

P-W

DUVAL CORPORATION #4 STATE NO PERMIT
NW NE Sec. 2-T16N-R26E APACHE COUNTY 1-1

1-19

County Apache

Area Holbrook Basin

Lease No. State

Well Name Duval Corporation #4 State

Location NW NE Sec 2 Twp 16N Range 26E Footage 830' ^N FSL - 2290' FEL
Spud Completed Total
Elev 5753' Gr 5758' KB Date 11-8-63 Abandon 1-20-63 Depth 1647'

Contractor _____

Casing Size Depth Cement

4.5" 1362' _____

Drilled by Rotary _____
Cable Tool _____

Production Horizon _____

Initial Production _____

REMARKS Drilled as a potash test.

See file # for core lithology. (Footage 1368-1647')

Elec Logs Gamma Ray-Neutron; Induction-Electrical;
Applic. Plugging Completion
to Plug Record x Report x

Sample Log _____
Sample Descript. _____
Sample Set P-1337
Core Analysis _____
DSTs _____

Water well accepted by _____

Bond Co. & No. None

Bond Am't \$ _____ Cancelled _____ Date _____
Organization Report None

Filing Receipt _____ Dated _____ Well Book X Plat Book X

API No. None 02-001-05021 Loc. Plat _____ Dedication None

Permit Number None Date Issued _____

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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: DUNAL CORPORATION Address: 4715 E. FT. LOWELL RD. TUCSON, ARIZONA

Lease Name: _____ Well Number: 4 Field & Reservoir: _____

Location: _____ Sec.—TWP—Range or Block & Survey: _____

County: _____ Permit number: _____ Date issued: _____ Previous permit number: _____ Date issued: _____

Date spudded: 11-11-63 Date total depth reached: 1-20-63 Date completed, ready to produce: _____ Elevation (DF, RKB, RT or Gr.) feet: _____ Elevation of casing hd. flange feet: _____

Total depth: 1647 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: _____ Rotary tools used (interval): _____ Cable tools used (interval): _____

Was this well directionally drilled? _____ 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): _____ Date filed: _____

INDUCTION-ELECTRICAL LOG - GAMMA RAY-NEUTRON

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

TUBING RECORD

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

PERFORATION RECORD

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

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 bbls.	Gas prod. during test MCF	Water prod. during test bbls.	Oil gravity ° API (Corr)

Tubing pressure	Casing pressure	Cal'ed rate of Production per 24 hrs.	Oil bbls.	Gas MCF	Water bbls.	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 _____ 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.

Date: _____ Signature: _____

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION
Well Completion or Recompletion Report and Well Log
Form No. P-7 File two copies
Authorized by Order No. 4-6-59
Effective April 6, 19 59

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DUVAL CORPORATION
INTER-OFFICE MEMORANDUM

FROM NAVAJO

DATE 1/28/64

TO TUCSON

ATTENTION B. G. MESSER

SUBJECT: DUVAL #4

DATE STARTED	<u>11/11/63</u>
DATE COMPLETED	<u>1/20/64</u>
G.L. ELEV.	<u>5753</u>
K.B. ELEV.	<u>5758</u>
T.D.	<u>1647</u>
CASING	<u>1362</u>
ELEV. COCO.	<u>4816</u>
ELEV. TOP HALITE	<u>4386</u>
ELEV. TOP SYLVITE	<u> </u>

} 5' ADDED FOR K.B. DATUM.

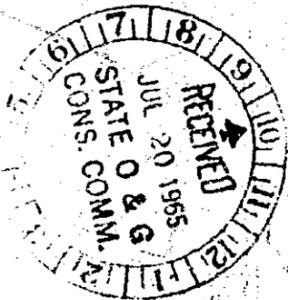
$$\begin{array}{r} 5753 \\ 4386 \\ \hline 1367 \end{array}$$

L.K.G.

