M-d

DUVAL CORPORATION #16 STATE 1-48
CW/2W/2 Sec. 10-T18N-R26E APACHE COUNTY

County Apache

Area Holbrook Basin

Lease No.

Well Name Duval Corporation #16 State

Location CW/2W/2 Sec 10 Twp 18N Range 26E Footage 2640' FNL - 660' FWL

Elev 5705' Gr — KB Spud Date 1-29-64 ~~Completed~~ Abandon 2-15-64 Total Depth 1414'

Contractor

Drilled by Rotary
Cable Tool

Casing Size	Depth	Cement
4-1/2"	880'	

Production Horizon

Initial Production

REMARKS This hole drilled as a potash test.

See file for Core Lithology. (Footage 1233-1416')

Elec Logs Radioactivity Log;

Applic. to Plug ___ Plugging Record x Completion Report x

Sample Log
Sample Descript.
Sample Set P-1325
Core Analysis
DSTs

Water well accepted by

Bond Co. & No. None

Bond Am't $ Cancelled Date Organization Report None

Filing Receipt None Dated Well Book x Plat Book x

API No. 02-001-05049 ~~None~~ Loc. Plat ___ Dedication None (Strat)

Permit Number None Date Issued

#1-48

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: DUVAL CORPORATION	Address: 4715 E. Ft. Lowell Rd. Tucson, Ariz
Lease Name:	Well Number: 16 — Field & Reservoir:

Location: 2640' North & 660' E of S.W. Cor Sec. 10 — Sec.—TWP-Range or Block & Survey: T18N R26E

County	Permit number	Date Issued	Previous permit number	Date Issued
APACHE				

Date spudded	Date total depth reached	Date completed, ready to produce	Elevation (DF, RKB, RT or Gr.) feet	Elevation of casing hd. flange feet
1-29-64	2-15-64	2/15/64		

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.
1414			

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
RADIOACTIVITY LOG	

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

Tubing pressure	Casing pressure	Cal'ted 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

PLUGGING RECORD

Operator: DUVAL CORPORATION	Address: 4715 E. Ft. Lowell Rd. Tucson, Arizona
Name of Lease	Well No.: 16
Field & Reservoir	
Location of Well: 2640' NORTH & 660' E OF S.W. COR SEC. 10	Sec-Twp-Rge or Block & Survey: T18N R26E
County: APACHE	
Application to drill this well was filed in name of	Has this well ever produced oil or gas
Character of well at completion (initial production): Oil (bbls/day)	Gas (MCF/day)
Dry?	
Date plugged: 2-15-64	Total depth: 1414
Amount well producing when plugged: Oil (bbls/day)	Gas (MCF/day)
Water (bbls./day)	

Name of each formation containing oil or gas. Indicate which formation open to wellbore 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.

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

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.

Date .....

Signature .....

STATE OF ARIZONA OIL & GAS CONSERVATION COMMISSION

Plugging Record — File two copies

Form No. P-15

FORM 159

DUVAL CORPORATION

INTER-OFFICE MEMORANDUM

FROM NAVAJO, ARIZONA

TO ESPERANZA, ARIZONA

DATE February 28, 1964

ATTENTION B.G. MESSER

SUBJECT: DUVAL # 16 State

LOCATION: 660 FWL, 2640 FSL, S. 10, T. 18 N., R. 26E.
DATE STARTED: January 29, 1964
DATE COMPLETED: February 15, 1964
ELEVATION, G.L.: 5705
T.D.: 1414
CASING: 880
ELEVATION TOP COCONINO: 4867
ELEVATION TOP HALITE: 4435
ELEVATION TOP SYLVITE: 1351

