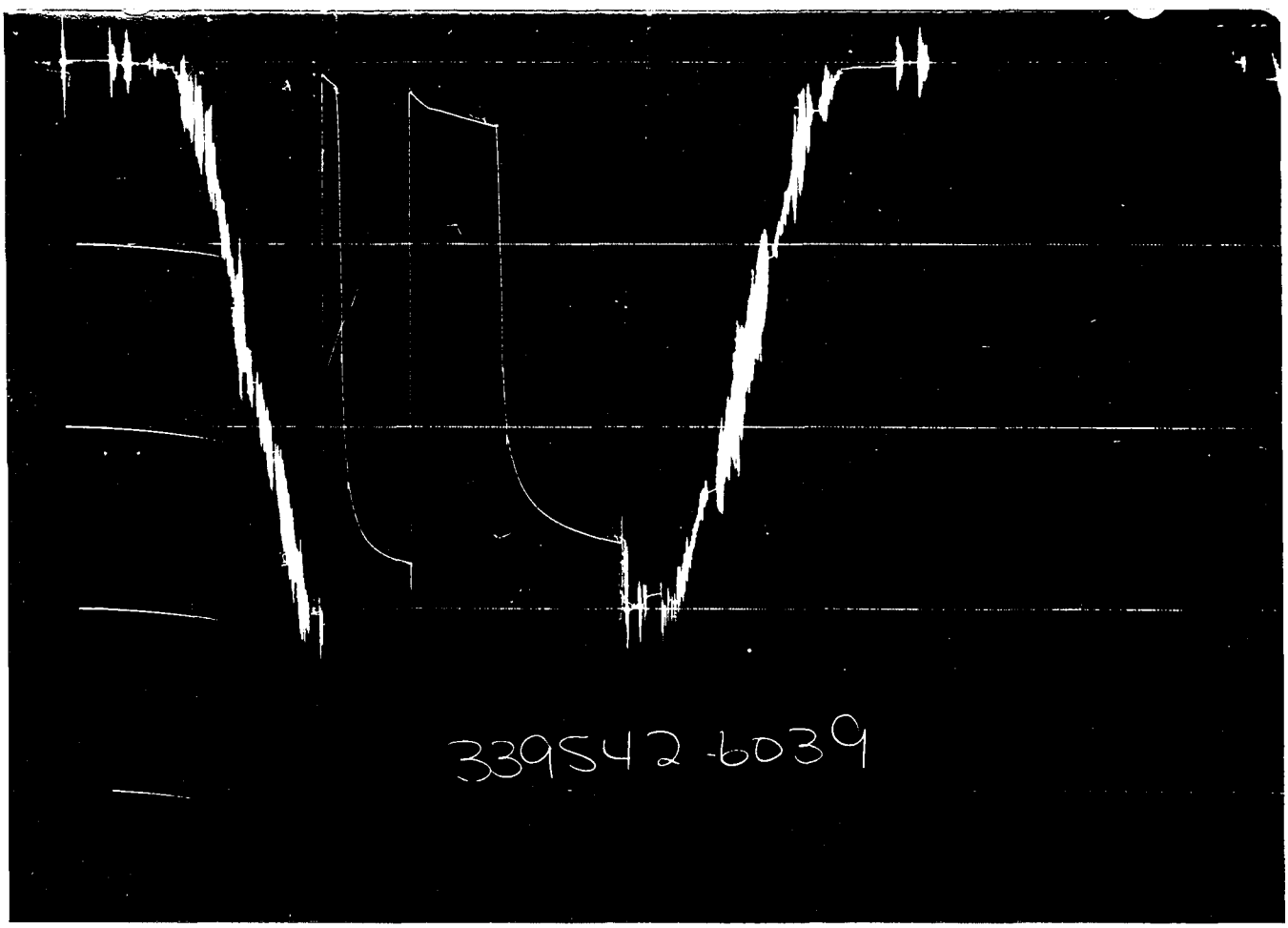
TICKET NO. 339543

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6.00"	3.00"	1.00'	
Water Cushion Valve				
Drill Pipe	4.50"	3.826"	5796'	
Drill Collars	6.00"	2.25"	496'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5.00"		7.00'	6300'
Hydro-Spring Tester	5.00"	.75"	5.00'	6307'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5.00"		4.00'	6311'
Hydraulic Jar	5.00"	1.00"	6.00'	
VR Safety Joint	5.00"	1.00"	3.00'	
Pressure Equalizing Crossover				
Packer Assembly	6.75"	1.50"	6.00'	6323'
Distributor				
Packer Assembly	6.75"	1.50"	6.00'	6329'
Flush Joint Anchor	5.75"	2.50"	18'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars	6.00"	2.25"	35'	
Flush Joint Anchor	5.75"	2.50"	15'	
Blanked-Off B.T. Running Case	5.75"		4.00'	6396'
Total Depth				6400'



PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA

Sampler Pressure 300 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas *
cc. Oil 300
cc. Water 1900
cc. Mud
Tot. Liquid cc. 2200
Gravity ° API @ °F.
Gas/Oil Ratio cu. ft./bbl.

	RESISTIVITY			CHLORIDE CONTENT
Recovery Water	.12	@ 70	°F.	13,437 ppm
Recovery Mud		@	°F.	ppm
Recovery Mud Filtrate		@	°F.	ppm
Mud Pit Sample		@	°F.	ppm
Mud Pit Sample Filtrate		@	°F.	ppm

Mud Weight 9.2 vis 55 sec

Date 3-25-78 Ticket Number 339542
Kind of Job OPEN HOLE TEST Halliburton District FARMINGTON
Tester G.K. SMITH Witness D. QUIGLEY
Drilling Contractor SIGNAL DRILLING COMPANY PW

EQUIPMENT & HOLE DATA

Formation Tested Desert Creek
Elevation Ft.
Net Productive Interval 40' Ft.
All Depths Measured From Rotary Kelly Bushing
Total Depth 6335' Ft.
Main Hole/Casing Size 7 7/8"
Drill Collar Length 531' I.D. 2 1/4"
Drill Pipe Length 5723' I.D. 3.826"
Packer Depth(s) 6285' - 6291' Ft.
Depth Tester Valve 6269' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve Surface Choke 3/4"-Adj. Bottom Choke 3/4"

Recovered 180 Feet of oil and gas cut mud.
Recovered 475 Feet of salt water.
Recovered Feet of
Recovered Feet of
Recovered Feet of

Remarks SEE PRODUCTION TEST DATA SHEET.....

* = Too small to measure.

TEMPERATURE	Gauge No. 6040 Depth: 6273 Ft.	Gauge No. 6039 Depth: 6331 Ft.	Gauge No. Depth: Ft.	TIME
	12 Hour Clock	24 Hour Clock	Hour Clock	Tool Opened A.M.
Est. °F.	Blanked Off NO	Blanked Off Yes	Blanked Off	2330 P.M.
Actual 126 °F	Pressures	Pressures	Pressures	Opened Bypass A.M. 0530 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		2960	2984	3034	3015				
First Period	Flow Initial	53	54	68	65			———	———
	Flow Final	134	111	163	131			15	16
	Closed in	2717	2724	2761	2749			90	89
Second Period	Flow Initial	139	143	163	170			———	———
	Flow Final	335	327	354	354			105	105
	Closed in	2636	2609	2638	2638			150	150
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic		2948	2961	2993	2993			———	———

Legal Location Sec. - Twp. - Rng. 25 - 39 S - 23 E
Lease Name MC CRACKEN
Well No. I-25
Test No. 2
Tested Interval 6291' - 6335'
Field Area ANETH
Mea. From Tester Valve
County SAN JUAN
State UTAH
Lease Owner/Company Name NATOMAS OIL COMPANY

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 3M 9/76

14

Casing perfs. _____ Bottom choke _____ Surf. temp. _____ °F Ticket No. 339542

Gas gravity _____ Oil gravity _____ GOR _____

Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
1900					Picked up and tripped in hole with tools.
2330					Opened tool with a weak blow, increasing
					to a good blow - continued throughout
					flow period.
2345					Closed tool.
0115					Reopened tool with a weak blow.
0125					Blow increased to a good blow - continued
					throughout test.
0300					Closed tool.
0530					Tripped out.