SUMMARY OF FORMATIONS
RECOGNIZABLE IN DRILL HOLE CUTTINGS FOR CORRELATION IN THE
HOLEHOOK BASIN PROJECT

2160

Hole No.	Interval (feet)	Formation or Member
1	Ground elevation 5982' 0-1360 1360- 1767	Not determined Top of Coconino Supai, top of 1st marker Anhydrite
2	Ground elevation 5735' 0-50 50-455 455-483 483- 605 907- 947-1072 1072-1385 1385- 1462	Dune Sand Upper Petrified Forest Sonsela Lower Petrified Forest Top of greenish-grey unit Shinarump Lower Wupatki Coconino Supai Top of 1st marker Anhydrite
3	Ground elevation 5604' 0-100 100-145 145- 496 535- 560-694 694-1035 1035- 1115	Upper Petrified Forest Sonsela Lower Petrified Forest Top of greenish-grey unit Shinarump Lower Wupatki Coconino Supai Top of 1st marker Anhydrite
	Ground elevation 5753' 0-5 5- 172- 502 504- 555-940 940-1280 1280- 1355	Bidahochi Upper Petrified Forest Lower Petrified Forest Top greenish-grey unit Shinarump Lower Wupatki Coconino Supai Top of 1st marker Anhydrite



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DUVAL SULPHUR & POTASH COMPANY

POTASH DIVISION
CARLSBAD, NEW MEXICO

WHILE WE BELIEVE THIS INFORMATION TO BE
CORRECT, WE MAKE NO REPRESENTATION WITH
RESPECT TO, NOR DO WE ASSUME ANY RESPONSIBILITY
FOR, THE CORRECTNESS THEREOF.
DUVAL CORPORATION

CORE LITHOLOGY

WELL NO. 4

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	P	
						Abbreviations:
						H - Halite K - Kieserite
						A - Anhydrite Le - Leonite
						P - Polyhalite K - Kainite
						S - Sylvite L - Langbeinite
						C - Carnallite Med. g - Medium grained
						f.g. - fine grained, c.g. - coarse grained
						clr - clear incl. - inclusions
						occ - occasional
1368.0						Started Coring
1368.0	1371.8	3	8	1	99	A, gray; gray, clayey at base.
1371.8	1373.4	1	6	98	2	Clay-silt, top 0.3ft. red silty, hard; A, indurated (?); rest is brown, soft, very little gray clay.
1373.4	1373.5	0	1	10	90	A, gry to white, irregular; some soft brown clay, upper part.
1373.5	1373.9	0	4	96	4	Clay silt, brown, soft, lower third is hard, few very small white A blebs. <u>1373.9 is top of salts</u>
1373.9	1376.3	2	4	4	-	H, F. to C.G., some irregular small to large brown clay-silt incls.
1376.3	1378.4	2	1	3	-	H, clr, Med.G; few small brown clay incls, increasing down from 1% at top to 5% at bottom.
1378.4	1380.2	1	8	8	-	H, F. to Med.G.; some small to Med. brown clay incls.
1380.2	1380.8	0	6	50	-	Clay-silt, brown, medium, soft; some bands and irregular zones of H, F.G.
1380.8	1383.6	2	8	12	-	H, Med. G.; some small to large irregular Med. soft brown clay incls.
1383.6	1387.0	3	4	2	-	H, clr, Med. to C.G., few small red-brown clay incls, grading out down.
1387.0	1388.4	1	4	-	2	H, clr; Med. G., few large irregular gray A stringers near top and base.
1388.4	1390.7	2	3	-	90	A, Lt. gray; some H, F.G., in irregular zones.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 4

