

P-W

NATIONAL POTASH CO. <sup>Texas</sup> #2 <sup>State</sup> 1-31  
S36-T17N-R26E, Apache County

County Apache

Area \_\_\_\_\_

Lease No. \_\_\_\_\_

Well Name National <sup>Patash</sup> Navajo # 2 State

Location NW NW Sec 36 Twp 17N Range 26E Footage 330 F/WL ; 330 F/WL

Elev 5830 Gr 5835 KB Date 5-14-64 Spud 5-14-64 Completed 5-19-64 Total Abandon 5-19-64 Depth 1572

Contractor Scott Drly. Co - Albuquerque

Casing Size 7" Depth 33' Cement \_\_\_\_\_

4 1/2" 441' \_\_\_\_\_

Drilled by Rotary \_\_\_\_\_  
Cable Tool \_\_\_\_\_

Production Horizon \_\_\_\_\_

Initial Production DEA

REMARKS

Top Coconino 950'  
top Salt 1418'

Elec \_\_\_\_\_  
Logs \_\_\_\_\_  
Applic. \_\_\_\_\_  
to Plug \_\_\_\_\_  
Plugging \_\_\_\_\_  
Record \_\_\_\_\_  
Completion \_\_\_\_\_  
Report \_\_\_\_\_

Sample Log X  
Sample Descript. \_\_\_\_\_  
Sample Set X P-1398  
Core Analysis \_\_\_\_\_  
DSTs \_\_\_\_\_

Water well accepted by \_\_\_\_\_

Bond Co. & No. \_\_\_\_\_

Bond Am't \$ \_\_\_\_\_ Canceled \_\_\_\_\_ Date \_\_\_\_\_  
Organization Report \_\_\_\_\_

Filing Receipt \_\_\_\_\_ Dated \_\_\_\_\_ Well Book \_\_\_\_\_ Plat Book \_\_\_\_\_

API No. 02-001-05352 Loc. Plat \_\_\_\_\_ Dedication \_\_\_\_\_

Permit Number None Date Issued \_\_\_\_\_

# 1-31

**WELL COMPLETION OR RECOMPLETION REPORT AND WELL LOG**

DESIGNATE TYPE OF COMPLETION:

New Well  Work-Over  Deepen  Plug Back  Same Reservoir  Different Reservoir  Oil  Gas  Dry

DESCRIPTION OF WELL AND LEASE

Operator National Potash Co. Address Carlsbad, New Mexico

Lease Name \_\_\_\_\_ Well Number 2 Field & Reservoir Black Mesa

Location 20 mi. S. of Navajo, Arizona Sec.—TWP—Range or Block & Survey 36-17N.-26E.

County Apache Permit number \_\_\_\_\_ Date Issued \_\_\_\_\_ Previous permit number \_\_\_\_\_ Date Issued \_\_\_\_\_

Date spudded May 11, 1964 Date total depth reached May 19, 1964 Date completed, ready to produce \_\_\_\_\_ Elevation (DF, RKB, RT or Gr.) \_\_\_\_\_ Elevation of casing hd. flange \_\_\_\_\_ feet

Total depth \_\_\_\_\_ P.B.T.D. \_\_\_\_\_ Single, dual or triple completion? \_\_\_\_\_ If this is a dual or triple completion, furnish separate report for each completion.

Producing interval (s) for this completion Drilled for potash only Rotary tools used (Interval) 0-1572.5 Cable tools used (Interval) None

Was this well directionally drilled? No Was directional survey made? \_\_\_\_\_ Was copy of directional survey filed? \_\_\_\_\_ Date filed \_\_\_\_\_

Type of electrical or other logs run (check logs filed with the commission) None Date filed \_\_\_\_\_

CASING RECORD

Casing (report all strings set in well—conductor, surface, intermediate, producing, etc.)