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

Gauge No.	6040	Depth	6273'	Clock No.	10445	12 hour	Ticket No.	339542

	First Flow Period		First Closed In Pressure			Second Flow Period		Second Closed In Pressure			Third Flow Period		Third Closed In Pressure		
	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.	Time Defl. .000"	PSIG Temp. Corr.	Time Defl. .000"	Log $\frac{t+\theta}{\theta}$	PSIG Temp. Corr.
0	.000	54	.000		111	.000	143	.000		327					
1	.0070*	55	.0347**		769	.1034***	201	.0692		1852					
2	.0280	67	.0763		2092	.2275	237	.1384		2181					
3	.0490	80	.1179		2364	.3517	260	.2076		2303					
4	.0700	91	.1595		2474	.4758	284	.2768		2376					
5	.0910	101	.2011		2547	.5999	307	.3460		2424					
6	.1120	111	.2427		2595	.7240	327	.4152		2462					
7			.2843		2626			.4844		2492					
8			.3259		2650			.5536		2515					
9			.3675		2669			.6228		2534					
10			.4091		2684			.6920		2550					
11			.4507		2696			.7612		2566					
12			.4923		2705			.8304		2578					
13			.5339		2714			.8996		2592					
14			.5755		2720			.9688		2601					
15			.6170		2724			1.0380		2609					

Gauge No.	6039		Depth	6331'		Clock No.	9756	24 hour						
0	.000	65	.000		131	.000	170	.000		354					
1	.0034*	71	.0168**		840	.0501***	228	.0335		1877					
2	.0138	84	.0370		2119	.1103	264	.0669		2206					
3	.0241	97	.0571		2384	.1705	287	.1004		2329					
4	.0344	109	.0773		2497	.2307	311	.1339		2398					
5	.0447	121	.0974		2572	.2908	332	.1674		2449					
6	.0550	131	.1176		2616	.3510	354	.2008		2488					
7			.1378		2648			.2343		2515					
8			.1579		2672			.2678		2540					
9			.1781		2690			.3012		2560					
10			.1982		2706			.3347		2577					
11			.2184		2717			.3682		2593					
12			.2386		2727			.4016		2607					
13			.2587		2736			.4351		2617					
14			.2789		2743			.4686		2628					
15			.2990		2749			.5020		2638					
Reading Interval	3		6			18		10							Minutes

REMARKS: * - 1 minute interval. ** = 5 minute interval. *** = 15 minute interval.

SPECIAL PRESSURE DATA

TICKET NO. 339542

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6"	3"	1'	
Water Cushion Valve				
Drill Pipe	4 1/2"	3.826"	5723'	
Drill Collars	6"	2 1/4"	531'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5"	3/4"	7'	6262'
Hydro-Spring Tester	5"	3/4"	5'	6269'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"		4'	6273'
Hydraulic Jar	5"	1"	6'	
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	6 3/4"	1 1/2"	6'	6285'
Distributor				
Packer Assembly	6 3/4"	1 1/2"	6'	6291'
Flush Joint Anchor				
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars				
Flush Joint Anchor	5 3/4"	2 1/2"	40'	
Blanked-Off B.T. Running Case	5 3/4"		4'	6331'
Total Depth				6335'