5705
4435
1270

Hole No.	Interval (feet)	Formation or Member
13A	Fround elevation 5915'	
	0-100	(No samples)
	-155	Sonsela
	155-	Lower Petrified Forest
	564-	Top of greenish-grey unit
	840-977	Lower Hupatki
	977-1295	Coconino
	1295-	Supai
	1390-	Top of 1st marker Anhydrite
14	Ground elevation 6390'	
	0-100	(No samples)
	-315	Bidahochi
	315-	Upper Petrified Forest
	1090-	Lower Petrified Forest
	1312	Top greenish-grey unit
	1580-1740	Lower Hupatki
	1740-2080	Coconino
	2080-	Supai
	2203	Top of 1st marker Anhydrite
15	Ground elevation 6140'	
	0-85	Dune Sand
	85-170	Bidahochi
	170-	Upper Petrified Forest
	640-	Lower Petrified Forest
	1035-	Top of greenish-grey unit
	1265-	Shinarump
	1303-1453	Lower Hupatki
	1453-1760	Coconino
	1760-	Supai
	1830	Top of 1st marker Anhydrite
16	Ground elevation 5705'	
	30-	Lower Petrified Forest
	333-	Top of greenish-grey unit
	550-	Shinarump
	652-838	Lower Hupatki
	838-1145	Coconino
	1145-	Supai
	1249	Top of 1st marker Anhydrite

Form 3
2M Sheets 5-54

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. 16

DEPTH (Feet) From		DEPTH (Feet) To		INTERVAL Feet		ESTIM. % Shale	ESTIM. % A	DESCRIPTION
				Abbreviations:				H - Halite; Gyp. - Gypsum
								A - Anhydrite; C-S - Clay-Silt
								P - Polyhalite; med. g. - medium grained
								S - Sylvite; clr. - clear
								C - Carnallite; occ. - occasional
								f.g. - fine grained; V. - Very
								c.g. - coarse grained; incr. - increasing
								incl. - inclusions; decr. - decreasing
								irreg. - irregular; brn. - brown
1233	8							Start Coring.
1233	8	1241	1	7	3	95	5	C-S., brn., hard; few small to large irreg. white A/Gyp. blebs, 1" bands A at 1235.6' & 1236.4'.
1241	1	1241	4	0	3	-	100	A, gray.
1241	4	1242	3	0	9	97	3	C-S., brn. little gray; some irreg. med. A blebs.
1242	3	1242	5	0	2	-	100	A, gray.
1242	5	1244	7	2	2	100	-	C-S., brn., little gray at top.
1244	7	1244	9	0	2	-	100	A, gray.
1244	9	1245	9	1	0	98	2	C-S., brn., hard, little gray; few small-med. white A blebs; prominent 40° slickenside fracture plane at 1245.7'.
1245	9	1249	2	3	3	1	99	A, gray; 50% gray clay in top 0.1'.
1249	2	1250	7	1	5	98	2	C-S., brn, little gray; few small white A/Gyp. blebs.
1250	7	1252	7	2	0	90	10	C-S., brn., some gray; 25% A, gray in top 0.5', 0.3' of 10% A in bottom; well-developed slickenside at 1252.0'.
1252	7	1265	2	12	5	-	100	A, gray, mottled.
1265	2	1269	9	4	7	97	3	C-S., light brn., med. soft; 0.2' 50% gray A at top, grading out down, 0.1' zone of 20% A/Gyp. at 1267.9'.
1269	9			TOP OF SALT				
1269	9	1271	0	1	1	20	3	H, med.; many med. to large lt. brn. C-S. incls.; few small white A stringers & blebs.

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DUVAL SULPHUR & POTASH COMPANY