Purpose	Size hole drilled	Size casing set	Weight (lb./ft.)	Depth set	Sacks cement	Amt. pulled
Potash Expl.	8 3/4"	7"		33' K.B.	None	33
Potash Expl.	7"	4 1/2"		13 1/2'	None	900

TUBING RECORD

LINER RECORD

Size in.	Depth set ft.	Packer set at ft.	Size in.	Top ft.	Bottom ft.	Sacks cement	Screen (ft.)

PERFORATION RECORD

ACID, SHOT, FRACTURE, CEMENT SQUEEZE RECORD

Number per ft.	Size & type	Depth Interval	Am't. & kind of material used	Depth Interval

INITIAL PRODUCTION

Date of first production \_\_\_\_\_ Producing method (Indicate if flowing, gas lift or pumping—if pumping, show size & type of pump:)

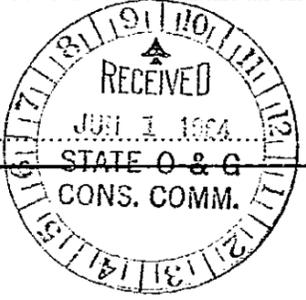
Date of test \_\_\_\_\_ Hrs. tested \_\_\_\_\_ Choke size \_\_\_\_\_ Oil prod. during test \_\_\_\_\_ Gas prod. during test \_\_\_\_\_ Water prod. during test \_\_\_\_\_ Oil gravity \_\_\_\_\_ ° API (Corr)

Tubing pressure \_\_\_\_\_ Casing pressure \_\_\_\_\_ Cal'd rate of Production per 24 hrs. \_\_\_\_\_ Oil \_\_\_\_\_ Gas \_\_\_\_\_ Water \_\_\_\_\_ Gas-oil ratio \_\_\_\_\_

Disposition of gas (state whether vented, used for fuel or sold):

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the.....representative.....of the  
National Potash Co......(company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Date May 26, 1964



Signature A. A. Gustafson

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION  
 Well Completion or Recompletion Report and Well Log  
 Form No. P-7 File two copies

**DETAIL OF FORMATIONS PENETRATED**

Formation	Top	Bottom	Description*
Coconino	950	1290	
<del>XXXXXXXXXXXXXXXXXXXX</del>	<del>XXXXXXXXXXXX</del>		
Top of salt	1118		

\* Show all important zones of porosity, detail of all cores, and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries.

**INSTRUCTIONS:**

Attach drillers log or other acceptable log of well.

This Well Completion or Recompletion report and well log shall be filed with the State of Arizona Oil & Gas Conservation Commission not later than thirty days after project completion.

**PLUGGING RECORD**

Operator <b>National Potash Co.</b>		Address <b>Carlsbad, New Mexico</b>		
Name of Lease		Well No. <b>2</b>	Field & Reservoir <b>Black Mesa</b>	
Location of Well <b>20 mi. S.W. of Navajo, Arizona</b>		Sec-Twp-Rge or Block & Survey <b>36-17N-26E</b>		County <b>Apache</b>
Application to drill this well was filed in name of <b>Scott Bros.</b>	Has this well ever produced oil or gas <b>No</b>	Character of well at completion (Initial production): Oil (bbbls/day)      Gas (MCF/day)      Dry?		
Date plugged: <b>May 19, 1964</b>	Total depth <b>1572.5</b>	Amount well producing when plugged: Oil (bbbls/day)      Gas (MCF/day)      Water (bbbls/day)		
Name of each formation containing oil or gas. Indicate which formation open to well-bore at time of plugging	Fluid content of each formation	Depth interval of each formation	Size, kind & depth of plugs used. Indicate zones squeeze cemented, giving amount cement.	
<b>Drilled for potash only</b>			<b>1340'-1572'-16 sks. cement</b>	
			<b>960'-Coconino - 8 sks. cement</b>	

**CASING RECORD**

Size pipe	Put in well (ft.)	Pulled out (ft.)	Left in well (ft.)	Give depth and method of parting casing (shot, ripped etc)	Packers and shoes
7"	33	33	0		
4 1/2"	1347	900	447		

Was well filled with mud-laden fluid, according to regulations?       Indicate deepest formation containing fresh water.