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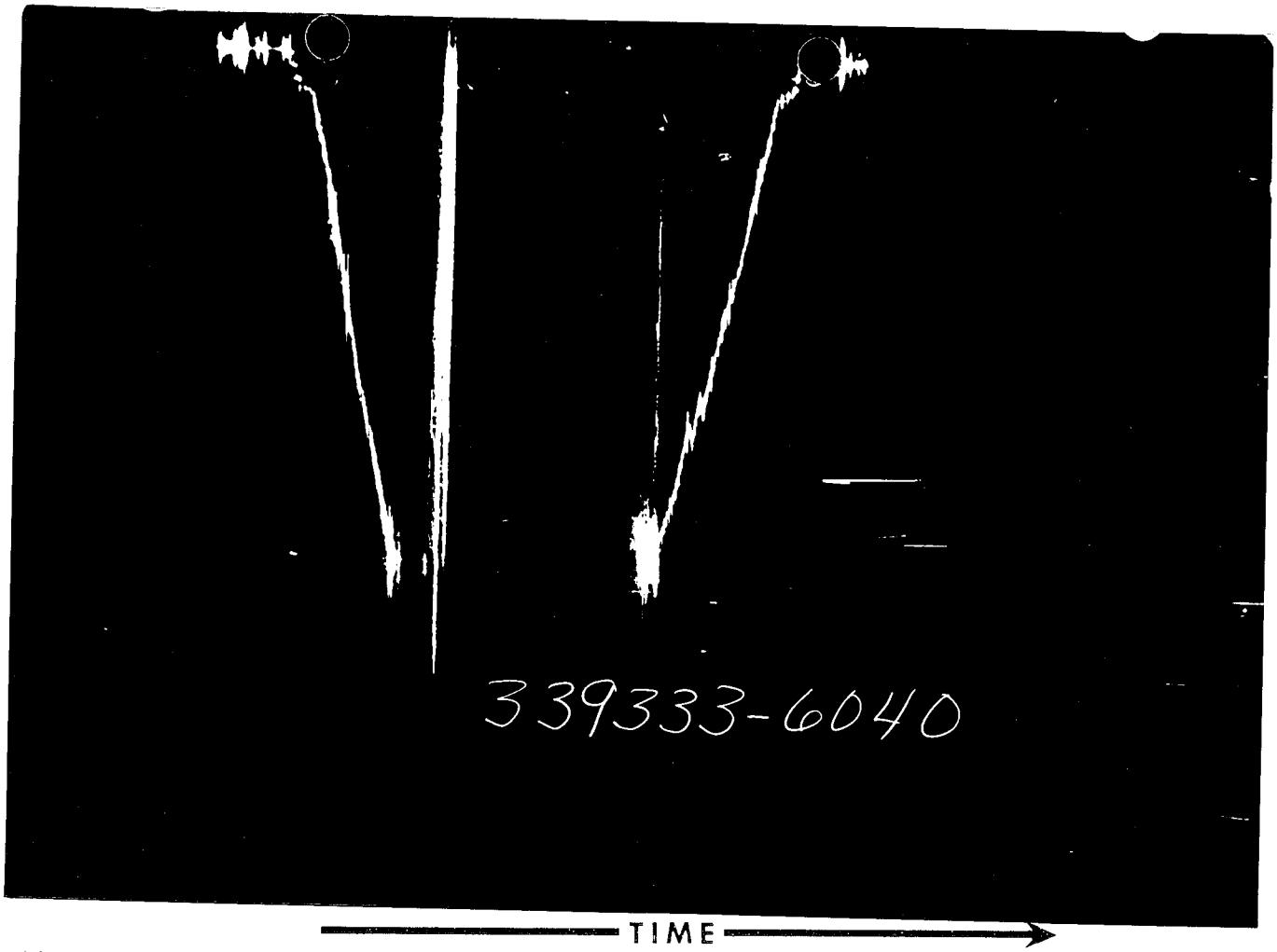
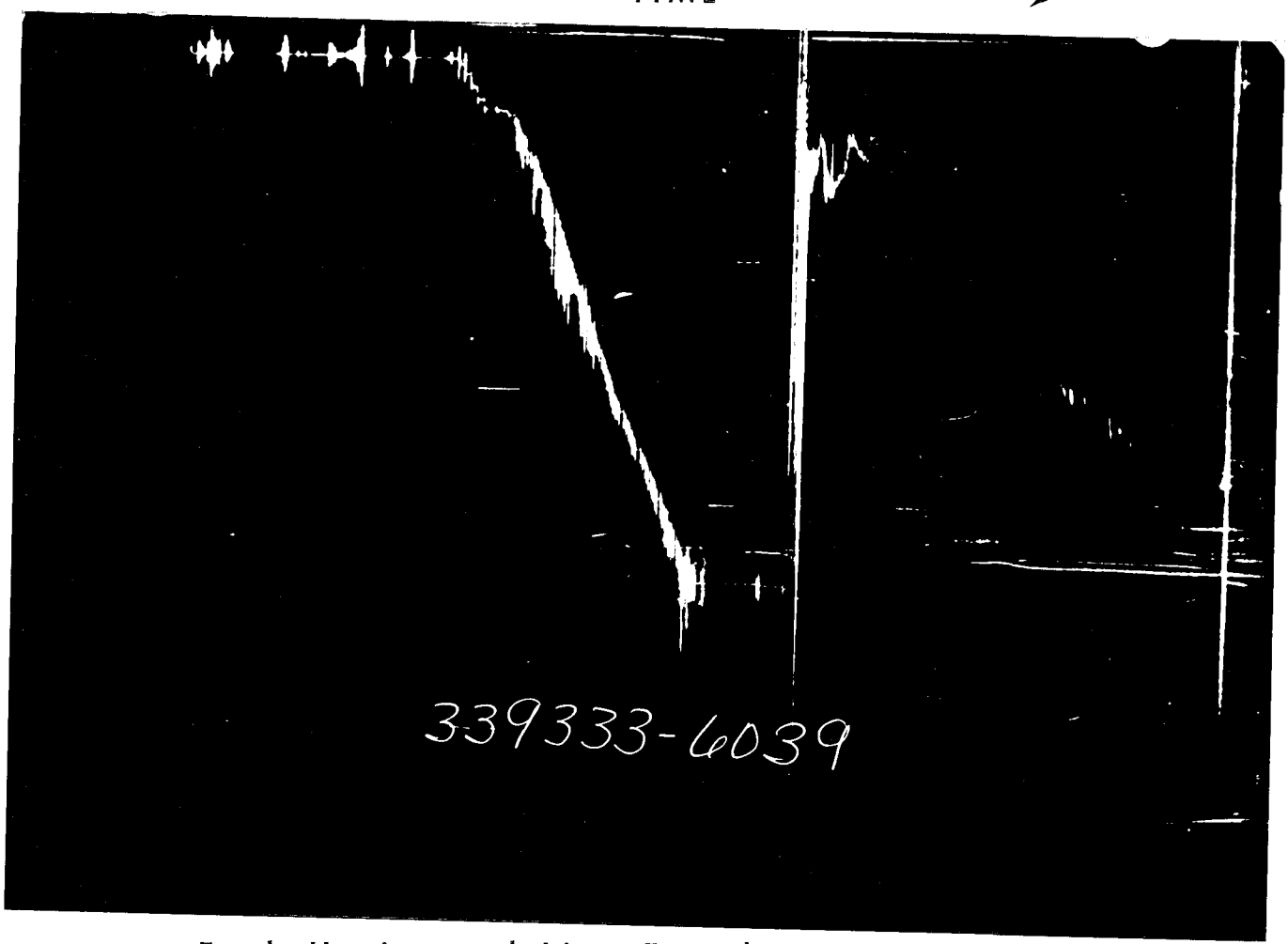
EQUIPMENT DATA