WELL NO. 16 — CORE LITHOLOGY — PAGE NO. 2

DEPTH (Feet) From		DEPTH (Feet) To		INTERVAL Feet		ESTIM. % Shale	ESTIM. % A	DESCRIPTION
1271	0	1272	0	1	0	65	-	C-S. brn., med. soft; some H, f.g. to med. incls.
								& schistose vertical veinlets.
1272	0	1274	4	2	4	25	-	H, med. g.; many small to large brn. to gray-green
								C-S. incls., 0.7' 60% C-S. zone at 1272.6'.
1274	4	1278	4	4	0	3	1	H, clr., med. to c.g.; few small red-brn. C-S. incls.;
								occ. small white A stringer.
1278	4	1280	8	2	4	-	60	A, gray incr. down from 30% at top to 90% at base
								some H , c.g. very thin clay partings at 1279.8'.
1280	8	1282	8	2	0	2	-	H, clr., med. to c.g.; occ. small red-brn. C-S.
								stringers.
1282	8	1284	1	1	3	8	-	H, med. - V. c.g.; few large brn. C-S. incls.
1284	1	1287	1	3	0	4	-	H, med. g.; afew small dark brn. C-S. incls. decr.
								down from 6% to 2%.
1287	1	1290	1	3	0	1	3	H, clr., med.; few thin white A stringers, irreg.
								band, 1/4" at 1287.7'; occ. small dark brn. C-S.
								incl. grading out down.
1290	1	1290	6	0	5	-	6	H, clr., med. g.; num. small gray A stringers & tan
								A/P incls.
1290	6	1292	8	2	2	55	-	C-S. brn., little gray & H, f.g. 0.3' C-S. band at
								1291.4', bottom third is 75% C-S.
1292	8	1293	9	1	1	6	2	H, f.g. to med.; some small to med. C-S., brn.
								incls.; few small white A blebs grading in down.
1293	9	1294	3	0	4	55	-	C-S., lt. brn. to gray incr. down from 20% at top
								to 90% at base; some H, f.g.
1294	3	1296	6	2	3	6	-	H, med. g.; some small to med. red-brn. C-S. incls.;
								occ. white A bleb in lower half.
1296	6	1298	0	1	4	45	1	H, med. & C-S. red brn., med. soft, 0.2' clay band
								at 1297.2'; occ. small white A stringer.
1298	0	1300	7	2	7	10	1	H, med. to c.g.; many med. to large brn. C-S. incls.;
								occ. V. small white A bleb.
1300	7	1302	5	1	8	15	-	H, med. to c.g.; much C-S. brn. incr. down from 10%
								at top to 20% at base.

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DUVAL SULPHUR & POTASH COMPANY

WELL NO. 16 — CORE LITHOLOGY — PAGE NO. 3

DEPTH (Feet) From		DEPTH (Feet) To		INTERVAL Feet		ESTIM. % Shale	ESTIM. % A	DESCRIPTION
1302	5	1303	5	1	0	75	-	C-S., Brn., med. hard; some H med.
1303	5	1307	9	4	4	6	-	H, med. to c.g.; some small to med. dark brn. C-S.
								incls.
1307	9	1315	1	7	2	-	90	A, lt. gray, H intergrowths in lower two-thirds.
1315	1	1317	5	2	4	4	3	H, clr.-tan, med. to c.g.; few small clay silt
								incls.; occ. thin gray A stringers thin partings at
								1316.5' &1317.3'; top 0.1' 40% A & 20% C-S.
1317	5	1318	5	1	0	8	-	H, f.g.; many small-med. brn. C-S. incls. ¼" part-
								ings at 1317.6' & 1318.1'.
1318	5	1321	9	3	4	65	-	C-S., med. to dark brn.; some H, f.g. as irreg.
								zones & tan schistose veinlets.
1321	9	1323	7	1	8	10	-	H, med. g.; some med. to large brn. C-S. incls.
								decr. down from 15% at top to 5% at base.
1323	7	1326	8	3	1	7	1	H, med.; some small to large dark brn. C-S. incls.
								incr. down from 4% at top to 10% at base; few small
								gray A incls. grading out in top half.
1326	8	1332	1	5	3	5	-	H, tan-clr. few small to med. dark brn. C-S. incls.;
								occ. small gray A bleb.
1332	1	1333	7	1	6	3	2	H, clr.-pink, med.-c.g.; few small brn. C-S. incls.,
								0.2' zone, 25% C-S. at 1332.7'; few small tan-gray
								A/P stringers in lower half.
1333	7	1335	1	1	4	70	1	C-S., lt.-dark brn.; some irreg. tan H, f.g. as
								zones & schistose veinlets grading out down ¼" irreg.
								gray A band at top.
1335	1	1339	0	3	9	8	1	H, f.g. to med.; some small to med. brn. C-S. incls.;
								occ. small white A bleb.
1339	0	1342	1	3	1	15	-	H, f.g. to c.g.;many med. to large brn. C-S. incls.
1342	1	1343	6	1	5	4	-	H, med.-c.g. clr. in lower half; few small dark brn.
								C-S. incls. grading out down.
1342	6	1344	0	0	4	25	-	H, clr. c.g.; several large brn. C-S. incls., 0.1'
								band at 1343.9'.