**NAMES AND ADDRESSES OF ADJACENT LEASE OPERATORS OR OWNERS OF THE SURFACE**

Name	Address	Direction from this well:

In addition to other information required on this form, if this well was plugged back for use as a fresh water well, give all pertinent details of plugging operations to base of fresh water sand, perforated interval to fresh water sand, name and address of surface owner, and attach letter from surface owner authorizing completion of this well as a water well and agreeing to assume full liability for any subsequent plugging which might be required.

Use reverse side for additional detail  
File this form in duplicate with the State of Arizona Oil & Gas Conservation Commission

CERTIFICATE: I, the undersigned, under the penalty of perjury, state that I am the..... of the..... (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

May 14, 1964  
Date

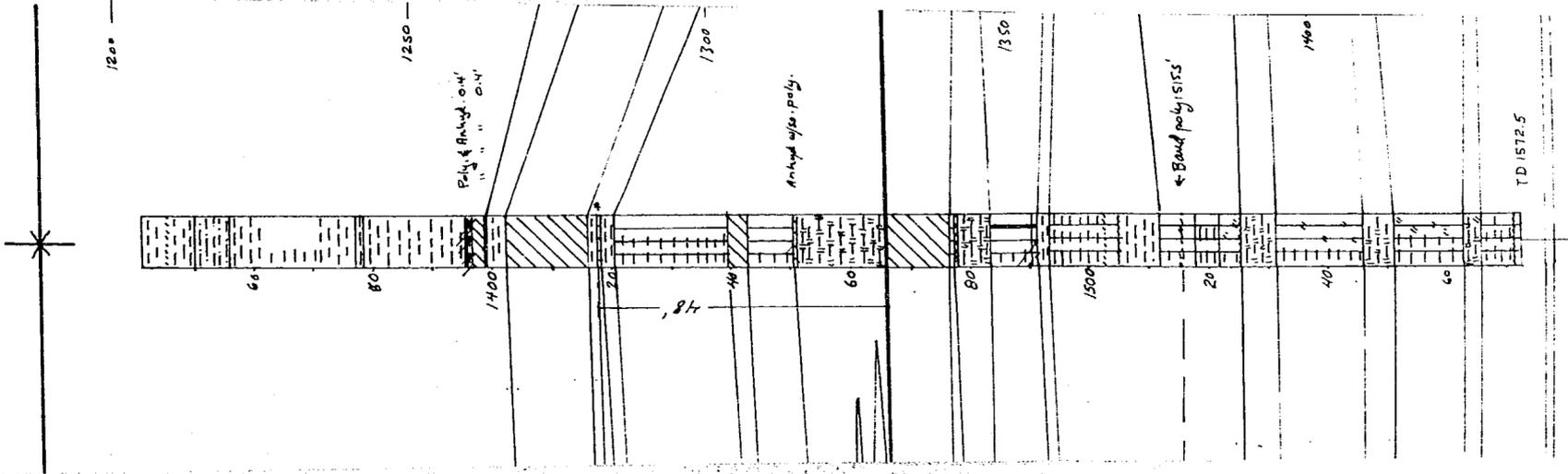


*Arthur J. [Signature]*  
Signature

STATE OF ARIZONA OIL & GAS  
CONSERVATION COMMISSION

#1-31

NATIONAL POTASH NAVAJO #2  
36-17N-26E  
EVY. 5930 GR.