CORE LITHOLOGY

PAGE NO. 2

DEPTH (Feet)		INTERVAL Feet	ESTIM. %		DESCRIPTION
From	To		Shale	P	
1390.7	1391.2	0.5	-	5	H, clr, V.c.g.; few irregular white A stringers.
1391.2	1394.1	2.9	3	-	H, Med. to C.g.; some small to Med. g. brown clay incls., grading out down.
1394.1	1399.7	5.6	-	2	H, V. clr, c.g.; very few irregular Med. white A stringers; occ. very small red clay incl.
1399.7	1403.3	3.6	25	-	H, F. to Med. g.; some irregular small to V. large soft brown clay-silt incls. 0.1' band of clay at 1400.0'.
1403.3	1404.0	0.7	80	-	Clay, brown, soft, with irregular bands of H, F.G.
1404.0	1409.1	5.1	15	-	H, Med, g.; some irregular Med. to c.g. soft brown clay incls. 0.1' band clay at 1404.9'.
1409.1	1410.0	0.9	85	-	Clay-silt, brown, Med. hard; some very irregular H., F. to Med. g.
1410.0	1411.7	1.7	4	-	H, barely clr, Med. g.; few small brown clay incls., grading out down.
1411.7	1423.6	11.9	1	90	A, gray, lt. to dark; some irregular H, f.g. to Med., quarter inch dark green Med. soft clay parting at top.
1423.6	1424.7	1.1	-	-	H, v. clr., c.g.
1424.7	1426.9	2.2	15	1	H, f.g., intimately mixed with very small brn. clay incls.; a few large brn. clay incls. in lower 1/2, A 1" clay band at 1425.7; occ. small gray A. stringers in upper part.
1426.9	1428.3	1.4	60	-	Clay-silt, brn, soft; some irregular bands of H, f.g.
1428.3	1433.3	5.0	5	1	H, Med.; some small to Med. brn clay incls.; 1/4" white A stringer at base.
1433.3	1436.9	3.6	-	1	H, V. clr., c.g.; few small white A stringers; occ. small brn. clay incl. near top.
1436.9	1440.3	3.4	6	1	H, F. to Med. G.; some small to large brn to gray clay incls.; thin clay parting 1439.6; occ. white A. stringers.
1440.3	1441.3	1.0	-	3	H, V. clr., pink; white small-Med A stringers, occ. small pink P. bleb.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 4

CORE LITHOLOGY

PAGE NO. 3

DEPTH (Feet)		INTERVAL Feet	ESTIM. %		DESCRIPTION
From	To		Shale	P	
1441.3	1442.6	1.3	60	-	Clay-silt, brn, soft; some irregular H, f.g., zones.
1442.6	1449.1	6.5	12	-	H, F. to c.g.; some very small to large irregular gray in upper ft. to brown clay-silt, soft.
1449.1	1450.4	1.3	2	-	H, clr, c.g., very few small brn clay incl.
1450.4	1454.1	3.7	10	-	H, Med. to c.g.; some very irregular Med. to L. brn. clay incl.
1454.1	1454.3	0.2	80	-	Clay-silt, brn, soft; some H, Med.
1454.3	1456.0	1.7	11	1	H, Med.; some Med to large soft brown clay incl., grading from 20% at top to 2% at base; occ. small white A stringer in lower part.
1456.0	1458.2	2.2	2	-	H, clr, c.g.; few irregular brn clay incl.; occ. small white A stringer.
1458.2	1463.3	5.1	-	2	H, v. clr, Med. to c.g.; 1/2" gray A band at 1461.5, other small A bands and stringers.
1463.3	1464.1	0.8	10	-	H, f.g.; 5% brown clay, 40% clay in bottom 0.2'.
1464.1	1466.1	2.0	4	-	H, Med. few very small brn. clay incl. to large stringers in bottom 0.4'.
1466.1	1467.7	1.6	1	-	H, clr, c.g.; very few small brn clay incl., grading out down.
1467.7	1469.8	2.1	-	4	H, v. clr., v.c.g.; few small white A stringers, 1" white A band at 1469.6.
1469.8	1470.4	0.6	-	90	A, lt. gray; some irregular H, Med., decreasing down.
1470.4	1471.3	0.9	55	-	Clay, soft brn., 0.1' band at top, 0.3' band at base; remainder H, f.g., with about 20% soft brn. clay incl.
1471.3	1473.6	2.3	15	-	H, f.g. to Med.; some very irregular small to large soft brown clay incl.
1473.6	1475.8	2.2	20	-	H, F. to c.g.; small to large incl. and closely spaced 1/2" bands of clay-silt; brn.
1475.8	1479.4	3.6	5	-	H, Med. to c.g.; some irregular small to Med. brn. clay incl. grading from 8% at top to 2% at bottom.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 4