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DUVAL SULPHUR & POTASH COMPANY

WELL NO. 16 — CORE LITHOLOGY — PAGE NO. 4

DEPTH (Feet) From	DEPTH (Feet) To	INTERVAL Feet		ESTIM. % Shale	ESTIM. % A	DESCRIPTION
1344 0	1345 3	1	3	60	-	C-S. Brn., med. soft & H med. 0.4' 90% C-S. Zone at 1344.3'.
1345 3	1347 9	2	6	3	3	H, med. clr.; few small brn. C-S. incls. & gray A stringers.
1347 9	1349 4	1	5	3	7	H, clr., med.; few small gray A blebs & stringers, ½" bands at 1348.1' and at base; few small brn. clay incls. irreg. parting @ 1349.2'.
1349 4	1350 3	0	9	-	6	H, V. clr. to pink, med.; few small tan A/P stringers, 0.2', 30% zone at 1349.9'.
1350 3	1350 95	0	65	10	3	H, med.; some med. to large brn. C-S. incls.; few gray A stringers & irreg. partings.
1350 95	1351 35	0	40	1	3	H, med., clr.; some A stringers; V. few green clay blebs & partings.
1351 35	1351 90	0	55	-	1	H, clr., med., V. few milky red-rimmed S blebs; V. few A blebs & bands. Est. K20/S = 7%.
1351 90	1352 90	1	00	-	55	H, & H, clr., med., intergrown with A, gray; some S blebs & stringers. Est. K_2O/S = less than 1%
1352 90	1353 35	0	45	-	-	H, clr., med.; V. few milky red-rimmed S blebs; occ. A bleb. Est. K_2O/S = 1%
1353 35	1354 00	0	65	-	4	H, clr. med.; some A bands & blebs; few pink-milky S blebs. Est. K_2O/S = 14%
1354 00	1355 25	1	25	11	3	H, clr., med.; much brn. clay, some gray-green clay; V. few pink A/P blebs. Est. K_2O/S = less than 1%.
1353 35	1354 00	0	65	-	4	H, clr. med.; some A bands & blebs; few pink-milky S blebs. Est. K_2O/S = 14%
1354 00	1355 25	1	25	11	3	H, clr., med.; much brn. clay, some gray-green clay; V. few pink A/P blebs. Est. K_2O/S = less than 1%
1355 25	1357 30	2	05	4	-	H & S; S, mostly red-rimmed milky; some gray-green clay. Est. K_2O/S = 20%.
1357 30	1358 25	0	95	3	5	H, clr., med., pink cast due to A/P (?) incls.; occ. gray clay at top, disappearing down ward.

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DUVAL SULPHUR & POTASH COMPANY