36-17N-26E  
National Coal & Coke Co.  
#2  
COURY

NATIONAL NAVAJO NO. 2

DATA SHEET

Hole: National Navajo No. 2

Location: Sec. 36, R. 26E., T. 17N. - 330' S. and 330' E. of N.W. corner,  
Approx. 20 miles south of Navajo, Arizona. - 25 by roads

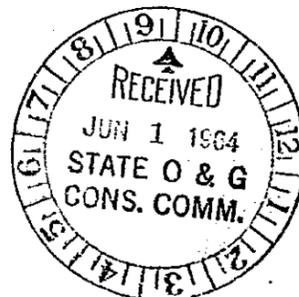
Elevation: Ground 5830  
KB 5835

Dates: Spudded May 14, 1964  
Completed drilling May 19, 1964 plugging May 19, 1964

Contractors: Surveying - Lacey C. Greer Eng. Co. - Holbrook, Ariz. Box 476  
Drilling - Scott Bros. Drilling Co. - Albuquerque, New Mex.  
Logging - A. A. Gustafson - Port Sulphur, La.  
Gamma Ray Logging - none

Drilling: Rig - Gardner Denver 2500  
Rotary rock bit to 1341, 4" O. D. bit to 1572.5  
Hole 3 3/4" to 45' K.B. 7" to 1341'. 4" to 1572.5  
Core - 1 7/8". Rec. above salt 60%, in salt 100%. Fluid -  
diesel oil. Wire line - 10' bar.  
Casing - 7" at 33'. 4 1/2" at 1341. Recovered 933'. Left  
441' of 4 1/2" in hole.

Abandonment: Hole plugged 1340' to 1572' with 16 sks. cement  
Plugged top of Coconino at 960' with 8 sks. cement  
Cemented 4" pipe with name plate - surface



NATIONAL NAVAJO NO. 2

1-31

Top Coconino  
950'  
2

Feet		
0	5	SAND
5	30	SHALE - br. sandy
30	110	SHALE - br. and light gray - pieces of chert
110	150	SHALE - br. and sandy
150	280	SHALE - br. with some light gray beds. Lost circ. 164'
280	310	SHALE - gray - dark. Chert pebbles
310	390	SHALE - gray light and dark - some brown
390	410	SHALE - br. and sandy
410	500	SHALE - br. and light gray - few chert pebbles
500	730	SHALE - gray and brown few chert pebbles. Lost circ. 585'
730	800	SHALE - brown
800	920	SHALE - brown and gray
920	950	SHALE - brown - sandy
950	1290	SANDSTONE - Coconino buff - 1280'-1300' lost
1290	1340	SHALE - brown and gray

Top SALT  
1418  
2

From	To	Ft.	
1341	1345	4.0	SHALE - br. some gray stringers and anhyd. blebs Core Recovery 3.2'
1345	1350	5.0	SHALE - br. some gray gray anhyd. 3" band at 1345.2-.5. Core re- covery 1345-55. 2.3'
1350	1356	6.0	SILTSTONE - br. - gray shale partings
1356	1377	21.0	SHALE - br. Recovery 3.6' from 1355-1371.
1377	1378.5	1.5	SHALE - gray
1378.5	1395.4	16.9	SHALE - brown
1395.4	1395.8	0.4	POLYHALITE & ANHYDRITE - brown and gray
1395.8	1396.7	1.1	SHALE - brown
1396.7	1398.7	2.0	ANHYDRITE - gray
1398.7	1399.1	0.4	POLYHALITE & ANHYDRITE - brown and gray
1399.1	1402.3	3.2	SHALE - brown
1402.3	1416.0	13.7	ANHYDRITE - gray, mottled
1416.0	1416.4	.4	SHALE - gray
1416.4	1417.7	1.3	SHALE - brown
1417.7	1417.9	0.2	HALITE - clear
1417.9	1420.5	2.6	SHALE - br. - halite cl. 15%
1420.5	1439.5	19.0	HALITE - br. shale 20% - Few anhyd. blebs. bottom 2' almost clear of shale
1439.5	1442.9	3.4	ANHYDRITE - gray - halite incl.
1442.9	1450.5	7.6	HALITE - clear medium gray br. shale inc.
1450.5	1450.9	0.4	ANHYDRITE - some polyhalite - halite clear
1450.9	1466.0	15.1	SHALE - br. - halite. From 3.5' to 4.8' from top. orange halite with some anhydrite in 45° fault some greenish shale 1445.5 - 1446.5