CORE LITHOLOGY

PAGE NO. 4

DEPTH (Feet)		INTERVAL Feet	ESTIM. %		DESCRIPTION
From	To		Shale	P	
1479.4	1482.2	2.8	2	-	H, clr., c.g.; very few small irregular brn. clay incls.
1482.2	1484.9	2.7	1	2	H, clr, c.g., few small white A stringers; occ. small gray clay incl. in upper part, little brn. clay in remainder.
1484.9	1488.3	3.4	2	1	H, clr., Med. to c.g.; few small brn to gray clay incls.; V. few small white A stringers in lower ft.
1488.3	1488.9	0.6	-	3	H, pink, Med.; V. small white A blebs.
1488.9	1489.0	0.1	100	-	Clay, brn, soft.
1489.0	1493.2	4.2	20	1	Fine grained mixture of H and brn. clay, some V. large irregular brn. clay incls.; occ. V. large gray A. bleb..
1493.2	1497.2	4.0	3	1	H, Med.; some small brn. to gray clay incls.; occ. Med. white A. bleb.
1497.2	1501.2	4.0	7	-	H, Med. to c.g.; brown clay parting at top, some small to L. brn. clay incls., decreasing down from 15% at top to 2% at bottom.
1501.2	1506.1	4.9	1	2	H, clr., c.g.; small brn clay incls. in upper half; few Med. white A stringers increasing down.
1506.1	1507.7	1.6	40	-	H, f.g.; brn. clay mixture; heavy bands of brn clay below 1506.3.
1507.7	1509.6	1.9	3	2	H, Med. to c.g.; some irregular Med. brn. to gray clay incls.; very few Med. white A. blebs.
1509.6	1511.7	2.1	-	1	H, Med, c.g., clr.; very few irregular Med. white A stringers; V. few small gray clay incls.
1511.7	1515.2	3.5	3	1	H, clr, Med.; few small-Med. brn clay incls.; occ. white A stringer in lower part.
1515.2	1519.8	4.6	-	1	H, V. clr, -pink, Med.; occ. small white A stringer.
1519.8	1521.7	1.9	2	85	A, white to gray; some H, clr, in upper part; 0.1' zone gray clay stringers at base.
1521.7	1522.4	0.7	80	-	Clay, brown, soft; few small bands of H, f.g.
1522.4	1525.6	3.2	10	1	H, Med. to c.g.; some small to large irregular red brn clay-silt incls. & stringers, grading out down; occ. small-Med. white A bleb.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 4