WELL NO. 16 — CORE LITHOLOGY — PAGE NO. 5

DEPTH (Feet) From		DEPTH (Feet) To		INTERVAL Feet		ESTIM. % Shale	ESTIM. % Oil	DESCRIPTION
1358	25	1360	0	1	75	3	3	H, clr.-pink, med.; few small to med. brn. to gray-green C-S. incls.; occ. small gray A stringers & pink P blebs.
1360	0	1366	4	6	4	65	3	C-S., red-brn., med. soft decr. down, from 90% near top to 40% at base; H, med. g.; C, tan, vertical veinlets in bottom third; few small white A blebs, 50% zone in top 0.2'. Est. C = 4%
1366	4	1367	2	0	8	6	-	H, med. to c.g.; some med. to large red-brn. C-S. incls.; occ. tan C stringer. Est 1% C
1367	2	1368	1	0	9	2	-	H, clr.,med. g.; few small dark brn. C-S. incls.
1368	1	1368	8	0	7	15	2	H, med.; many med. to large brn.-gray C-S. incls.; few med. gray A stringers in bottom 0.1'.
1368	8	1371	2	2	4	3	5	H, tan, med. to c.g.; some small to large gray A stringers & tan A/P blebs,; few med. brn. C-S. incls.
1371	2	1372	5	1	3	4	3	H, med. to c.g.; some med. brn. C-S. incls.; few gray to tan A/P blebs, thin gray A parting at base.
1372	5	1376	9	4	4	1	2	H, clr. to tan, med. to c.g.; few small to med. gray-tan A/P stringers; occ. brn. C-S. incl. grading out down; thin A parting at 1376.5'.
1376	9	1377	2	0	3	3	50	H, med.; A gray incr. down from 10% at top to 90% at base; few brn. C-S. incls.
1377	2	1379	1	1	9	60	-	C-S., lt. brn.-red; some H, f.g. incr. down from 20% at top to 60% at base; occ. V. small white A bleb.
1379	1	1380	1	1	0	35	-	H, f.g.; many small to large lt. brn. to red C-S. incls.
1380	1	1383	5	3	4	15	-	H, f.g. to med.; some med. to large brn. C-S. incls. decr. down from 20% at top to 10% at base thin partings at 1381.0' & 1381.6'.
1383	5	1393	4	9	9	2	4	H, clr., f.g. to med.; few small white A blebs, 0.3' zone 20% A at 1388.7'; few small red-brn. C-S. incls.

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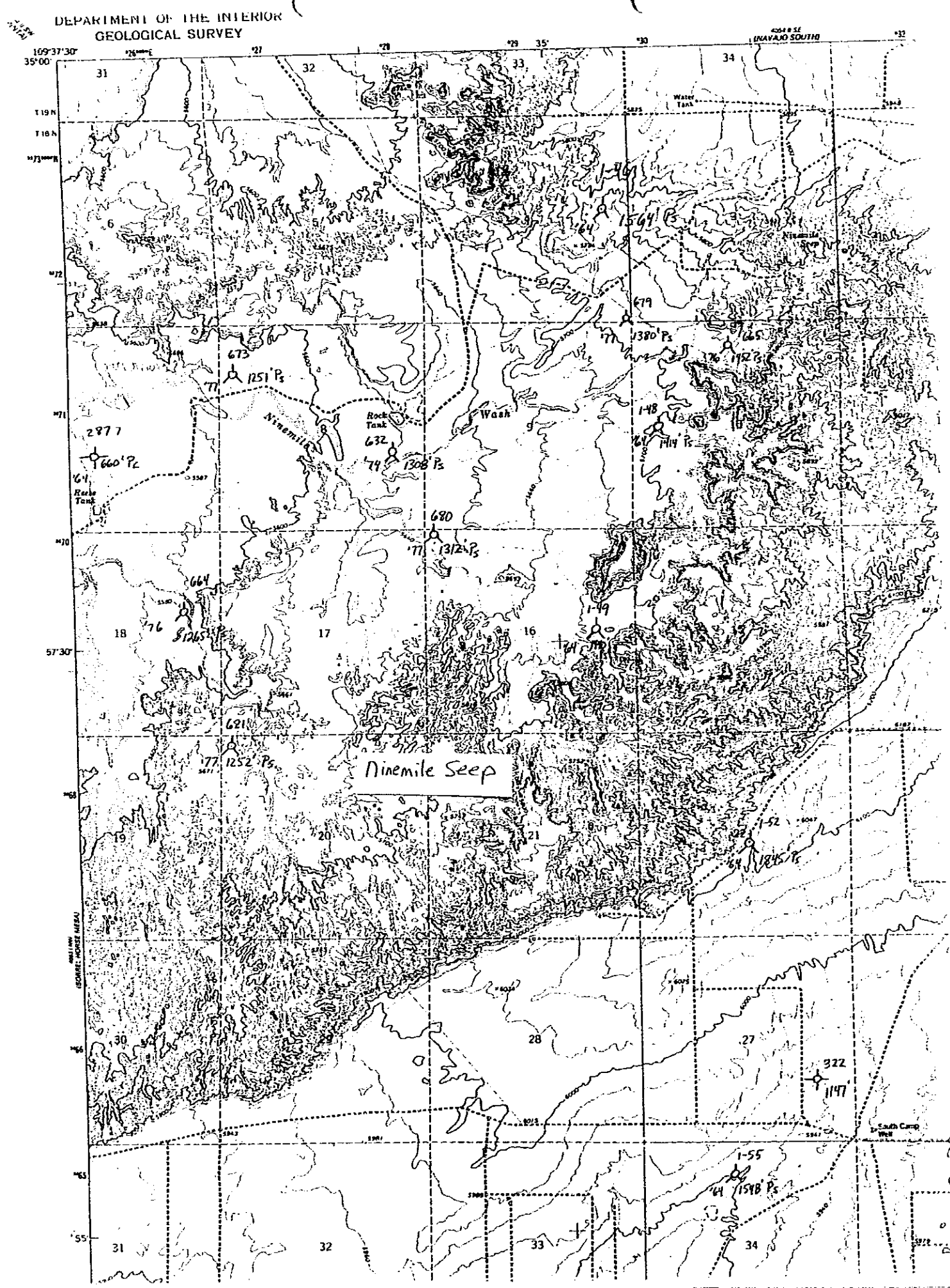
DUVAL SULPHUR & POTASH COMPANY