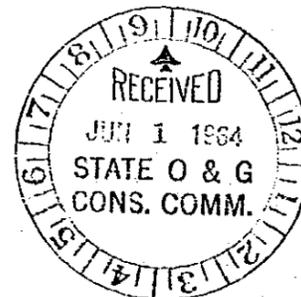


National Navajo No. 2 (cont.)

From	To	Ft.	
1476	1476.4	10.4	ANHYDRITE - mottled and solid- halite incl.
1476.4	1477.3	.9	HALITE - clear
1477.3	1477.7	.4	ANHYDRITE - gray
1477.7	1483.2	5.5	SHALE - br. halite incl. 30% some gr. sh.
1483.2	1491.4	8.2	HALITE - cl. med. grained - br. shale incl.
1491.4	1493.6	2.2	SHALE - br. - halite cl. coarse grained
1493.6	1502.7	9.1	HALITE - cl. medium to coarse grained 25% br. shale.
1502.7	1504.9	2.2	HALITE - cl. to orange coarse grained - gray anhyd. stringers top and bottom
1504.9	1511.8	6.9	SHALE - brown
1511.8	1517.9	6.1	HALITE - cl. to pinkish, orange - med. to coarse grained few br. sh. incl. Band of polyhalite at 1515.
1517.9	1521.7	3.8	HALITE - 20% br. sh. incl. and bands halite med. grained some gray sh.
1521.7	1525.2	3.5	HALITE - cl. to orange - med to coarse grained - some some br. sh. incl. anhydrite stringers and incl. - anhyd. band at bottom.
1525.2	1531.2	3.0	SHALE - br. light and dark - some gray and gray band top 1". halite 20% fine grained
1531.2	1545.9	14.7	HALITE - cl. med. to coarse grained top 4ft. - 10% br. sh. incl. remainder 2% sh. incl. Anhyd. stringer and incl. Possibly a very few minute sylvite blebs
1545.9	1551.2	5.3	SHALE - br. - incl. of gray - halite 20%
1551.2	1562.9	11.7	HALITE - cl. med. to coarse grained br. sh. incl. 10% Also gray sh. and anhyd. incl. Bottom 18" almost clear.
1562.9	1565.9	3.0	SHALE - br. with top 6" gray. Halite incl. 10% some anhydrite
1565.9	1572.5	6.6	HALITE - cl. med. to coarse grained. Br. sh. incl. and 2 thick bands of br. shale. Considerable anhydrite 18" off bottom.
			TOTAL DEPTH

SUMMARY

Top of salt 1418  
 Top of first KCl zone - none  
 Top of second KCl zone - none  
 Bottom of hole 1572.5 in halite



WELL

National Potash Co. #1 Navajo  
(drilled with rotary)