LITTLE'S 96676 75C 8/74



PRESSURE

TIME



Each Horizontal Line Equal to 1000 p.s.i.

FLUID SAMPLE DATA

Sampler Pressure 200 P.S.I.G. at Surface
Recovery: Cu. Ft. Gas
cc. Oil
cc. Water
cc. Mud 2240 Oil and gas cut
Tot. Liquid cc. 2240
Gravity ° API @ °F.
Gas/Oil Ratio cu. ft./bbl.

		RESISTIVITY		CHLORIDE CONTENT	
Recovery Water	@ °F.		ppm		
Recovery Mud	@ 60 °F.	200	ppm		
Recovery Mud Filtrate	@ °F.		ppm		
Mud Pit Sample	@ 60 °F.	200	ppm		
Mud Pit Sample Filtrate	@ °F.		ppm		

Mud Weight 9.3 vis 44 sec

Date 3-21-78 Ticket Number 339333
Kind of Job OPEN HOLE Halliburton District FARMINGTON
Tester MR. PAGE Witness MR. QUIGLEY
Drilling Contractor SIGNAL DRILLING COMPANY BC

EQUIPMENT & HOLE DATA

Formation Tested Hermosa - Ismay
Elevation Ft.
Net Productive Interval Ft.
All Depths Measured From Rotary Kelly Bushing
Total Depth 6101' Ft.
Main Hole/Casing Size 8 5/8"
Drill Collar Length 438' I.D. 3.826"
Drill Pipe Length 5495' I.D. 2¼"
Packer Depth(s) 5964' - 5970' Ft.
Depth Tester Valve 5940' Ft.

Cushion TYPE AMOUNT Ft. Depth Back Pres. Valve
Surface Choke ¼" Bottom Choke 3/4"

Recovered 531 Feet of drilling fluid.
Recovered Feet of
Recovered Feet of
Recovered Feet of
Recovered Feet of

Mea. From Tester Valve

Remarks Charts indicate partial plugging of anchor perforations during initial flow period. SEE PRODUCTION TEST DATA SHEET.