CORE LITHOLOGY

PAGE NO. 5

DEPTH (Feet)		INTERVAL Feet	ESTIM. %		DESCRIPTION
From	To		Shale	P	
1525.6	1531.6	6 0	-	2	H, clr. to V. clr., c.g., V. few Med. white A. stringers in lower $\frac{1}{2}$; occ. small brn clay incl.
1531.6	1532.2	0 6	2	96	A, gray; small brn. clay parting $\frac{1}{2}$ " above bottom.
1532.2	1532.5	0 2	-	3	H, clr. to pink, Med; few small tan s/p blebs in upper $\frac{1}{2}$.
1532.5	1533.5	1 0	5	-	H, f.g.; some V. small brn and gray clay incls., occ. med. brn. soft clay incl.
1533.5	1536.9	3 4	1	3	H, Med. to c.g. clr; few small to Med. white A blebs; few irregular small brn clay incls.
1536.9	1541.7	4 8	-	-	H, V. clr., c.g., slightly pink in upper part; few small red P.(?) blebs in upper $\frac{1}{2}$; occ. V. small white A bleb.
1541.7	1542.5	0 8	-	50	A, lt. gray; H, f.g. in middle
1542.5	1542.8	0 3	-	10	H, V. clr, f.g.; $\frac{1}{2}$ " white A band at base.
1542.8	1546.5	3 7	30	1	H, f.g.; some small to large V. irregular soft brn clay incls. 0.1' brn clay band at 1544.8; few V. small A. blebs.
1546.5	1552.1	5 6	60	2	Clay-silt, red-brn, soft; H, Med. to c.g.; few small white A blebs.
1552.1	1556.5	4 4	10	1	H, Med.; some irreg. small to large brn clay incls., grading out down; few small white A blebs and stringers in bottom 1.0'.
1556.5	1561.1	4 6	60	1	Clay-silt, brn, soft; several thin bands and irregular zones of H, f.g.; few small white A. blebs.
1561.1	1565.8	4 7	6	1	H, Med.; some V. irregular small to large brn clay incls.; $\frac{1}{4}$ " white A band at base.
1565.8	1566.1	0 3	-	1	H, clr, c.g., few small white A blebs.
1566.1	1569.5	3 4	4	1	H, Med.; few irregular small-large brn clay incls.; V. few Med. white A. incls.
1569.5	1571.6	2 1	2	-	H, Clr., Med. to c.g.; V. few small brn clay incls. grading out in upper $\frac{1}{2}$; occ. small A blebs.

DUVAL SULPHUR & POTASH COMPANY

WELL NO. 4

CORE LITHOLOGY

PAGE NO. 6

DEPTH (Feet)		INTERVAL		ESTIM. %		DESCRIPTION
From	To	Feet		Shale	P	
1571.6	1572.6	1	0	5	-	H, Med., $\frac{1}{2}$ " brn. clay parting at base; grades from 0% at top to 10% clay at base.
1572.6	1574.9	2	3	8	-	H, F. to Med. G.; some small to Med. soft brn. clay incls.
1574.9	1578.5	3	6	12	-	H, f.g. to Med.; some small to Med. soft brn clay incls., decreasing down from 20% at top to 5% at base.
1578.5	1580.7	2	2	65	1	Clay, brn., some small H. blebs, heavy H. band near base, 0.3' at 1580.0, few small white A. blebs.
1580.7	1583.4	2	7	2	-	H, f.g.; few Med. incls. brn. clay in upper and lower $\frac{1}{2}$ of interval.
1583.4	1588.1	4	7	8	-	H, Med.; some very irregular small to Med. brn. clay incls. and stringers; occ. white A. stringer.
1588.1	1596.8	8	7	-	1	H, V. cl.; occ. blue and V.c.g. H. incls.; $\frac{1}{4}$ " A. band at 1590.1, $\frac{1}{2}$ " gray A. at 1591.2; very occ. Med. brn. clay incl.
1596.8	1597.0	0	2	10	85	A, white, L. brn. clay incls.; occ. small H. bleb.
1597.0	1598.2	1	2	30	60	A, gray; some irregular H. f.g.; some large soft brn. clay incls.
1598.2	1601.9	3	7	70	-	Silt, tan to brn., hard; several thin H., Med. bands, increasing down.
1601.9	1606.8	4	9	10	-	H, Med. to c.g.; some V. irregular Med. to large brn. clay-silt.
1606.8	1609.5	2	7	4	2	H, Med.; few small to Med. brn. to gray clay incls., grading out down; few Med. white A. blebs.
1609.5	1612.6	3	1	60	1	Clay-silt, brn, Med.-soft; grades from 2% to 40% clay in upper $\frac{1}{2}$ '; some irregular zones of H.; occ. small white A. bleb.
1612.6	1620.7	8	1	9	-	H, Med. small to larger irregular brn. clay incls., grading out down; $\frac{1}{4}$ " clay parting at 1619.4.
1620.7	1629.3	8	6	-	95	A, gray to lt. gray; V. small H. incls.
1629.3	1633.5	4	2	70	-	Clay-silt, brn., Med.-soft; several thin zones of H., f. to c.g.; occ. small white A. bleb.