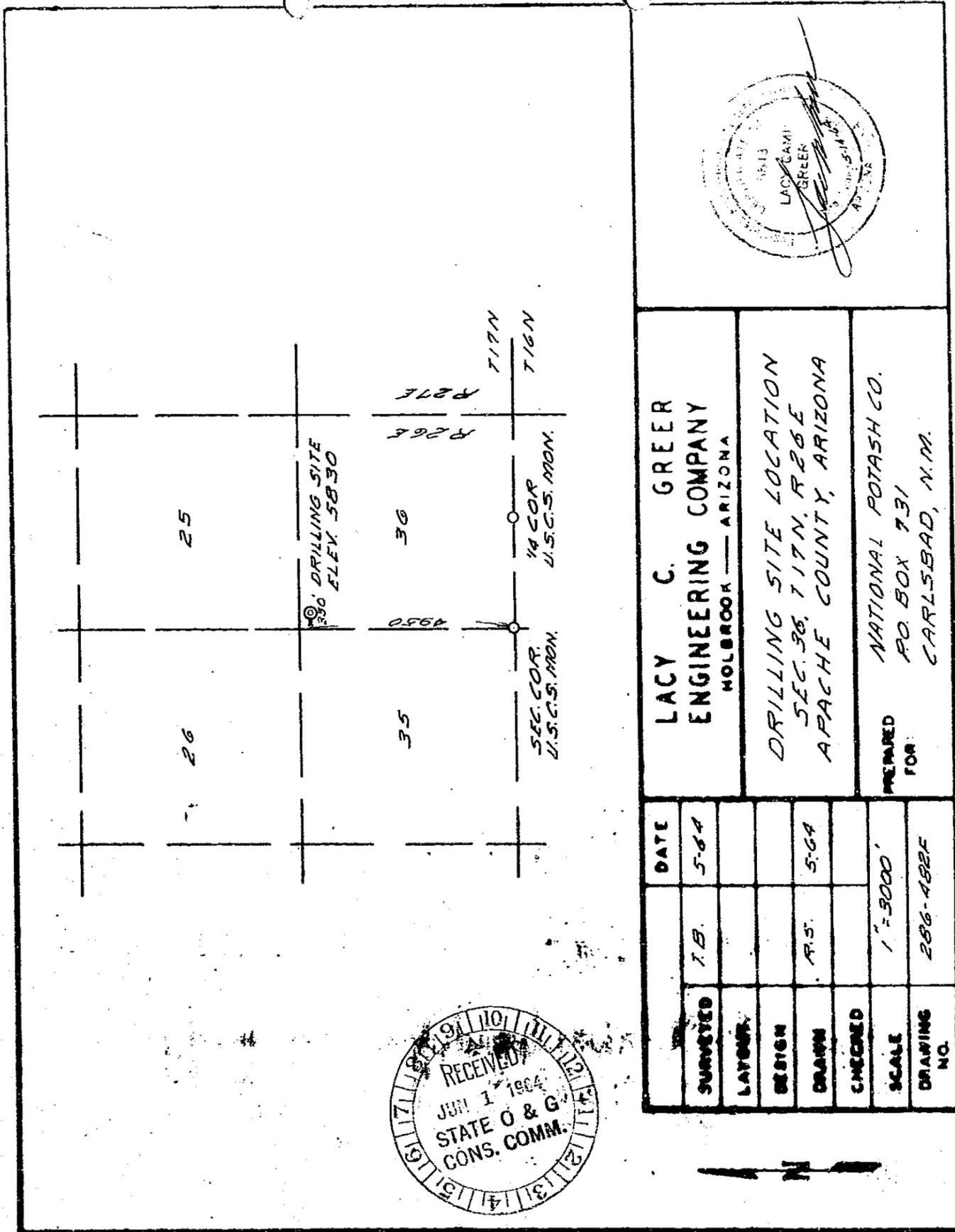
*O+GCC 1-29*

National Potash #2 Navajo  
(drilled with rotary)

*O+GCC 1-31*

Location	Elevation	Tops	Total Depth	Spudded	Plugged	Casing
330 FSL, 330 FEL Sec 16-17N-26E	5780 Gr 5785 KB	Coconino 960' Salt 1336'	1507	5-7-64	5-12-64	7" at 63' 4 1/2" at 1331'
330 FNL, 330 FWL Sec <del>96-26E-17W</del> <i>36-17N-16E</i>	5830 Gr 5835 KB	Coconino 950' Salt 1418'	1572'	5-14-64	5-19-64	7" at 33' 4 1/2" at 441'