WELL NO. 16 — CORE LITHOLOGY — PAGE NO. 6

DEPTH (Feet) From		DEPTH (Feet) To		INTERVAL Feet		ESTIM. % Shale	ESTIM. % KA	DESCRIPTION
1393	4	1394	8	1	4	80	8	C-S., Brn., soft; some H, f.g., 0.2' zone 60% H at top; 0.1' white A band at 1393.6'.
1394	8	1398	5	3	7	3	3	H, clr., med. to c.g.; few gray A stringers in lower half;; few red-brn. C-S. incls. decr. down from 4% at top to 2% at base.
1398	5	1398	8	0	3	90	1	C-S., dark brn., V. soft; few H as vert. schistose veinlets; occ. white A bleb in bottom 0.1'.
1398	8	1399	6	0	8	8	1	H, med. g.; some small to med. brn. C-S. incls.; occ. small white A bleb.
1399	6	1400	7	1	1	3	-	H, clr., med.; few small to med. red-brn. C-S. incls.; occ. V. Small gray A bleb.
1400	7	1404	0	3	3	1	6	H, clr. to V. clr., med. to c.g.; some gray A stringers in bottom 0.8', thin partings at 1403.3' & 1403.8'; occ. small red-brn. C-S.incls.
1404	0	1404	9	0	9	-	30	H, clr., c.g. some large gray A stringers, ½" bands at 1404.1' & 1404.3' & 0.1' band at 1404.5'.
1404	9	1405	9	1	0	-	85	A, lt.gray, some small to med. H intergrowths.
1405	9	1407	6	1	7	80	-	C-S., lt. brn., soft; some H, f.g. to med. vert. schistose H veinlet in top half.
1407	6	1414	7	7	1	2	4	H, clr.-tan, med. g.; few small to large gray A stringers, irreg. ½" bands at 1410.8', 1411.6' & 1412.9'; num. other thin partings; few small dark brn. C-S. incls.
1414	7	1415	5	0	8	2	90	A, lt.-dark gray in bottom half; some H intergrowths in bottom 0.2', & occ. incl. in top 0;6'; few red C-S. stringers in top half.
1415	5	1416	0	0	5	3	3	H, tan, med. g.; few large gray A stringers; some small brown C-S. incls. in top 0.1'.
		1416	0					T.D.

LOGGED BY Karl E. Elvas


DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
109°37'30"
35°00'
NAVAJO SOUTH
Water Tank
Ninemile Wash
Rock Tank
Ninemile Seep
South Camp Well
T 19 N
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