Q = Questionable UTR = Unable to read CTE = Chart time expired after approximately 214 minutes of second closed in pressure on B.T. # 6039

TEMPERATURE	Gauge No. 6040 Depth: 5950' Ft.	Gauge No. 6039 Depth: 6097' Ft.	Gauge No. Depth: Ft.	TIME
	24 Hour Clock	24 Hour Clock	Hour Clock	Tool Opened 0640 A.M. P.M.
Est. °F.	Blanked Off No	Blanked Off Yes	Blanked Off	Opened A.M.
Actual 130 °F.	Pressures	Pressures	Pressures	Bypass 1110 P.M.

		Field	Office	Field	Office	Field	Office	Reported Minutes	Computed Minutes
Initial Hydrostatic		2853	2866	2939	2937				
First Period	Flow Initial	188	87	409	95-Q			———	———
	Flow Final	214	196	425	375-Q			30	
	Closed in	546	449	561	554			60	
Second Period	Flow Initial	214	201	409	311			———	———
	Flow Final	214	201	428	308			60	
	Closed in	402	398	561	475-CTE			120	
Third Period	Flow Initial							———	———
	Flow Final								
	Closed in								
Final Hydrostatic		2880	UTR	2939	CTE			———	———

Legal Location Sec. - Twp. - Rng. 25 - 34S - 232
Lease Name FED MC CRAKEN
Well No. I-25
Test No. 1
Tested Interval 5970' - 6101'
Lease Owner/Company Name NATOMAS NORTH AMERICA, INCORPORATED
Field Area WILDCAT
County SAN JUAN
State UTAH

FORM 181-R2—PRINTED IN U.S.A.

FORMATION TEST DATA

LITTLE'S 102548 5M 9/76

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Casing perfs. _____ Bottom choke _____ Surf. temp _____ °F Ticket No. 339333

Gas gravity _____ Oil gravity _____ GOR _____

Spec. gravity _____ Chlorides _____ ppm Res. _____ @ _____ °F

INDICATE TYPE AND SIZE OF GAS MEASURING DEVICE USED _____

Date Time a.m. p.m.	Choke Size	Surface Pressure psi	Gas Rate MCF	Liquid Rate BPD	Remarks
					Slid through about 20' of fill
0640	1/4"	0			Opened tool with no blow
0650	"	0			No blow
0710	"	0			No blow, closed tool
0810	"	0			Opened tool with no blow
0820	"	0			No blow
0830	"	0			"
0840	"	0			"
0850	"	0			"
0910	"	0			No blow, closed tool
1110					Unseated packer, came out of hole
					It was tight coming out of hole

FORM 182-R1—PRINTED IN U.S.A.

PRODUCTION TEST DATA

LITTLE'S 96672 5M 8/74

TICKET NO. 339333

	O. D.	I. D.	LENGTH	DEPTH
Drill Pipe or Tubing				
Reversing Sub	6½"	2½"	1.20'	
Water Cushion Valve				
Drill Pipe	4½"	3.826"	438'	
Drill Collars	6½"	2¼"	5495'	
Handling Sub & Choke Assembly				
Dual CIP Valve				
Dual CIP Sampler	5"	.83"	7'	
Hydro-Spring Tester	5"	3/4"	5'	5940'
Multiple CIP Sampler				
Extension Joint				
AP Running Case	5"	3"	5'	5950'
Hydraulic Jar	5"	1"	5'	
VR Safety Joint	5"	1"	3'	
Pressure Equalizing Crossover				
Packer Assembly	7"	1.50"	6'	5964'
Distributor				
Packer Assembly	7"	1.50"	6'	5970'
Flush Joint Anchor	5 3/4"	2½"	10'	
Pressure Equalizing Tube				
Blanked-Off B.T. Running Case				
Drill Collars				
Anchor Pipe Safety Joint				
Packer Assembly				
Distributor				
Packer Assembly				
Anchor Pipe Safety Joint				
Side Wall Anchor				
Drill Collars	6½"	2¼"	98'	
Flush Joint Anchor	5 3/4"	2½"	20'	
Blanked-Off B.T. Running Case	5 3/4"	3"	4'	6097'
Total Depth				6101'

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EQUIPMENT DATA

LITTLE'S 96676 75C 8/74

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