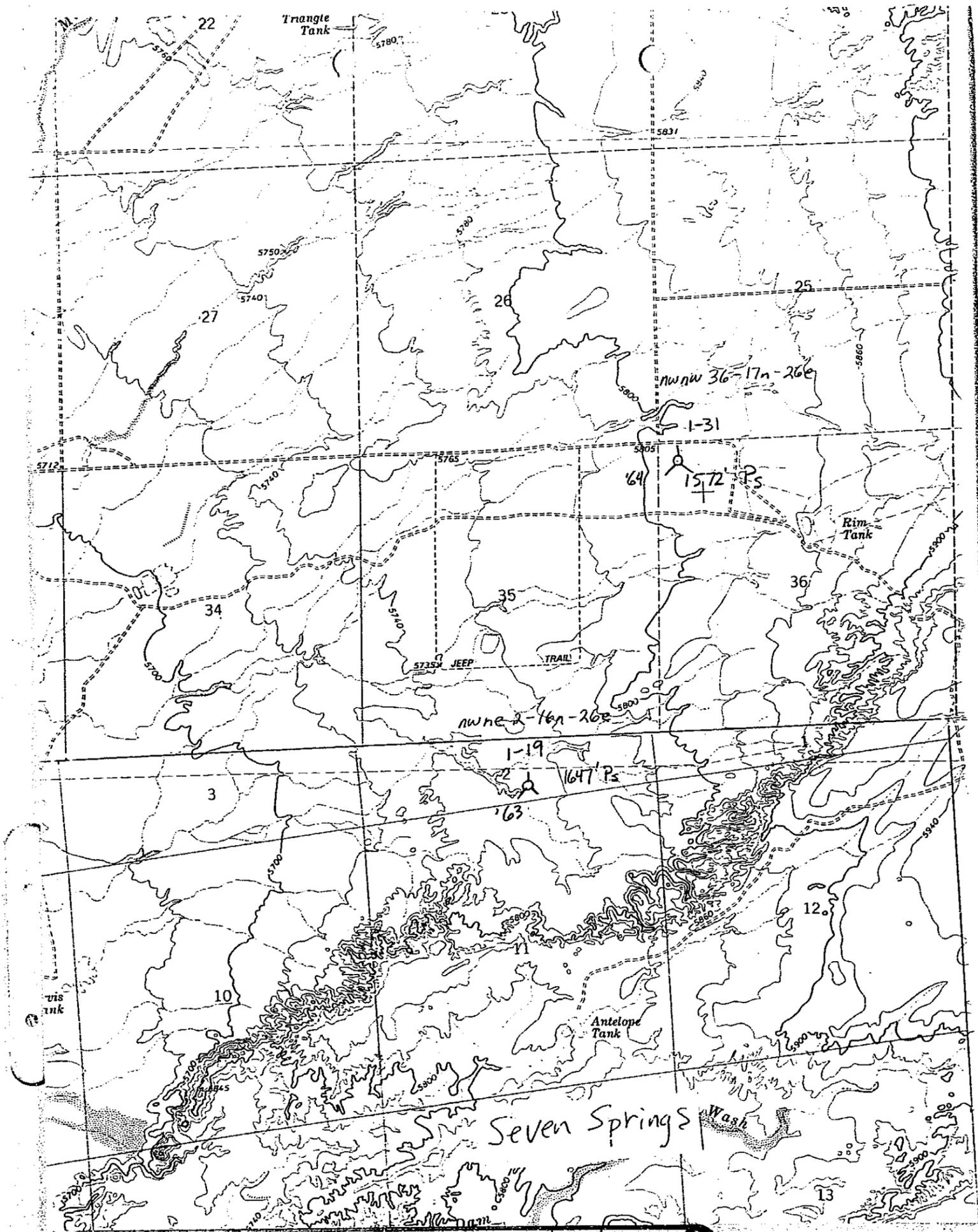


DATE		5-64	
SURVEYED	T.B.		
LAYERS			
DESIGN			
DRAWN	R.S.	5-64	
CHECKED			
SCALE	1" = 5000'		
DRAWING NO.	286-482F		

**LACY C. GREER**  
**ENGINEERING COMPANY**  
 HOLBROOK — ARIZONA

DRILLING SITE LOCATION  
 SEC. 30, T17N, R26E  
 APACHE COUNTY, ARIZONA

PREPARED FOR:  
 NATIONAL POTASH CO.  
 P.O. BOX 731  
 CARLSBAD, N.M.



June 1, 1964

Mr. A. A. Gustafson  
Box 24  
Port Sulphur, Louisiana

Re: National Potash Company Navajo No. 1 and No. 2  
Potash Tests

Dear Mr. Gustafson:

I certainly thank you very much for the information  
furnished on the above captioned tests.

Attached find a copy of "Oil, Gas and Helium in Arizona"  
and a set of our Rules and Regulations.

If you or any of your friends are interested in any  
area in Arizona that we can help you with, please call  
on us. We look forward to your visiting us some time  
in the future.

Sincerely,

John E. Petty  
Petroleum Geologist

JKP:mke  
Encl.

**NATIONAL POTASH COMPANY**

P. O. BOX 731  
CARLSBAD, NEW MEXICO

May 28, 1964

Mr. John K. Petty  
Petroleum Geologist  
Oil and Gas Conservation Commission  
Phoenix, Arizona

Dear Mr. Petty:

I am enclosing a copy of the completion form and plugging form, a copy of the drilling company's cementing record, logs of the formation above the salt and logs of the formation that was cored including analysis on samples analyzed; a plat of the hole location for National Navajo No. 1 and 2.

I enjoyed meeting you very much in Navajo and hope to see you again sometime. This completes all the information that we have on these holes. Any further correspondence you may have in regard to these holes should be addressed to Mr. T. O. Ferguson, President, National Potash Co., Box 731, Carlsbad, New Mexico. In case you should want to contact me, I can be reached at Box 24, Port Sulphur, La.

Another batch of the surface samples for Hole No. 1, which I had shipped to Carlsbad, will be forwarded to your lab at Farmington.

Very truly yours,

*A. A. Gustafson*

A. A. Gustafson

AAG:dc



vs Bonax Sen. Ming  
Loyell B. Page Geol  
Desert View  
Ballbrook

Geol -

Loc

1. NW/4 34-16-24
2. SE/4 36-17-25
3. 17-25



OFFICE OF  
**Oil and Gas Conservation Commission**

STATE OF ARIZONA  
ROOM 202  
1624 WEST ADAMS  
Phoenix 7, Arizona  
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~~EXECUTIVE SECRETARY~~  
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PETROLEUM GEOLOGIST

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ORME LEWIS  
MEMBER

January 24, 1964

C  
O  
P  
Y

Manager  
National Potash  
Carlsbad, New Mexico

Re: Minerals Exploration in Arizona

Dear Sir:

There are twelve mineral leaseholders and mineral owners who are interested at this time in the Holbrook, St. Johns, - Navajo area of Apache and Navajo Counties Arizona.

Seven of these have had representatives in this office who have said their companies would cooperate with us in letting us have the information asked for on the attached. We hope you will accomplish exploration and production in our state and cooperate with us. One company has already given me the samples as asked for on 8 holes. We are keeping the samples and other information tight until they release them.

Also attached are around thirty sample descriptions and drillers logs of wells in Navajo and Apache Counties which may be useful to you.

The rules and regulations are for Petroleum and Helium but the plugging also pertains to the mineral projects. The Arizona booklet on Oil, Gas and Helium has much information on the State.

Attached are some plugging and completion forms, of which we need one copy.

Hoping you'll have much success, I am

Yours truly,

JOHN K. PETTY  
Acting Executive Secretary

JKE/kmg